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BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY™



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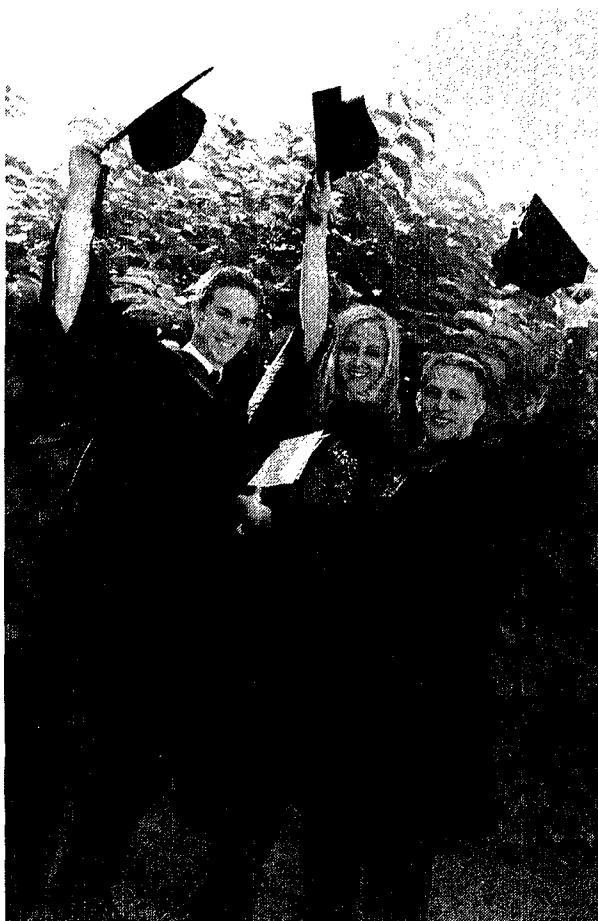
Call (800) 565-1211 or (604) 732-1211 or visit: www.cga-bc.org

Information sessions are held every Tuesday 1:30 - 2:30 pm in the Association's office 300-1867 West Broadway, Vancouver

The BCIT Mandate

BCIT will be a province-wide, innovative organization, specializing in advanced technology training and focusing on those initiatives that increase the level of economic activity, entrepreneurial activity and employment for the province. BCIT will:

- prepare dynamic, highly skilled members of the workforce by delivering full and part-time courses of study including:
 - certificate, diploma and degree studies in technologies and trades;
 - contracted industry training and upgrading courses.
- conduct technology transfer activities by providing opportunities for innovation, industrial assistance and contracted applied research.



The BCIT Mission

The Mission of BCIT is to provide British Columbians with world-class, job-ready skills for career success.

Changes to Curricula, Regulations and Services

BCIT is presently undergoing a number of program revisions to better serve our students with an increased focus on programs.

Although every effort is made to ensure that the contents of this calendar are accurate at the time of publication, BCIT reserves the right to make, without prior notice, whatever changes are deemed necessary to the programs of study, services or regulations. The Institute reserves the right to cancel any program or service.

This calendar is published for information purposes only. The calendar is not intended to be a complete statement of all procedures, policies, rules and regulations, nor is it to be construed as an irrevocable contract between the student and the Institute.

For the most up-to-date curricula please visit BCIT's Web site at www.bcit.ca.

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They Ask for Our Grads by Name

Smart companies today want people with the job-ready skills BCIT provides.

Smart companies today ask for our grads by name. Just check the career section in local newspapers—many companies specifically ask for BCIT credentials in their recruitment ads.

That's the kind of real-life support for BCIT that couldn't be passed up. Now the slogan "They ask for our grads by name" has become the marketing message for BCIT's diplomas and certificates.

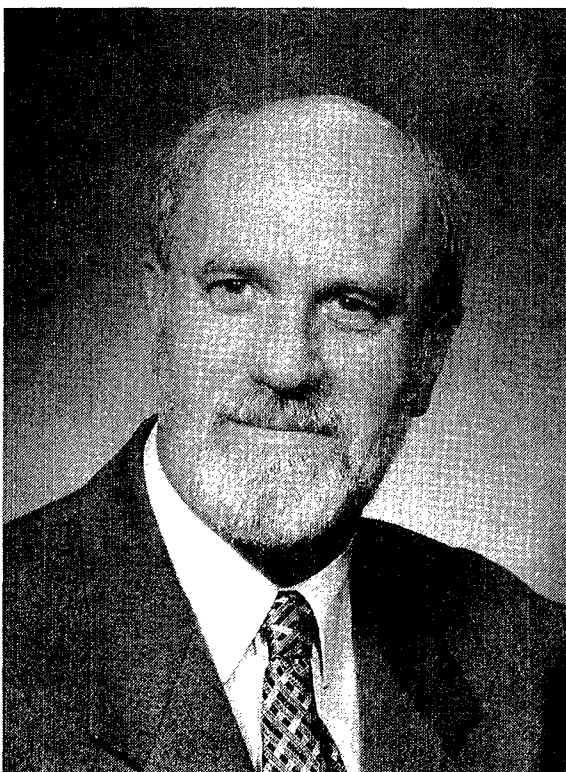
It's a slogan that goes right to the heart of BCIT's mission and provincial mandate. It reinforces the reputation and credibility of BCIT's job-ready programs to employers, students and parents.



We're proud of our programs, our graduates and our reputation in industry. BCIT has worked hard to ensure it is delivering the kind of job-relevant training companies want for their employees. That's why they ask for our grads by name.

—from BCIT Marketing and Public Affairs

Message from the President



Welcome to the British Columbia Institute of Technology.

Our provincial mandate is to focus on learning outcomes that advance economic, entrepreneurial, and employment activities for the benefit of all British Columbians. BCIT delivers full-time and part-time courses of study, including certificate, diploma and degree programs in technologies and trades.

This polytechnical Institute also provides corporate and industry training and upgrading, and conducts applied research involving technology transfer activities.

BCIT has an outstanding reputation for providing world-class, job-ready graduates who successfully compete in provincial, national and international marketplaces. Through applied skills training and partnerships with business and industry, we provide our students with both valuable knowledge and practical experience. That's why "they ask for our grads by name!"

I am confident your experience at BCIT will be positive and rewarding, and the training and education you receive here will serve you well. The BCIT community also offers many activities, services and opportunities to broaden your educational experience, and I encourage you to participate in all aspects of campus life. It's a great way to make friends and contacts you'll enjoy now and in the future.

On behalf of the faculty and staff at BCIT, I wish you every success in your academic studies and future endeavours.

A handwritten signature in black ink, which appears to read "Tony Knowles".

Dr. Tony Knowles
President

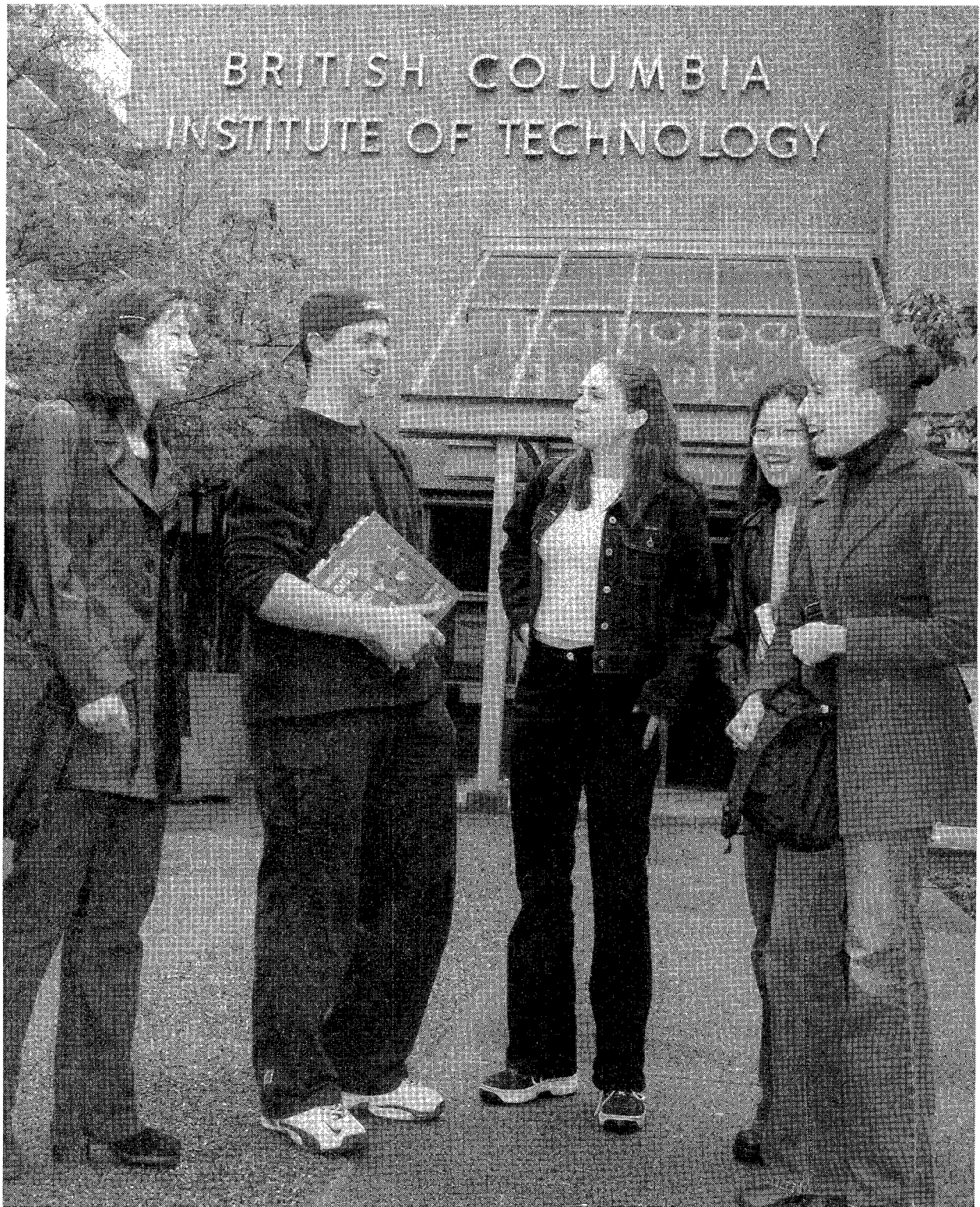


The Coat of Arms

BCIT's Coat of Arms was granted in the fall of 1996 and celebrates the Institute's degree-granting status. In designing the new Coat of Arms, the objective was to reflect the Institute's unique and highly valued characteristics.

The Coat of Arms is intended for use on diplomas, honorary awards, degrees and other awards of distinction.

BCIT's Coat of Arms bears the motto "To each their highest attainment."



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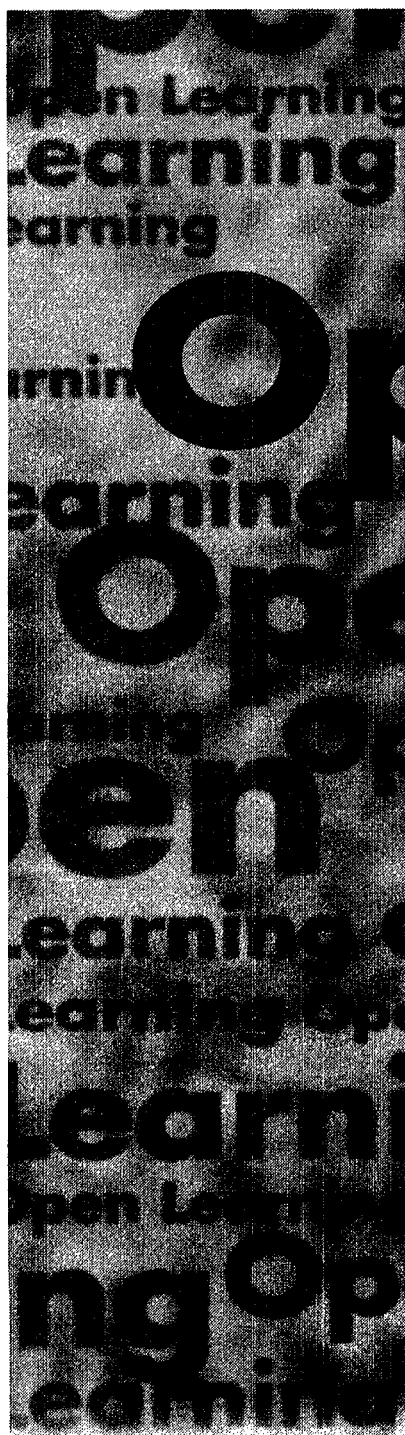
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1-800-663-9711 (Toll-free in Canada)

Fax (604) 431-3444

Email student@ola.bc.ca

Website www.ola.bc.ca/bcou





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Class Locations/Office Hours

1. Burnaby, Main Campus

(604) 434-5734

3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2

Full-time and Part-time courses and programs

Admission, Full-time programs:	(604) 432-8419
Admissions, Fax:	(604) 431-6917
Application Forms/Program Information:	(604) 434-1610
Registration, Part-time:	(604) 434-1610
Registration, Fax:	(604) 687-2488
or	(604) 430-1331
Student Records:	(604) 432-8498
Student Records, Fax:	(604) 431-0817
Refunds:	(604) 432-8212
Payments:	(604) 432-8732

Office Hours - Burnaby campus

Admissions/General Enquiries for Full-time Studies	
Monday to Friday	0830-1600
Saturday	Closed

Registration and Information - General Inquiries for Full and Part-time Studies

August 13, 2001 to May 4, 2002

Monday to Thursday	0830-1900
Friday	0830-1600
Saturday	0830-1230
Holiday weekends	Closed

May 6, 2002 to August 10, 2002

Monday to Friday	0830-1600
Saturday	Closed

2. Downtown Campus (DTC)

(604) 412-7777
555 Seymour Street
Vancouver, B.C. V6B 3H6

Fax: (604) 687-2488

Office Hours

When school is in session:	
Monday to Thursday	0830-1800
Friday	0830-1630

Summer Hours:

Monday to Thursday	0830-1730
Hours subject to change.	

3. Aerospace and Technology Campus

(604) 278-4831 Aviation Programs
(604) 278-0583 Electronics Programs
(604) 278-2693 Stores Department
(604) 278-4538 PTS/Industry Services
(604) 278-3519 Library
Fax: (604) 278-5363
Vancouver International Airport South
200 - 5301 Airport Road
Richmond, B.C. V7B 1B5

4. Pacific Marine Training campus

(604) 985-0622
265 West Esplanade
North Vancouver, B.C. V7M 1A5

Fax: (604) 985-2862

Satellite campuses

1. Langley Senior Secondary

(604) 432-8216
21405-56th Avenue
Langley, B.C. V2Y 2N1

2. New Westminster Secondary

(604) 434-1610
835-8th Street
New Westminster, B.C. V3M 3S9

3. Maple Ridge Senior Secondary

(604) 463-8794
21911-122nd Avenue
Maple Ridge, B.C. V2X 3X2

4. Dawson Creek

(604) 432-8543
School District 59
Peace River South
929-106 Avenue
Dawson Creek, B.C. V1G 2N9

5. Thomas Haney Centre

(604) 434-1610
2300-116th Avenue
Maple Ridge, B.C. V2X 0T8

6. Sir Charles Tupper Secondary School

(604) 434-1610
419 East 24th Avenue
Vancouver, B.C. V5V 2A2

7. Princess Margaret Secondary

12870-72nd Avenue,
Surrey, B.C. V3W 2M9

8. ANO Office Automation
 (604) 871-9521
 380 West 2nd Avenue
 Vancouver, B.C.
9. Kelowna Aerospace Campus
 (604) 816-4139
 Kelowna Airport
 5585 Highway 97N
 Kelowna, BC, V1V 2K4
10. Abbotsford Campus Aviation Program
 (604) 504-3657
 30750 Threshold Drive
 Abbotsford, BC, V2S 4N9
11. Rutland Senior Secondary School
 (250) 765-1407
 650 Dodd Road
 Kelowna, BC, V1X 2X3

The 24-Hour Clock	
0001-12:01 a.m.	1300-1:00 p.m.
0100-1:00	1400-2:00
0200-2:00	1500-3:00
0300-3:00	1600-4:00
0400-4:00	1700-5:00
0500-5:00	1800-6:00
0600-6:00	1900-7:00
0700-7:00	2000-8:00
0800-8:00	2100-9:00
0900-9:00	2200-10:00
1000-10:00	2300-11:00
1100-11:00	2400-12:00 midnight
1200-12:00 noon	

Freedom of Information/Protection of Privacy (FOI/POP)

The British Columbia Institute of Technology gathers and maintains information used for the purposes of admission, registration and other fundamental activities related to being a member of the BCIT community and attending a public post-secondary institution in the province of British Columbia. In signing an application for admission, all applicants are advised that the information they provide and any other information placed into the student record will be protected and used in compliance with the Freedom of Information and Protection of Privacy Act, S.B.C. 1992.

Release of student information to a third party will require written authorization from the student with the student's original signature on the document (photocopies will not be accepted).

Personal Data

It is the student's responsibility to ensure that all personal data on file is accurate. All address changes, name changes, etc. must be reported in writing to either the Registration and Information department or Student Records department at the Burnaby campus or at the Downtown campus.

Refund Deadline

It is the student's responsibility to check the refund deadline dates in this calendar. Please see refund section on page 36 This information can also be obtained from Registration and Information, or the Cashier, ground floor SW1 Building.

AIDS Policy

It is the policy of BCIT that there shall be no discrimination against any person at BCIT known or suspected to have AIDS, or to be infected with HIV. While BCIT's policy does not require mandatory testing for AIDS, it should be recognized that BCIT has no control over the policies of external agencies employing BCIT students and/or graduates.

Harassment and Discrimination Policy

BCIT and its management, together with the unions and the Student Association, are committed to providing an environment where the individual differences of all students and employees are valued and respected – an environment free from harassment and discrimination.

The Definitions

BCIT's Harassment and Discrimination Policy prohibits discrimination or harassment on the following grounds: race, colour, ancestry, place of origin, political belief, religion, marital or family status, sexual orientation, physical or mental disability, gender, age and unrelated conviction.

Harassment

Harassment is a form of illegal discrimination that can occur on any of the grounds mentioned above.

Sexual Harassment

Unwelcome sexually-oriented conduct including innuendo, offensive remarks, jokes or physical contact.

Personal Harassment

Misuse of authority or abuse of power by an individual or a group of individuals, intended to demean or intimidate.

continued next page

Discrimination

Discrimination is the refusal to employ or continue to employ any person on the grounds described above. It also refers to the denial, on the above grounds, of any benefit or opportunity that is customarily available to the public.

Disabled Access

BCIT is committed to providing students with disabilities with equal opportunity to maximize their potential in our educational setting. For more information please see the "Services" section of this calendar.

BCIT Policy on Abusive or Threatening Behaviour

Introduction

BCIT's campuses are used by many groups and individuals including students, staff and visitors who have business with BCIT. BCIT acknowledges that individuals on campus are not expected to tolerate threatening or abusive behaviour from anyone.

Policy

BCIT will not tolerate violent, intimidating or abusive behaviour that threatens the safety of its students, employees and/or visitors. Individuals who act in a threatening or abusive manner, whether verbally or physically, will be asked to leave the BCIT premises immediately and will forfeit the right to conduct campus business and access Institute services.

BCIT Policy on Conduct and Attendance

It is assumed that all students enrolled at the British Columbia Institute of Technology are interested in pursuing an intense program of studies and are prepared to conform to all regulations.

1. The Institute is committed to create and maintain an environment that is conducive to learning. In doing so, students are expected to conduct themselves appropriately at all times, respecting other's rights, property, environment, health and safety, and are held responsible for their individual and collective actions. An instructor who believes a student's conduct in the classroom is detrimental to the course goals, objectives and learning outcomes may assign the student a failing grade for the course. For misconduct outside the classroom, the Dean may recommend to the President suspension from further attendance. The President has the final power to suspend or expel a student for disciplinary reasons. A student expelled or suspended for misconduct will not be permitted on Institute grounds or buildings.
2. Honesty is expected and required of all students. This implies fairness, straight forwardness of conduct, academic integrity, adherence to the facts and trustworthiness. Acts of cheating, plagiarism and dishonesty are not tolerated; the degree of

punitive action may range from a written warning to expulsion from the Institute. These penalties may also be applied to students who knowingly contribute to the act of dishonesty, cheating and plagiarism.

Definitions

2.1 Cheating: means to knowingly violate rules designed to ensure academic honesty and includes, but is not limited to:

- a) the copying or other use by one person of another person's work during an examination, test, or other form of assessment;
- b) the unauthorized use of materials or information whether physically or electronically stored during an examination, test, or other form of assessment;
- c) the bringing into an examination, test, or other form of assessment any unauthorized information or materials and having ready access to same.

2.2 Plagiarism: means the presentation by a student of materials or work prepared by another person or persons, as the student's own work and without reference credits. It includes, but is not limited to:

- a) literary theft;
- b) presenting as new and original an idea or product derived from an existing source;
- c) failing to expressly acknowledge research or preparation conducted in whole or in part in respect of a term paper, project, report, or other form of assessment other than the student claiming authorship to the term paper, project, report or other form of assessment.

2.3 Dishonesty: includes, but is not limited to, any unauthorized action or conduct of a student in a clinical, industry or laboratory work situation where the student allows other person(s) to complete his or her tasks and fails to report or explain same to his or her supervisor or instructor.

3. The Institute is not responsible for debts incurred by student organizations.
4. If, through carelessness or negligence, a student damages Institute property, the student will be held responsible. If the damage is caused by students whose names are not known, the cost of repairing the damage may be assessed equally among all students enrolled at the Institute.
5. A student will not be permitted to borrow or remove any apparatus or tools except by written authority of the president or his delegate.
6. General supervision over all forms of entertainment given under the auspices of a student organization comes under the jurisdiction of the president.
7. It is the policy of BCIT to rely on the judgment of students to maintain a reasonable standard of dress and appearance. The choice of dress is left to the individual student, subject to the following considerations:
 - a) in some field trips and laboratory situations, safety considerations require that special head gear, shoes or other clothing and other safety equipment must be worn;

- b) where programs involve regular periods of scheduled experience in industry or hospital for example, students may be required to wear uniforms or otherwise dress themselves in the appropriate manner acceptable to the affiliating agency. Based on experience to date, BCIT faculty believe that there is a positive relationship between general dress standards and employment of graduates. Faculty are prepared to advise students in the area of acceptable attire.

Attendance Policy

Regular attendance in lectures, seminars, labs, clinical and shop periods is seen as critical to student success, and will be monitored by faculty. Excessive absence may result in failure or immediate withdrawal from the course or program.

Student Responsibility

1. In case of illness or other unavoidable cause of absence or lateness, students must communicate as soon as possible with their program head or chief instructor, indicating the reason for absence. Failing to give an acceptable reason for being absent or late will result in the student having an "unexcused absence" for that day.
2. Prolonged illness of three or more consecutive days must have a doctor's certificate sent to the program head or chief instructor substantiating the absence. Failure to provide a certificate will result in these absences being unexcused.
3. Excused absences are limited to 10 per cent in most programs. Some programs are limited further. Please check with your individual program area to determine maximum excused absences permitted.

The following guidelines give the normal conditions whereby students may be prohibited from completing their program or courses.

Trade Programs

1. Students who fail to report absences of three or more days to departments.
2. Students who are absent for any cause, for more than 10 per cent of the course/program.
3. Students who are late for any cause on an average of more than once per month.

Technology Programs

Students who are absent for any cause, other than substantiated illness, for more than 10 per cent of the time prescribed for the course/program.

Special Regulations

In certain programs/courses, special regulations may apply governing attendance; these will be stated in the course outline.

Appeals

For more details on appeal procedures, please contact the Registrar's office at (604) 432-8848. Also see section on Reassessment of Academic Standing in this calendar page 29.

Computer Ethics

"Code of Ethics" on access to Computer Resources at the British Columbia Institute of Technology.

In the following statement, a "user" is any person who makes use of any computer owned or operated by BCIT. A password is a code word or number that identifies a user to a computer; that is, knowledge of a password recognized by a particular computer allows a person to use that computer (just as knowledge of the correct combination allows one to open a safe)

Access to BCIT computer equipment is authorized only for those persons doing work for which that equipment was acquired. Users should be guided by the following:

- a) Do not attempt to discover other users' passwords, or to use any password discovered by chance. Take all reasonable precautions to prevent anyone from discovering your password. Report immediately any suspected "leak" of a password so that it may be changed. (Where two or more persons use the same password, which may be necessary on group projects, all persons are responsible for that password.)
- b) Do not attempt to read or copy any information stored on the computer system unless explicitly authorized to do so. This includes information which has been stored by Computer Resources, by other computer users, by a commercial vendor or by any other party.
- c) Do not use institute computer facilities for non-institutional projects, or for personal or commercial purposes, unless written authorization has been received from the Information and Computing committee.
- d) Do not move any computing equipment, and be extremely careful to avoid damage.

Users of the computer systems are cautioned that violation of the above rules may disrupt service to themselves and others. Furthermore, it could violate a copyright or other non-disclosure agreement into which BCIT has entered.

Computer Resources staff who have access to information owned by users of the system will treat all such information as strictly confidential.

Board of Governors

Chair

Julia Blockberger

Vice Chairs

Irma Mohammed

Mark Angelo

Appointed Members:

Julia Blockberger

Shannon Cooper

Tim Eaton

Sandra Ford

Shiv S. Garcha

Eleanor Jang

Anne Lippert

Irma Mohammed

Ronnie Phipps

Avtar Sandhu

Paulette Seymour

Peter K-S So

Ken Spencer

Gordon Winter

Elected Members:

Mark Angelo: Member elected by the faculty

Steve Corrie: Member elected by the students

Victoria Wills: Member elected by the students

Michelle Phillipe: Member elected by the support staff

Ex Office: Dr. Tony Knowles

Alison Dewhurst

Secretary to the Board: Phyllis Johnson

Academic and Administrative Personnel

Executive

Dr. Tony Knowles, B.Sc. (Hons), Ph.D., President

Vice President, Education, TBA

Vice President, Finance, TBA

Gerald Moss, M.Sc., Ph.D., Vice President, Student Services and Educational Support

Neil Howard, B.A., Vice President, External Affairs

Deans

Tony Barren, B.Sc., Ph.D., P.Eng.,

Dean, School of Construction,

Marshall Heinekey, Dipl.T., B.Tech., Dipl Adult Ed., MBA, AScT.,

Dean, School of Process, Energy and Natural Resources

Dennis Duffey,

Dean, School of Electrical and Electronic Technology

George Eisler, M.A.Sc., P.Eng., M.B.A.,

Dean, School of Health Sciences

Gordon Farrell, Dipl.T., M.B.A., F.C.M.A.,

Dean, School of Business

Ken Takagaki, B.A. (Hons), Ph.D., C.M.A., C.D.P.,

Dean, School of Computing and Academic Studies

Trevor Williams, B.Sc., M.Sc. (Mech.Eng.), P.Eng.,

Dean, School of Manufacturing and Industrial Mechanical

Lane Trotter, B.A., M.P.A.,

Dean, School of Transportation

Administrative Personnel

Henry Arthur, B.A. (Hons.), M.A., Executive Director,

International Education

Dr. Zafar Essak, M.D., Director Medical Services and Counselling

Laurie Clarke, Ed. Dipl., NSFRE, Executive Director,

BCIT Foundation and Alumni Association

Mario Mazziotti, Dipl.T., B.Sc., Director, Institutional Research and Planning

Jim Mitchell, Director, Student Services

Mehran Kiai, P.Eng., Director of Industry Training Services

Brigitte Peter-Cherneff, B.A., P.D.P., M.L.S., Institute Librarian

Norman Streat, B.Sc.Eng., Ph.D., Director, Technology Centre and Dean, Applied Research

Admissions Registration and Information

The Admissions department and the Registration and Information department are located in Building SW1 on the first floor, room 1305.

Already applied to a full-time program?

Full-time Admission/Status Information: (604) 432-8419

Admissions fax: (604) 431-6917

Thinking about applying to a full-time program?

Application forms and program/course information:

(604) 434-1610

Want to register for a Part-time Studies course?

Part-time registration: (604) 434-1610

Registration fax: (604) 687-2488

or (604) 430-1331

The Admissions department receives and processes all applications for full-time programs.

The Registration and Information department registers students for part-time studies courses, answers general information inquiries, arranges appointments for Program Advisors and Counsellors, and refers inquiries to specific areas of the Institute for further assistance.

Note: Registration for part-time courses can be made by phone, in person, by fax or mail, or via the Internet.

Inquiries for program information, application forms and/or publication requests should be directed to Registration and Information at (604) 434-1610. Inquiries from outside the greater Vancouver area may use the toll-free number 1-800-667-0676, Monday to Thursday, 1300-1600.

Note: The toll-free number is for British Columbia inquiries only.

Office hours are currently under review and may be subject to change.

Admissions (Full-time Program Inquiries)

Monday to Friday

0830-1600

Registration and Information (Full and Part-time Courses Inquiries)

August 13, 2001 to May 4, 2002

Monday to Thursday 0830-1900

Friday 0830-1600

Saturday 0830-1230

Closed on holiday weekends

Summer: May 6, 2002 to August 10, 2002

Monday to Friday 0830-1600

Saturday Closed

Please see our advertising supplements (flyers) for specific dates.

Senior Staff

Anna Dosen, Supervisor; Admissions, Full-time Programs
Phillipa Dermott, Acting Supervisor, Part-time Registration
and Information Services

Student Records

Located on the first floor of Building SW1, room 1585.

General Inquiries: (604) 432-8498

- transcript requests
- course credit evaluation
- letters of verification
- graduation eligibility
- full-time and part-time student records

Student information changes:

(address, name, etc.) (604) 432-8353

Student Records, Fax (604) 431-0817

Senior Staff

Karen Tatham, Coordinator, Student Records Operations
Stacy Robertson, Coordinator, Student Records Systems

Systems

The Systems department is responsible for maintaining the Registrar's office systems.

Dawna Mackay, Banner Systems Coordinator
Michelle Philippe, B.Sc., Dipl. T., Registrar's office
Systems Coordinator

Timetabling

The timetabling department produces the Institute's master timetables for all full-time and part-time programs and full-time technology examinations. Requests to use campus facilities by external users should be directed here.

General Inquiries: (604) 432-8451

Fax: (604) 435-0928

Office Hours (Monday to Friday): 0830-1630

Senior Staff

George Brown, Supervisor



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*This special offer is just for BCIT students – you need to be a full time student enrolled at BCIT. Just present your BCIT OneCard. Seasons pass is valid from September 11, 2000 to May 31, 2001.

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Admission: Full-time

Burnaby is our main campus and primary location for processing applications and maintaining permanent student records.

The Office of the Registrar operates under Institute-approved policies and procedures. This information is available at all campus locations.

Admission Policy

Prompt and equitable attention will be given to all applications. In those programs where the number of applications exceeds available seats, BCIT will select those applicants deemed to have the best opportunity for success. Applicants will be considered for one program at a time.

BCIT's primary purpose is to provide high-quality, post-secondary technological and vocational education and training to the residents of British Columbia and Canada. National Diplomas and Certificates are offered in more than 132 full-time programs.

Applicant priority is given first to B.C. residents who are Canadian citizens or landed immigrants and who have lived in B.C. for the immediate 12 months prior to enrolment. Second priority is given to out-of-province Canadian citizens or landed immigrants, or B.C. residents who are Canadian citizens or landed immigrants who have lived in B.C. for less than the immediate 12 months prior to enrolment. Third priority is given to applicants without Canadian Citizenship or Landed Immigrant (Permanent Resident) status.

All applicants must provide official proof that they meet Institute and program prerequisites. Applicants lacking specific prerequisite courses or required grades will be advised of deficiencies in entrance requirements. It is the applicant's responsibility to upgrade deficiencies to required standards for the program for which they are applying. All applicant documentation must be supplied in the English language. Translations into English are at the applicant's expense. Applicant documentation will not be returned to applicants and become the property of BCIT. Copies should be retained by the applicant for future use.

Final acceptance or non-acceptance by BCIT is the decision of the Registrar. BCIT reserves the right to accept only those applicants who appear to have the greatest capability to succeed in their chosen programs.

Admission: How to Apply

The Application for Admission form and all official supporting documentation should be submitted as early as possible to the Admissions department, because spaces are limited in most programs. Application forms and information are available from BCIT Registration and Information, Tel. (604) 434-1610. The application fee of \$30 must be paid at the time of application. Applications received without the \$30 fee will be returned and not processed. Applicants are considered for only one program at a time. Applicants may indicate a first and second choice in order of preference.

Note: The application fee is currently under review and may be increased for applicants applying to programs beginning in August/September 2000.

Applications may also be made through the Internet. To apply access the Web site at: www.bcit.ca and go into the "Programs" link. Applications sent through the Internet will not be processed until the application fee of \$30 is received. You must pay the \$30 application fee as part of your Internet application submission, or your application will not be processed.

Admission: When to Apply

Applications are accepted year round. However, applications received prior to the processing dates noted below are held until the date stipulated.

Note: Application processing dates are currently under review and are subject to change.

Admission:

Intake Period	Processing Period Begins (Nursing has processing deadlines)
Medical Radiography:	
January 2001	January 2000
January 2002	January 2001
Electronic Engineering Technology:	
January 2001	June 2000
September 2001	October 2000
January 2002	June 2001
Nursing	
January 2001	June 1, 2000 - August 31, 2000
August 2001	October 1, 2000 - January 31, 2001
January 2002	June 1, 2001 - August 31, 2001
Technology Entry (TE) Program	
January 2001	June 2000
May 2001	October 2000
September 2001	October 2000
January 2002	June 2001
May 2002	October 2002
All other Technology programs beginning in August/September	
October 2000	August/September 2001

Admission: Trades Programs

Applications for admission to Trades programs are received and processed year-round, on an ongoing basis.

Applicant Status Categories

Candidates making application will be informed of their status in writing according to the following guidelines:

Offer of Admission

Applicants who are selected to receive an Offer of Admission will have been deemed the most suitable candidates for the program. Selected applicants will receive either a full offer of admission or a provisional offer of admission.

A full offer will be granted to selected applicants who completely meet Institute and program admission criteria.

A provisional offer will be granted to selected applicants who have demonstrated to a satisfactory degree that admission criteria are in the process of being fulfilled. A provisional offer includes the condition that all outstanding criteria must have been successfully fulfilled 30 days prior to the start of classes. It is the responsibility of the applicant to ensure that all admission criteria are met as prescribed by this deadline. Applicants maintaining a provisional offer of admission will be excluded from their program classes until official proof that all criteria have been successfully completed is submitted to the admissions department.

All selected applicants must accept their full or provisional offer of admission by paying a commitment fee to confirm their intention to attend. Failure to accept an offer of admission will result in cancellation of the offer and application. The Institute has the right to cancel an offer of admission at any stage if any or all conditions of admission and payment as specified by deadlines are not fulfilled. Details of commitment fee requirements are outlined in the offer of admission letter.

Wait List

When all seats in a program are filled, a wait list of qualified applicants is created. If a space becomes available, an applicant on the wait list will be offered the seat. For Technology programs and a few Trades programs, wait lists are not transferred to subsequent intakes. (That is, applicants must re-apply for the next intake).

Applicants to most Trades programs are normally wait-listed on the date their application becomes complete. A complete application is one that has submitted proof that all program entrance requirements have been met. Once added to the wait list the applicant will remain on the wait list until a space becomes available (in this case, applicants do not need to re-apply to subsequent intakes). If there are more applicants than seats available, programs may have a competitive selection process. For information on which Trade programs have wait lists to subsequent intakes and which require a re-application please contact Registration and Information at (604) 434-1610.

Non-acceptance

The applicant is not selected to receive a full or provisional offer of admission and/or the program is full and closed (seats and wait list full).

Academic Requirements for Admission

Guidelines are established for admission to promote student success in programs. Most programs require Grade 12 graduation with specific Grade 11 and Grade 12 subjects. Grade 10 is the minimum entrance requirement for some programs, however, employers may require Grade 12 graduation as a condition of employment. BCIT will take appropriate combinations of education and experience into consideration.

General Education Development (GED)

Applicants who complete the General Education Development (GED) or the Basic Training for Skills Development level 4 successfully will be considered to have the equivalent of Grade 12 graduation with English 12 (Pass).

Provincial Adult Basic Education (ABE) Diploma

The Provincial Adult Basic Education (ABE) diploma is considered to be equivalent to BCIT general prerequisites; that is, graduation from senior secondary school. Applicants should check with the Admissions department to ensure courses taken through the ABE program are acceptable for admission to BCIT.

English Language Proficiency

Since all BCIT students must possess an acceptable level of English language skill, applicants whose first language is not English and who have not graduated from a B.C. Senior Secondary School (with the required level of English 12 as designated by the individual Program's entrance requirements) will be required to demonstrate their competence in one of the following ways:

1. Individual assessment by the BCIT Communication department. To undergo this assessment, applicants are required to register for the following course: COMM 0015. In person Registration for this course is available through the Registration and Information department (SW1 - 1300), or by calling 434-1610.
2. By successfully completing a BCIT Pre-Entry Communications course. For COMM 0005 or 0008 the requirements are: For English 12 with a B or better, you must achieve a mark of 80 per cent or better; English 12 with a C+ or better, you must achieve a mark of 75 per cent or better; English 12 with a C or better, you must achieve a mark of 70 per cent or better; English 12 with a P or better, you must achieve a mark of 65 per cent or better. Where English 11 is required, you must achieve a mark of 50 per cent or better in COMM 0005 or 0008, or a mark of 75 per cent or better in COMM 0004; or
3. By successful completion of an approved, equivalent English or Communications course at another institution, with the entry grade required for the program you have applied for. Please contact BCIT Registration and Information at (604) 434-1610, to determine the approved equivalents; or
4. By successfully completing the Vancouver Community College English Language Assessment Test. Scores required to satisfy various prerequisites are: for English 12 (Pass to C+) a minimum score of 145 is required; For English 11 or Communications 12 a minimum score of 135 is required; For English 10 a minimum score of 125 is required; or,
5. By successfully completing the Test of English as a Foreign Language (TOEFL) and Test of Written English (TWE). Administration of TOEFL on computer will be offered in most countries throughout the world. Under this program, each test taker will be assigned to an individual workstation equipped with a computer and headphone set. It is not necessary to have previous computer experience to take the test. You will be given all instructions and practice needed to perform the necessary computer tasks before the actual test begins. For more information, you may write to TOEFL/TSE Services,

continued next page

P.O. Box 6151, Princeton, New Jersey 08541-6151, USA. Phone 1-609-771-7100. When ordering information, please indicate which test(s) you will be taking (TOEFL, TSE, TWE) and the country in which you plan to test. Alternatively, you may wish to visit the TOEFL Web site at www.toefl.org and download or order online.

In the following list of test score requirements to meet BCIT program entrance requirements, please note that the scores identified are for the paper-based tests ONLY. To find out more information on what the comparable score requirements are for the computer-based tests, please contact Information and Registration at (604) 434-1610 and ask to speak to a program advisor.

Paper-based test score requirements:

English 12 (B or better):

TOEFL 580+ and TWE 50+ and TSE 50+

English 12 (Pass to C+):

TOEFL 550+ and TWE 4.5+

English 11 or Communications 12 (Pass to C+)

TOEFL 500+ and TWE not required

Computerized test score requirements:

English 12 (B or better):

40+ and Essay Rating 5.0+ and TSE 50+

English 12 (Pass to C+)

220+ and Essay Rating 4.5+

English 11 or Communications 12 (Pass to C+)

TSE (Test of Spoken English) may be required by some programs, please check the entrance requirements for the BCIT program you are interested in.

Note: TOEFL test score minimums are currently under review and may be subject to change

To obtain the information bulletin that outlines worldwide test locations and application procedures, write to: Test of English as a Foreign Language, CN 6151, Princeton, New Jersey, U.S.A.; or

6. Some Trades programs allow applicants to write a Trades Admission Assessment Test (Pretest) to determine their English language and Math ability and eligibility for entrance. Not all programs offer this option. Check the program prerequisites section to see if a pretest is offered.

Trades Admission Assessment Test (Pretest)

Many Trades programs allow applicants to challenge admission requirements by completing entrance examination(s). Exams are written every Tuesday and Thursday morning throughout the year, from 0845 to 1200, in Room 340 Building NE1 (J.W. Inglis). Trades pre-test registration and fee requirements are currently under review. Contact the Trades pre-test office at the number listed below for further details. Applicants must arrive on time as no one is admitted into the testing room once the exam is in progress. Applicants currently attending high school who live outside the Lower Mainland may arrange to write the exam at their high school. Applicants who live outside the Lower Mainland may arrange to write the exam at a local College, etc. Call (604) 451-6832 for more information on writing this assessment test.

Note: Applicants must bring picture ID (driver's licence, passport, etc.) as proof of identity for the purpose of writing this exam.

Admission: Document Requirements

The following official documents should accompany the Application for Admission form. If you do not have official transcripts, photocopies will be accepted to allow for processing to begin. If you submit a photocopy of your transcripts, please note that BCIT reserves the right to request submission of official transcripts at any time before or after you have been accepted. It is strongly recommended that as many supporting documents as possible accompany your application form; it is also recommended that you apply to your program of choice as early in the processing cycle as possible.

1. Senior secondary school transcript showing courses taken, marks received and successful secondary school graduation. For Trades Training programs, the transcript must show that the grade level required for entry (e.g., Grade 10) has been completed.
- Applicants who are currently attending high school must submit a statement of marks for Grade 11 subjects and first semester Grade 12 subjects from the principal's office and a statement showing courses currently attended. As well, all available interim grades to date. All marks must be substantiated by a final, official, secondary school transcript incorporating the school and provincial exam results.
2. If applicable, all official post-secondary school transcripts. Please note: If you intend to apply for transfer credit for any courses within your program, only official transcripts will be accepted - photocopies are not valid.
3. For applicants who are not Canadian citizens and are submitting official government documents indicating landed immigrant status or student authorization for BCIT and who apply to the Admissions Office in person with these documents, please be advised that BCIT will copy original documents. If applying from outside the Lower Mainland, please submit a notarized copy of your documentation to the Admissions office; do not submit original immigration documents. Where transcripts and other official documentation are not in English, the original documents must be accompanied by English translations and notarized at the applicant's expense.
4. Some Health Sciences programs require students to present evidence of a recent chest X-ray as well as an immunization program. Applicants will be notified if this information is required.

Applicants to Health Sciences are required to complete a medical questionnaire and return it to the program head of the technology to which they are applying. If, due to extenuating circumstances, supporting documentation is not available at the time, students will be required to complete the necessary procedures at BCIT Medical Services.

Note: According to recent legislation, a criminal search security clearance may be required for applicants seeking acceptance into some BCIT programs. These include Health Sciences programs and Security Alarm Installer. Information will be sent to applicants of programs that fall within this category. For more information please contact the Registrar's office at (604) 432-8848.

5. Applicants who withdrew voluntarily or were withdrawn from another post-secondary institution may be asked by the program department to provide a written explanation for their withdrawal or for written authorization to request a report from the previous institution. This report may be used to determine acceptance to the BCIT program.

Excluding the provisions made in point number three on the previous page, academic documents are not returned. Applications and documents are not retained by the Institute for those applicants who are accepted but are unable to attend classes or for those who are not accepted. Applicants who wish to be considered for a future start date must re-apply and re-submit supporting documents.

Fraudulent Documents

It is a serious offence to submit fraudulent documents when applying for admission/registration. This includes submission of information constituting misrepresentation. Applicants who submit fraudulent documents will be dealt with severely with the minimum penalty for such conduct being non-enrolment at BCIT for one year and the maximum penalty being an indefinite ban on enrolment.

Medical Insurance Coverage

Applicants who have been selected for admission must have medical insurance coverage prior to registration. Non-Canadian students and those without B.C. Medical Insurance must apply in person to BCIT Medical Services for an "Application for Student Medical and Hospital Plan" prior to attending BCIT. Payment for this insurance must be made at this time, by cheque or money order, to the insurance company.

Applicants Currently Attending B.C. High Schools

Applied Academics:

Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

B.C. High School Course Details

1. Mathematics

- Where Math 12 is a prerequisite, BCIT will not accept Survey Math 12.
- Where Math 11 is a prerequisite, BCIT will not accept Math 11A or Introduction to Math 11 or Trades Math I1 or Accounting 11.
- Where Math 11A is a prerequisite, BCIT will accept Math 11 or Introduction to Math 11, or Trades Math I1, or Consumer Math 11. Accounting 11 is not an acceptable equivalent
- Where Grade 10 is a prerequisite, BCIT will accept Math 10A or Math 10.

2. English

- Academic English 12 is required for all Technology programs. Check individual program requirements to see if a specific grade is required for entry to your program.
- Where English 12 is a prerequisite, BCIT will not accept Communications 12 or English 12 (M.E.).
- Where English 11 is a prerequisite, BCIT will accept Communications 12 with a B or better.
- Grade 12 graduation is a prerequisite to most Trades programs. If no specific reference is made to an English 12 requirement, BCIT will accept Communications 12 or English 12 (M.E.) or Academic English 12 or Technical and Professional Communication 12.
- Where Grade 10 is a prerequisite, English 10 is required for entrance.

Graduates of Secondary School Career Preparation Programs

The Career Preparation agreement between BCIT and B.C. Secondary schools supports the dating of Career Preparation student applications to BCIT program waitlists at November 1. Deadline: Final date of application and supporting documentation submission to the BCIT Admissions department is January 31. It is important to note that meeting program prerequisites is still required for acceptance. Applicants who apply to BCIT via Career Prep are not eligible to achieve entrance requirements by way of the Trades Admissions Assessment Test (pretest). To qualify as a Career Prep applicant, you must be currently attending Grade 12. Where there is a break in training between secondary school and applying to BCIT, students are ineligible to apply as Career Prep applicants. Student applications must be sent to the BCIT Admissions department directly from the secondary school Career Prep designate or secondary school counsellor, otherwise they will not be processed as Career Prep applications. For further information, please speak with your secondary school counsellor, technical education teacher or call BCIT Registration and Information at (604)434-1610, or 1-800-667-0676 for inquiries within B.C.

continued next page

Mature Students

An applicant who has not graduated from a senior secondary school may be considered for admission as a mature student. Mature students will be considered on the basis of their relevant experience, and in addition, they **MUST** meet the individual BCIT program's English language requirements and any specific course prerequisites required by the program. Applicants must supply academic documents and/or proof of relevant experience to support their applications.

Note: Not all programs participate in the selection of students under this category.

How to Make up Course Deficiencies

Preparatory programs are available for those students who lack specific prerequisites or desire refresher courses. For information, contact Registration and Information at (604) 434-1610 or Academic Studies at (604) 432-8515.

Technology Entry (TE) Program

This 15-week program is designed to provide academic upgrading to students wishing to enrol in certain BCIT programs. The TE program will provide courses in chemistry, communications, mathematics, physics and introduction to computers, which meet some or all of participating program prerequisites. Subject to successful completion, students enrolled in the TE program will be provisionally accepted into their desired BCIT program, provided the program is participating in the TE initiative. For further information refer to Academic Studies on page 60.

Transfer from Regional Colleges

BCIT offers transfer credit towards various programs from recognized regional colleges in B.C. Students wishing to apply for transfer credit **MUST** provide official transcripts to support the request for credit. Photocopies are not acceptable.

Direct Entry

Direct entry refers to the entry of students to any level of a program beyond level one where advanced standing is given when standard course requirements are recognized as having been completed elsewhere or previously. Direct entry applicants may apply to any level in the program beyond level one, but may also apply to combinations of courses in multiple levels. Sometimes a student's program of study is customized based on the individual student background.

Students are required to complete at least 50 per cent of the credit load of a BCIT program with BCIT courses. Therefore they will only be granted up to 50 per cent transfer credit of the total program credit. Applicants interested in Direct entry to Trade programs are admitted only if credit is approved and a space has opened up in the program.

In most cases, advanced standing will only be granted where an applicant can show evidence of successfully completing an acceptable equivalent for every single course in the preceding level(s).

Applicants interested in Direct entry admission should apply as early as possible and submit all relevant documentation to Admissions. Assessment of applications containing overseas documents may take up to three or four months. For more information call (604) 432-8230.

Re-admission

Students who interrupt their full-time studies may apply to re-enter their program at a future date. Re-admission may depend on the successful implementation of a plan resolving previous academic difficulties, suitability of program selection, seat availability, time elapsed since enrolment and other admission criteria. Where a program that was previously completed has since had significant changes made to the course material, then the student may be required to retake and successfully complete additional course. To request re-admission to the Institute, an application form must be completed and submitted to Admissions. A detailed statement indicating goals and intent must be included. For more information please contact (604) 432-8230.

Part-time Day Course-by-Course Registration

Students may register in courses offered in full-time programs subject to the approval of the Registrar and program head, provided that space is available and with official proof that prerequisites have been met. Part-time day course-by-course registration does not imply acceptance into a full-time program of study.

A student making application for part-time day classes must obtain the signature of the program head and instructor of each course using the "Daytime Course-by-Course Registration" form available at the Student Records office (SW1 - 1585). Completed forms must be returned to the Student Records office; registration will be permitted upon acceptance. Tuition fees are due and payable three days after the registration form is submitted to the Student Records office. First-time applicants to part-time day courses must submit a full-time application form, a \$30 application fee and official documentation proving that they meet the Institute's general admission requirements of English 12 and proof of citizenship is also required. Applications must be submitted no later than 10 days into the term, otherwise late payment re-instatement charges will apply.

Computer Hardware/Software Needs

It is recommended that you purchase or have in your possession the following:

- A PC (personal computer) capable of running the current version of MS Office.
- A Web browser (for example Netscape), and an account with an Internet Service Provider (ISP) of your choice.

Curriculum Review

There are several programs currently under-going curriculum review. Adjustments may occur to course offerings and/or program delivery within these programs. Please refer to the individual program description sections in the full-time calendar to determine which programs are affected.

Provincial Workers' Compensation Board Coverage

Provincial Workers' Compensation Board coverage is in place for all students while participating in a required practicum at a recognized work site. Provincial Workers' Compensation Board coverage is in place during classroom/lab/shop instruction for student apprentices only; it will not be in place for any other students.

Private Accident Insurance

BCIT has arranged an accident insurance plan to cover all registered students (excluding apprenticeship and general interest students) who are actively attending classes or participating in a BCIT approved course of activity.

Coverage will be in effect for all eligible students while on BCIT property or premises, participating in an approved BCIT activity or travelling directly to or from a BCIT approved or organized activity.

BCIT has selected Policy Option A, providing \$15,000 for Accidental Death and Dismemberment. Additional benefits are available under this policy, which are outlined in the brochure available at all campuses.

The cost of the plan is \$3.40 per student per year (subject to change). Premium funding for this insurance plan will be paid 100 per cent by BCIT.

This policy is not intended to replace the B.C. Medical Services Plan (MSP).

The insurer will only reimburse an insured person for expenses in excess of, or not insured, under personal, group or provincial hospital or medical plan of insurance for which the insured is eligible, whether enrolled in the plan or not. Please contact the Registrar's office at (604) 432-8848.

Apprenticeship

Industry Training and Apprenticeship Programs

BCIT provides technical and entry-level trades training for many industry training and apprenticeship programs. Industry training and apprenticeship combine in-school instruction with on-the-job training. Participants receive wages during on-the-job training, and government assistance may be available during in-school sessions. Training programs are up to four years in duration, and on completion, graduates receive a credential in recognition of their proficiency in their trade or occupation.

Industry training and apprenticeship programs are overseen by the Industry Training and Apprenticeship Commission (ITAC), a partnership of business, labour, educators and government. The Commission is responsible for more than 100 trades and occupations, and is introducing new programs in the emerging sectors of the economy, such as the knowledge-based industries, aerospace, motion picture and theatre industries and tourism.

Apprenticeship is a time-proven method of giving British Columbians the skills they need for today's economy and globalization. B.C.'s apprenticeship system is recognized world-wide for the quality of its curriculum and graduates. Industry training and apprenticeship offers an outstanding alternative for the nearly 60 per cent of B.C.'s high school graduates who do not attend college or university. As well, because participants earn as they learn, they avoid the mounting debts incurred by many college and university students.

Under ITAC, the industry training and apprenticeship system is being expanded to include new opportunities for learners, to accommodate continuing education leading to college and university credentials, to ease the transition from school to work, and to increase opportunities for under-represented groups.

Technical Training at BCIT

In consultation with ITAC, BCIT delivers training at all levels to meet business' present and future demands.

Entry-Level Trades Training (ELTT)

Entry-Level Trades Training (ELTT) provides students with entry level skills that many employers expect from new workers. Eighty per cent of ELTT participants find work within six months of completing the program. ELTT graduates who register as an apprentice within one year of completing the ELTT training will receive credit for the first year of technical training.

ELTT is available in more than 20 apprenticeable trades. Graduates have a high placement in industry. The training of 20 to 40 weeks is designed to accomplish two things:

- Provide basic skills and knowledge
- Provide employers with people who have demonstrated their ability to become successful and be proficient in their chosen trade, and who can meet the challenges of future technology changes.

Apprenticeship

The Province of British Columbia contracts between 50 and 60 per cent of all regular apprenticeship technical training to BCIT. Regular classes are scheduled in more than 30 apprenticeable trades.

Apprentices are required to attend technical training courses of four to 10 weeks in duration in each period of apprenticeship. No tuition fees are presently charged for these courses, but you must purchase course supplies and pay student activity fees. Income support for apprentices attending technical training courses is provided by Human Resource Development Canada (HRDC) through regular employment insurance eligibility.

The Red Seal Program

In certain trades it is possible for graduate apprentices to qualify for the Interprovincial Red Seal, which means their trade qualifications are recognized throughout Canada. The Interprovincial Red Seal is awarded when a person has successfully completed an apprenticeship and has obtained a passing mark of 70 per cent on an approved interprovincial examination.

For More Information

For more information on industry training and apprenticeship programs, contact Inquiry B.C. at 1-800-663-7867 and ask for the phone number of the ITAC office nearest you.

For information on related BCIT programs, or to find out if your area of study is associated with an industry training and apprenticeship program, contact Registration and Information at (604) 434-1610 and ask to speak to a program advisor.

Bachelor of Technology

BCIT offers or plans to offer the following Bachelor of Technology Degree programs in:

- Accounting
- Computer Systems
- Environmental Engineering Technology
- Environmental Health
- Medical Imaging
- Specialty Nursing
- Management
- Manufacturing
- Construction Management
- Electronics
- Geomatics
- General Nursing
- Process Systems Integrated Management (proposed)
- Forensic Science (proposed)
- Integrative Medicine (proposed)
- Forest Engineering (proposed)

Unless otherwise noted above, all Bachelor of Technology programs are offered on a part-time basis and require a relevant BCIT Diploma, or equivalent, English 12, and two years of relevant work experience.

For more information about Bachelor of Technology degree studies at BCIT see page 64 of this Calendar, or call (604) 432-8230.

Cooperative Education Knowledge that Works!

Cooperative Education (Co-op)

Cooperative Education (Co-op) provides opportunities for students to integrate periods of academic study with curriculum-related, productive work experiences offered by co-operating employer organizations. Co-op programs allow students to explore a career in a structured and purposeful manner; test their skills; adjust to the working environment; acquire relevant work experience as well as first-class training. Co-op work terms also help students to finance their education.

BCIT Co-operative Education Policy

It is the goal of the BCIT Co-operative Education program to make the work experience period as structured, relevant, safe and meaningful as possible. To this end, BCIT employs full-time co-op coordinators to assist in locating meaningful learning opportunities, monitor the student's progress and check health and safety on the training site. However, these conditions are not absolute, and the co-op student must take some responsibility for these factors.

While co-op coordinators locate the majority of the integrated learning or co-op placements for students, it must be recognized that during certain periods of the business cycle, co-op work terms may be difficult to find. It is the responsibility of the student to work with the coordinator, and independently, to secure a meaningful work experience. To assist students in their endeavours, job search assistance is offered in the following areas: Counselling, preparation of a resume and covering letter, help to develop an active industry network, and preparation for a successful interview. We cannot guarantee you a job, but the co-op personnel can offer a lot of assistance.

The complete Cooperative Education Policy including student, Institute and employer responsibilities is available through the Co-operative Education office and the Registrar's office.

Technology Programs

Some Technology programs offer a Cooperative Education option. Students wishing to participate in the co-op option must meet separate requirements in addition to the Technology program entrance requirements. Contact the Technology program co-op coordinator for further information (see phone numbers below for applicable contact).

Trades Training Programs

Cooperative Education is not an option but an integral part of some Trades programs, subject to successful performance criteria of the program itself. Acceptance into the Trades program includes entrance into the Co-op program, where the Co-op program is offered. Successful completion of the minimum Co-op placement hours is required for graduation. Additional information may be obtained by contacting the Trades Co-op office, (see phone numbers below for applicable contact).

Cooperative Programs

Manufacturing and Industrial/Mechanical Programs

- Heating, Ventilation, Air-Conditioning and Refrigeration Technician
- Industrial Maintenance Mechanic
- Machinist/CNC Machinist
- Tool and Die Technician

Transportation Programs

- Automotive Repair Technician
- Automotive Refinishing Technician
- Automotive Service Technician

Technology Programs

- Electronic Engineering Technology
- Renewable Resources Technology

Transportation and Manufacturing and Industrial/Mechanical General Inquiries

Debbie Power, Secretary

Tel (604) 432-8634

Fax (604) 434-5192

E-Mail dpower@bcit.ca

Cynthia Maclean, Coop Placement Officer Transportation

Tel (604) 432-8291

Fax (604) 434-5192

E-Mail cmaclean@bcit.ca

Gino Simeoni, Coordinator

Manufacturing and Industrial/Mechanical

Tel (604) 451-7058

Fax (604) 434-5192

E-Mail gsimeoni@bcit.ca

Electronic Engineering Technology General Inquiries

Trudie Hurtubise, Secretary

Tel (604) 432-8753

Fax (604) 434-2291

E-Mail thurtubi@bcit.ca

Ernst Wilmink, Coordinator

Tel (604) 432-8499

Fax (604) 434-2291

E-Mail ewilmink@bcit.ca

Process, Energy & Natural Resources Technology General Inquiries

Myliia Belec, Secretary

Tel (604) 451-6910

Fax (604) 434-2291

E-Mail mbelec@bcit.ca

Judith Hall, Coordinator

Tel (604) 451-6911

Fax (604) 434-2291

E-Mail jhall@bcit.ca

Course Identification

BCIT converted from a three-digit to a four-digit course number in January 1994. The course identifier is a unique classification given to all BCIT courses. The course identifier consists of a subject code, number and title.

a) Subject Code

- A1. Is a four-character alphabetic mnemonic code.
- A2. Represents the teaching department responsible for course content.
- A3. The subject code is an easily recognizable code describing the main focus of the course.

b) Course Number

The course identifier consists of a four-digit number, with the first digit used to indicate the level of difficulty. The next three digits are assigned sequentially, ranging from 100 to 999.

Level of Difficulty (rigor) is defined as:

- A course that has prerequisite course(s). For example, Accounting 1 is required before you can take Accounting 2. Therefore the course IDs may be FMGT 1120 and FMGT 2120 respectively. Or
- Foundation work is required to take a particular course. That is to say, you need to complete a group of courses prior. For example, in order to take a particular course in Level 3, the student may be required to complete Level 1 and 2 courses. Therefore the course ID will have a 3XXX series designation.

	Entry-level Certificate/ Diploma	Advanced Studies Advanced Diploma/Degree
Non-credit		
0XXX	1XXX	5XXX
	2XXX	6XXX
	3XXX	7XXX
	4XXX	8XXX

c) Titles

- The course title is a concise description of the material covered.
- Courses that are a series will show the series number in the title.

To apply, go to
www.bcit.ca and
click on the
Prospective Students
heading, then the
Full-time link.



Course Outlines

The purpose of course outlines is to communicate important course information to students. Course outlines will include the following specific information regarding the course:

- Learning objectives
- Learning activities and content
- Learning assessment methods to be used
- Learning outcomes.

Course outlines will be provided to each student during the first class meeting at which time the instructor will respond to any questions or clarifications required.

Note: Requests for course outlines of courses completed in past years may be directed to the BCIT Library at 432-8629.

Credits Assigned To Courses

A credit is defined as approximately one classroom hour per week over a 15-week term. Therefore, a course taught for three hours per week for 15 weeks would normally be assigned three credits.

It is recognized that in assigning credits to courses, other criteria are also considered, such as:

- course content
- learning outcomes
- whether it is a lab (clinical or practicum).

Transfer from Full-time Studies to Part-time Studies

A student transferring to part-time from a full-time diploma program may be granted credit exemption for courses completed. A student who discontinues in the full-time program is encouraged to consider Part-time Studies programs. Contact Registration and Information at 434-1610, to arrange an appointment with a program advisor for Part-time Studies.

Prior Learning Assessment Recognition (PLAR)

Many individuals possess skills and knowledge that are equivalent to the requirements of various BCIT courses but which are not presently recognized by a post-secondary educational institution. Individuals who successfully demonstrate that they have this competence could be awarded appropriate academic credit on the basis of an assessment of their learning. Contact the PLAR coordinator at 451-7023, or Registration and Information at 434-1610 to arrange an appointment with a program advisor for more information on:

- programs and subjects where PLAR is available
- the learning outcomes which must be met to receive credit
- the method of assessment to be used
- the fees assigned to PLAR.

Note: For information on fees associated with PLAR, applicants must contact the program area to which the BCIT course belongs.

Advanced Placement Categories

A maximum of 50 per cent of the total credits in a desired program may be approved and applied toward the total credits required in that program. The remaining 50 per cent of the credits must be completed by taking the courses within the BCIT program.

1. Course Exemption (ECR)

Where the individual course completed at BCIT is equivalent in course content and assessment to another BCIT course and is required within a program of study from which certification is sought.

2. Course Credit (TCR)

Where the individual course(s) is equivalent in content and assessment to a BCIT course, and is required within a program from which certification is sought, for:

- a. Course(s) completed at another recognized post-secondary institution.
- b. Approved course(s) that have been completed within or sponsored by a company, government body, or organization.
- c. Official transcripts must be submitted when applying for transfer credit.
- d. A student may withdraw his application for credit up to 14 days after the commencement of classes in the term for which credit has been requested. If credit is granted and more than 14 days have elapsed, the credit will stand and the student will receive TCR (transfer credit) on his/her transcript.

Please note: Transfer credit awarded to any given course(s) is/are applicable only to the term in which it is awarded. If a break in training occurs, previously awarded credit may not apply in the new term for which the student is entering. This is due to possible changes in curriculum, shifts in technology, etc. Students may be required to reapply for previously awarded credit.

3. Unassigned Credit

This is where a course-to-course equivalency cannot be established, but the subject matter is credit worthy toward the program for which certification is sought. This credit may be used as an elective credit (where applicable). Unassigned credit may be either in a subject area, e.g. Economics 3 credits, or in a program area, e.g. Civil and Structural 3 credits. Unassigned credit totals may not exceed the elective totals in a program of studies.

4. Challenge Credit

Where approval has been granted to challenge a course by the associate dean, a formal evaluation procedure takes place. Students' abilities will be assessed through written and/or oral examination, research paper, or other means.

As recommended by the technology, challenge credit will only be recorded after the student has completed a specified number of BCIT credits; only a specified number of challenge credits will be allowed for each program.

The challenge privilege is not extended to all courses and is disallowed for previously failed courses. Applications to challenge a course are available at the Student Records department.

Challenge credit is not considered as work completed at BCIT, but when a course is successfully challenged the number of credits required to complete a program is reduced.

Note: Please see Prior Learning Assessment Recognition (PLAR) section. Challenge Credit can be used as a mechanism to determine PLAR credit

5. Block Credit

Consideration for granting block credit is determined by individual programs. However, block credit is generally limited to first-year equivalency in an approved two-year diploma program or 50 per cent towards any desired program. Block credit is not transferable from program to program. Block credit is only recorded after the student has enrolled in the program in which block credit is recognized. Block credit may be granted for:

- Diploma of Technology graduates from a recognized post-secondary institution who are pursuing a second diploma in an approved program;
- Baccalaureate graduates from a recognized post-secondary institution who are pursuing their first diploma in an approved program;
- Students from a recognized post-secondary institution who are transferring to BCIT to complete an approved program.

6. Course Audit

A student may audit a course with permission from the instructor. Written permission from the instructor must be submitted to the Student Records department (SW1-1585) no later than 14 calendar days following the commencement of classes for each level. Auditing students are not formally evaluated and do not write examinations. However, students are expected to take part in classroom discussions and laboratory exercises, maintain satisfactory attendance and pay the full course fee. Auditing students do not receive credit for the course, but receive a Statement of Marks with AUD indicated.

Once a student has declared audit status for a particular course, they may not change their status back to credit status at any point during the course for the term in which the student registered.

Guidelines

Applications for credit may be made for each term or for each academic year. Applications for the next term will be processed approximately halfway through the current term. Student course credit application forms can be obtained from Student Records.

- Two-year diploma and one-year diploma students may apply for credit only after they have been fully accepted and have paid their commitment/term fees;
- Students currently enrolled at BCIT may apply for credit at any time within the academic year, but no later than 14 days after the commencement of the course for which credit is being requested (see under Calendar of Events).

c. Students who have already been granted 50 per cent of their full program cannot be granted further credit unless further course work is completed to maintain a 50 per cent course load. Course substitutions must be approved by the dean and registrar.

d. Students who receive credit granted may not be eligible for a refund in tuition fees. Fees are calculated based on a student's registered courses for a term see pages 32-36.

Credit is granted or denied by the Registrar upon recommendation of the program associate dean.

Specified Course Load Requirements

Students with credit(s) who need to enrol in substitute courses in order to meet load requirements for the following purposes, must have their substitute course(s) approved by the associate dean prior to the term start date.

Change of Program

After the commencement of classes, a request for program transfer requires the completion of a program change form by the student. Within the first two weeks of the term, program change forms are available in Admissions (SW1-1305), thereafter, the program change form is available in Student Records (SW1-1585). Permission must be granted by the registrar before a change in program can be effected.

Program change is subject to space availability and prerequisites being met. Wait-listed applicants are given priority placement before students who request to transfer once enrolled.

Examinations, Grading and Marks

Formal examinations are written at the end of each term or at the conclusion of a course. Students are required to take the examinations for each course at the time set by the Institute. For full-time students, mid-term examination papers may be returned. Only those examinations designated as restricted exams by the dean will not be returned.

Grading for Trades programs will depend on the method of training, learning outcomes and, in some cases, standards established jointly with industry and apprenticeship training.

Failure: per cent

%F is placed beside the percentage grade when the grade received is below the minimum grade required to pass the course.

continued next page

Withdrawal

- W official/approved withdrawal from a course/program within withdrawal deadline. Grade not calculated in weighted or cumulative term averages.
- LW official/approved withdrawal from a course/program after the withdrawal deadline. Grade not calculated in weighted or cumulative term averages.
- V unofficial/unapproved withdrawal (course discontinuance). Zero grade is calculated in weighted or cumulative term averages.

Satisfactory

- S course requirements fulfilled, no percentage mark assigned. Grade not calculated in weighted or cumulative term averages.

Unsatisfactory

- U course requirements not fulfilled, no percentage mark assigned. Grade not calculated in weighted or cumulative term averages.

Course Credit

- TCR recognition of approved equivalent studies outside BCIT. Grade not calculated in weighted or cumulative term averages.

Challenge Credit:

- CCR credit granted by successful completion of a challenge exam.

Course Exemption

- ECR recognition of a course completed at BCIT which is equivalent to another BCIT course (used only when course numbers differ and/or program goal changes). Grade not calculated in weighted or cumulative term averages.

Prior Learning Assessment Recognition Credit: (PLAR)

- L or SL credit achieved through Prior Learning Assessment. Grade not calculated into GPA.

Aegrotat

- %A grade based on less than 100 per cent course work completed. Student must have a good term record but has an incomplete evaluation (missed assignment or exam worth at least 25 per cent) due to illness or other extenuating circumstances.

Adjudicated Pass

- 50J, 60J, 65J, 70J or 80J
course standing raised to pass level based upon overall performance, permitting the student to continue in the program or to graduate.

Provisional Pass

- %T standing granted on the basis that the student will reach a pass standing in a continuing relevant subject area; will be changed to (P)ass or (per cent) fail depending on success in the relevant continuing subject area.

Provisional Pass Fulfilled

- P provisional pass conditions achieved.

Not complete

- INC course requirements not complete.

Audit

- AUD attended course, no credit given. Student is not formally evaluated and does not write examinations.

Attended Non-examined Course

- ATT no examination or grade. Grade not calculated in weighted or cumulative term averages.

Required Discontinuation in course or program

- RTD Required to Discontinue

Other

- CIP course in progress.
- NGR no grade reported. Grade not calculated in weighted or cumulative term averages.
- CFT continued following term. Student is continuing in the same course in the following term.

Outside Source Grade

- EXT refers to outside source for student achievement, e.g.: Apprenticeship.

Board apprenticeship programs. Grade not calculated in weighted or cumulative term averages as not being taken as part of a full-time program.

Students should note that all course attempts remain permanently on a student's record.

Withdrawal from Program/Courses

1. In order for a withdrawal to be properly "approved" the student wishing to withdraw from one or more courses must arrange to do so through their program head or associate dean, or by meeting with a Student Services counsellor for which an appointment must be made; contact Registration and Information at (604) 434-1610 to arrange. The program head or associate dean will then inform the Registrar's office. Students wishing to effect a full program withdrawal must complete a withdrawal form. For students in Technology programs, the form is available in Student Records. For students in Trades programs, the form is available from their Chief Instructor. Appropriate signatures must be obtained for these forms as well as a meeting with the student's Program Head or Chief Instructor or with a BCIT Counsellor (Student Services). The completed form must be submitted to Student Records (SW1-1585).
2. In order for a withdrawal to be "official" the student must inform their program head or associate dean before the official deadline date for withdrawals (two-thirds of the way through the term or course, see the Calendar of Events, page 38-39 for the exact date).

If a withdrawal is approved before the official deadline then a W will show on the transcript beside the course(s) in question. If the withdrawal is approved but after the official deadline, then the transcript will show LW beside the course(s) in question. If the withdrawal is not approved, then a grade of V (vacated) will appear on the transcript. The V grade will calculate as 0 (zero) in the student's GPA.

It is the student's responsibility to check withdrawal deadlines (available in the Calendar of Events, page 38-39). Appeals to the Registrar will be adjudicated by the registrar and the dean.

Students withdrawing after the withdrawal deadline date must obtain written permission to do so from their program head.

Distribution of Marks

A statement of marks will be distributed to students at the end of each term by the Registrar's office. In addition, graduating students will receive one free official transcript indicating certification granted. Technology students who fail a term and are not permitted to continue in the program will be advised immediately of their situation. A letter indicating student status and statement of marks will follow. Trades students who fail a term and are not permitted to continue will be notified by their chief instructor and a statement of marks will follow. Marks will not be released over the telephone.

Student grades are posted on the WEB for private student viewing. For more information about accessing grades on the WEB, contact Student Records at (604)432-8498.

Official Transcripts

A fee of \$5 for the first copy and \$3 for each additional copy, to a maximum of ten documents, is charged for transcripts. For "Rush" transcripts, a fee of \$10 for the first copy and \$3 for each additional copy is charged. Fax service is \$5 for Canada/US and \$10 for International in addition to the cost of the transcript. All fees are due at the time the request is made. All requests must be submitted in writing to the Student Records office. Faxed requests are accepted at (604)431-0817 and will require original signature of requestor, and credit card number (Mastercard, Visa or American Express only), and expiry date, current address and phone number.

Letter of Verification

Students requiring verification of enrolment may request a Letter of Verification (LOV) from the Student Records office. A fee of \$5.00 will be charged for this letter.

Withholding Statement of Marks

No statement of marks, transcript, verification letter, diploma or certificate will be issued until the student has resolved all financial and other obligations to the Institute such as tuition fees, library fines, and rent. These documents may also be withheld on such other grounds as directed by the Board of Governors.

Reassessment of Academic Standing/Appeal of Academic Standing

Applicants and students may formally reassess/appeal the following academic decisions: grades, failures, admission, re-admission, credit transfer, or other academic standing matters. Students wishing to initiate a Reassessment/Appeal of Academic Standing must follow the established and approved procedure. There are specific conditions and deadline requirements throughout the reassessment and appeal processes that are strictly adhered to and it is the student's responsibility to ensure that they are familiar with all aspects of these proceedings. To review the Reassessment and/or Appeal Policies and Procedures, please contact the Office of the Registrar, SW1-2170, Phone: 432-8848. Office hours are 0830-1630.

Marks Reassessments

It is the policy of the Institute that students shall be dealt with fairly in all decisions affecting their academic standing. A student who is not satisfied with the final mark awarded is cautioned that the grade has been reviewed carefully and, aside from clerical error, reassessment seldom results in a higher mark.

Students wishing reassessment of their academic standing must first discuss the matter with the instructor responsible for the initial assessment and, if dissatisfied with the result of the discussion, with their program head and associate dean.

Failing a resolution at that level, students may submit a Request for Reassessment on the Institute form available from the Office of the Registrar. All parts of the form must be completed and must reach the Registrar's office within seven school days after the start of classes in the next term, or within 30 calendar days after the mailing of marks from the Institute, whichever is less.

A fee of \$25 is required for each subject reassessed. If the mark or standing is favourably adjusted, the fee will be refunded.

The Registrar will inform students by letter of the result of the reassessment.

A formal request for reassessment will not be accepted for term projects, essays, lab work, quizzes or midterm exams. It is the student's responsibility to discuss any dispute about individual course work with the instructor immediately upon receiving the assigned grade.

For complete policy information, please refer to the BCIT Web site for Student Marks Reassessment Policy #5420.

Marks Appeals

A student who is dissatisfied with the outcome of a reassessment may appeal the decision.

The student must first discuss the problem with the dean of the appropriate program area. The dean must provide the Registrar with a written statement confirming the outcome of the discussion.

If the student then decides to proceed with the appeal, the student must complete and sign a Request to Appeal form and submit it to the Registrar's office, along with the \$50 fee, within 21 days of the mailing of the reassessment result to the student.

If the appeal is accepted by the registrar, an appeal committee will be formed to deal with the appeal according to procedures approved by the educational council for that purpose.

The President will inform the student by letter of the result of the appeal.

For complete policy information, please refer to the BCIT Web site for Student Marks Reassessment Policy #5420.

Attendance

See Conduct and Attendance, page 14.

Course Failure and Program Continuation

Students must achieve a Pass standing in all courses in each term to successfully complete the term. Students who fail or withdraw from one or more courses in a term may be prohibited from continuing in the program, and may be required to apply for re-admission (see Re-admission Procedure). When students are permitted to continue with their program, it is their responsibility to present evidence of successful completion of the failed course(s) to the Office of the Registrar prior to the end of the next term or before the appropriate credential is awarded, whichever condition is specified at the time or subsequent to the failure. Marks review guidelines apply within each school.

Course Substitution

Where special circumstances exist that prevent a student from completing a required course, notice recommending substitution must be given in writing to the Registrar's office by the program head. Approval must be obtained from the Registrar's office prior to course start date. Verbal agreements for course substitution will not be honoured.

Student Research Reports

Some BCIT students are required to research and write reports with the guidance of faculty and staff as part of their course work. Unless otherwise specified by the instructor, these reports are assigned as educational exercises only. The student, not BCIT, is ultimately responsible for the content of such a report.

Credentials

Credentials are awarded to graduates of the British Columbia Institute of Technology. The various levels of certification correspond to the program taken. For more information, contact Registration and Information at (604) 434-1610 and ask to speak to a program advisor.

Most programs prescribe a balance of applied theory and skills necessary for employment in technical, technological or paraprofessional occupations including some curriculum which draws from advanced professional courses.

Advanced credentials are designed to provide practicing technicians or technologists with advanced knowledge, skills and attitudes necessary for professional competence, advanced technical, technological, clinical or management roles, or for individual growth.

In some program areas, BCIT Advanced Diplomas provide a direct path for degree completion. BCIT and the Open Learning Agency through its Open University have entered into collaborative degree arrangements in Business, and Engineering Technology.

BCIT offers Bachelor of Technology Degrees in various fields of study. Several fields of study are under development and should be offered in the near future. For more information please contact Registration and Information at (604) 434-1610 or 1-800-667-0676, or (604) 432-8230.

Students may seek approval to use previously gained credit(s) toward a new program of study. However, approval for credit can only be granted for up to 50 per cent of the new program. Students wishing to seek approval to apply more than 50 per cent of previously gained credit toward their new program must present their request to the associate dean of their new program and to the Registrar.

Convocation exercises are held twice each year in February and June. Technology and some trades program graduates will have their credentials conferred at the ceremonies. Graduates unable to attend the convocation exercises will receive their credentials by mail.

Honours Standing

For Technology programs, honours standing is awarded by the Registrar to a graduating student whose weighted grade point average (GPA) is 80 per cent or greater in an approved program of study that leads to a BCIT credential, not including courses for which transfer credit from an outside institution has been granted.

The criteria is based on a student's entire program of study, meaning only those courses at BCIT used to achieve that credential. Only those courses that are assigned a percentage grade will be used in GPA calculation.

To be eligible for recognition, the student must:

1. Take at least 50 per cent total credit value, (of the prescribed courses that are in an approved program of study) from BCIT.
2. Obtain an 80 per cent average or greater.
3. Must not have failed any BCIT courses within their program of study.

Issuing of Degrees, Advanced Diplomas, Diplomas and Certificates

Upon successful completion of the requirements for certification, a graduating student must apply to the registrar to be granted their credential. Trades Training graduates do not have to apply for certification. The Registrar is responsible for ensuring that all requirements for the program have been fulfilled before issuing such documents.

All credentials, with the exception of statements, shall be signed by the Registrar, and the president and shall bear the BCIT Coat of Arms.

Only one certification document will be issued to each graduate. Replacements for lost diplomas may be issued, at cost, at the discretion of the Registrar. A replacement fee of \$50 will be charged.

Application for Certification and Graduation

Students must apply to receive their Degree, Advanced Diploma, Diploma or Certificate by completing the Application to Graduate form available in Student Records, SW1-1585. This applies to all students who are currently enrolled in their final course(s). There are specific deadlines that apply to submission of applications to graduate for both the February and June Convocation ceremonies. To ensure that you submit your application to graduate within the established deadlines, please contact Student Records at (604) 432-8498.

Convocation Policy

For a student to be eligible to attend Convocation, he or she must have completed all outstanding coursework, including practicum assignments. No student will be permitted to participate in a Convocation ceremony until a program audit of the student's coursework confirms program completion.

For students who do not complete all coursework prior to the deadlines, they will have until the deadline prior to the next Convocation ceremony to complete outstanding requirements and apply to graduate.

Convocation ceremonies take place two times per year. They usually take place during the third week in February and either the third or fourth week in June each year.

For more information on deadlines for eligibility to attend Convocation, for specifics on which programs participate in Convocation and any other details contained in the Convocation Policy, please contact the Registrar's office at (604) 432-8848.

BCIT OneCard

BCIT and the Student Association have implemented a mandatory student photo-ID card for the fall of 2000.

The BCIT OneCard combines an identification card with on-campus debit privileges and access to retail discounts.

Benefits of the BCIT OneCard include:

- Personal identification for improved campus security; access to examination centres, campus events and campus voting
- Privileged access to campus services including library and recreation services
- Cash-less photocopying, computer lab printing and campus vending purchases (add value to debit card at machines located around campus)
- Debit purchases at other campus service outlets
- On and off-campus retail and service programs.

Cards are valid for one year from date of issue. Pictures will be taken and cards issued at the start of each term. Full- and part-time students will be charged a \$2.50 fee to a maximum of \$5 annually. There will be a \$10 charge for replacement cards. For more information, contact the BCIT OneCard office at 451-6890, or visit in person at SW1-1191, across from Registration.

BCIT is planning to require you to produce your OneCard to write exams at examination centres starting December 2000.

To find out more
about BCIT, go to
www.bcit.ca



FULL-TIME TECHNOLOGY PROGRAMS

Tuition Fee Policy for Academic Year 2001/2002 (subject to change)

Tuition fees are reviewed annually and have been established by the Board of Governors of BCIT and approved by the Ministry Education, Skills and Training for the academic year 2000/2001 and are subject to change each academic year.

1. A non-transferable, non-refundable commitment fee of \$200 is due upon the applicant's offer of admission. This fee is applied towards the tuition fee and is not transferable to part-time courses, or acceptance into another term.
2. An accepted applicant whose commitment fee has not been paid immediately upon acceptance or provisional acceptance, will forfeit the seat which has been reserved.
3. An accepted or provisionally accepted applicant is required to pay the remainder of first-level and fifth-level fees 60 days before classes commence. (See Calendar of Events).
4. An applicant accepted or provisionally accepted after the specific deadline dates outlined in the Calendar of Events is required to pay full tuition fees upon acceptance or provisional acceptance.
5. One-year post-diploma program students pay according to two-level programs.
6. Students who have not paid their fees by the specified deadline dates outlined in the Calendar of Events will be levied a \$50 late fee. This fee increases to \$150 after 30 calendar days (following and including the first day of classes).

Students will be subject to withdrawal for non-payment of fees and their registration cancelled until full payment has been received by the Institute.

7. Course-by-course day school fees are assessed at \$85 per credit to a maximum tuition fee of \$1119 per level.

Payments can be made by Cash, VISA, Interac, American Express or MasterCard. Cheques or money orders should be made payable to the British Columbia Institute of Technology. Please ensure that your correct student number is included with your payment. Payments can also be made using telephone banking. Please check with your bank or Credit Union for details.

Note: There is a \$15 charge levied for returned cheques.

Annual Fees

Tuition fees and all related policies are under review for the 2001/2002 year by the BCIT Board of Governors and may be subject to change. Current 2000/2001 fees are as follows:

	1st Year	2nd and 3rd Year (each)
General tuition	\$2238.00	\$2238.00
Student Activity fee	100.30	100.30
OneCard fee	5.00	5.00
Total:	2343.30	2343.30

First-year Students - Subject to change for 2001/2002

All first-level and fifth-level students must pay their fees according to the deadline dates specified in the Calendar of Events.

First Level/Fifth Level

General tuition	\$ 1119.00
(includes \$200 non-refundable commitment fee)	
Student activity fee	50.15
OneCard fee	2.50
Total:	1171.65

Second Level/Sixth Level

General tuition	\$1119.00
Student activity fee	50.15
OneCard fee	2.50
Total:	1171.65

International Trade and Transportation Program, \$300 CITT Fee

There will be an additional \$150 assessed in Term 1 and Term 2 which goes directly towards accreditation in CITT (Charter Institute of Traffic and Transportation). The \$300 includes the writing fee for the two CITT national exams and registration in CITT.

Academic Studies

Effective September, 2000 an additional \$45 will be assessed to students in PHYS 1147 and \$45 in January, 2001 for PHYS 2247. These are for physics learning modules which replaces the textbook.

Second Year Students - Subject to change for 2001/2002

All second and third-year students must pay their fees according to the deadline dates specified in the Calendar of Events.

Third Level

General tuition	\$1119.00
Student activity fee	50.15
OneCard fee	2.50
Total:	\$1171.65

Fourth Level

General tuition	\$1119.00
Student activity fee	50.15
OneCard fee	2.50
Total:	\$1171.65

Adult Echocardiography

General tuition	\$1119.00
Student activity fee	50.15
OneCard fee	2.50
Total:	\$1171.65

Co-op fees - Subject To Change for 2001/2002

Note: Co-op Program specific dates are outlined in the Calendar of Events.

Electronics and Robotics (per level)

General tuition	\$400.00
Student activity fee	19.50
OneCard fee	2.50
Total:	\$422.00

Renewable Resources (per level)

General tuition	\$360.00
Student activity fee	17.50
OneCard fee	2.50
Total:	\$380.00

Mining (per level)

General tuition	\$400.00
Student Activity fee	19.50
OneCard fee	2.50
Total:	\$422.00

Course-by-Course Day School Registrants

All part-time day students are required to pay full tuition fees at the time of registration and approval of their courses. Course-by-course fees are assessed at \$85 per credit to a tuition maximum of \$1119 per level. These fees are subject to change for 2000/2001. An additional \$50 late fee will be assessed if fees are not paid by the due date. Students will be subject to withdrawal for non-payment of fees. This fee increases to \$150 after 30 calendar days from the commencement of classes.

Advanced Studies in Business Registrants

All students must pay according to the specified dates outlined in the Calendar of Events. Course-by-course fees are assessed to a tuition fee maximum of \$1119 per term/level. These fees are subject to change for 2000/2001. Students will be subject to withdrawal for non-payment of fees. Late fee policies also apply to this program.

Bachelor of Technology Degree Program

All students must pay according to the specified dates outlined in the Calendar of Events. For accepted students, course-by-course fees are assessed to the tuition fee maximum of \$1800 per term. This does not include student activity fees or the OneCard fee. These fees are subject to change for 2000/2001. Students will be subject to withdrawal for non-payment of fees. Late fee policies and refund policies also apply to these programs.

Provisionally Accepted Applicants

All provisionally accepted applicants whose commitment fee has not been paid immediately will forfeit the seat that has been reserved. Students accepted after the specific deadline dates outlined in the Calendar of Events are required to pay full tuition fees upon provisional acceptance.

International Students in Technology Programs

Tuition fees for international students will be based on a cost recovery formula taking into account the direct and indirect costs of instruction. Except where reciprocal agreements or contracts exist, individual international students enrolled in standard programs will pay according to the current international student fee structure. Should immigration status change on or before the refund deadline date of your program, the differential fee will be refunded. Your change in status form must be submitted to Student Records by the refund deadline date.

Book and Equipment Costs

Please note, in addition to tuition fees, there will be book and/or equipment costs associated with your program. Each program will have unique requirements for books and equipment. To obtain an estimate of these costs, please contact Student Services or the Departmental offices associated with your program.

FULL-TIME TRADES PROGRAMS**Tuition Fee Policy for Academic Year 2001/2002 (subject to change)**

Tuition fees are reviewed annually and have been established by the Board of Governors of BCIT and approved by the Ministry of Education, Skills and Training for the academic year 2000/2001 and are subject to change each academic year.

1. A non-refundable, non-transferable commitment fee of \$100 is due upon the applicant's offer of admission into a BCIT program.
2. An accepted applicant whose commitment fee has not been paid immediately upon acceptance or provisional acceptance will forfeit the seat which has been reserved.
3. An accepted applicant or provisionally accepted applicant is required to pay the remainder of the fees 60 days prior to the intake start date. (Subject to change).
4. Students who have not paid their fees by the specified deadlines will be levied a \$50 late fee. This fee increases to \$150 after 30 calendar days. Students will be subject to withdrawal for non-payment of fees and their registration cancelled until full payment has been received by the Institute.

Annual Fees (subject to change for 2001/2002)

Tuition fees and all related policies are under review for the 2001/2002 year by the BCIT Board of Governors and may be subject to change. Tuition fees for fixed-duration training vary according to the length of the program. The current 2000/2001 tuition fee rate is \$33 per week or \$132 per month for most programs.

The student activity fee for fixed-duration training programs varies according to the length of the program. The current 2000/2001 student activity fee rate is \$2.15 per week or \$8.60 per month. Students are required to pay the student activity fee at the time of registration. This includes all apprenticeship students.

Students not attending either the Burnaby campus or the Aerospace and Technology campus, are assessed \$0.90 per week for Student Activity fees.

International Students in Trades Programs

Tuition fees for international students will be based on a cost recovery formula taking into account the direct and indirect costs of instruction. Except where reciprocal agreements or contracts exist, individual international students enrolled in standard programs will pay according to the current international student fee structure. Should immigration status change on or before the refund deadline date of your program, the differential fee will be refunded. Your change in status form must be submitted to Student Records by this date.

Aerospace & Technology campus

(subject to change for 2001/2002)

\$100 Tool Deposit/Lab Fee only assessed in Term 1

The following programs are assessed per term:

Program Name	Tuition Fee	Activity Fee	Lab Fee	OneCard Fee	Total
Aircraft Maintenance					
Term 1	1017.00	34.40	100.00	2.50	1153.90
Other Terms	1017.00	34.40		2.50	1053.90
Aircraft Structures Manufacturing					
Term 1	528.00	34.40	100.00	2.50	664.90
Aircraft Electronics Avionics					
Term 1	1017.00	34.40	100.00	2.50	1153.90
Other Terms	1017.00	34.40		2.50	1053.90
Aircraft Structures Technician					
Term 1	528.00	34.40	100.00	2.50	664.90
Term 2	693.00	45.15		2.50	740.65
Aircraft Gas Turbine Technician-					
Term 1	528.00	34.40	100.00	2.50	664.90
Term 2	726.00	47.30		2.50	775.80
Aircraft Components Technician					
Term 1	528.00	34.40	100.00	2.50	664.90
Term 2	429.00	27.95		2.50	459.45
Electronics Core*					
	990.00	64.50	75.00	2.50	1132.00
Special Aerospace Course*					
Aerospace & Tech					
Program Extensions: (2000/2001)	Tuition \$78.00 /wk SA Fees \$ 2.15 /wk				
Aircraft Structures Extensions: (2000/2001)	Tuition \$39.00 /wk SA Fees \$ 2.15 /wk				

Burnaby campus

The following programs are assessed by program duration:

Program Name	Tuition Fee	Activity Fee	Lab Fee	OneCard Fee	Total
Advanced Industrial Computing	660.00	43.00	75.00	2.50	780.50
Architectural Design	1320.00	86.00		2.50	1408.50
Architectural/Civil Drafting	1320.00	86.00		2.50	1408.50
Architectural/Mech Drafting	1320.00	86.00		2.50	1408.50
Architectural/Struct Drafting	1320.00	86.00		2.50	1408.50
Auto Coll.Repair/Refinish-Term 1	768.00	50.40		2.50	820.90
Auto Coll.Repair/Refinish-Term 2	768.00	50.40		2.50	820.90
Auto Coll.Repair/Refinish-Term 3	528.00	34.40		2.50	564.90
Auto Electronic Tech	660.00	43.00		2.50	705.50
Auto Service Educ Program	384.00	25.20		2.50	411.70
Auto Service Tech-Term 1	882.00	56.70		2.50	941.20
Auto Service Tech-Term 2	882.00	56.70		2.50	941.20
Auto Service Tech-Term 3	594.00	38.70		2.50	635.20
Auto Mechanic ELTT	1152.00	73.10		2.50	1227.60
-Off Campus	1152.00	30.60			1182.60
Auto Mechanic-Toyota Spons	1350.00	86.00	250.00	2.50	1688.50
Benchwork ELTT (Joinery)	855.00	53.75		2.50	911.25
Boilermaker ELTT	789.00	49.45		2.50	840.95
Carpentry ELTT	954.00	60.20		2.50	1016.70
Commercial Transport ELTT	1020.00	64.50		2.50	1087.00
CNC Machinist Operator-Evening	224.00	30.10	75.00	2.50	331.60
Computer & Bus Equip Tech	1320.00	86.00	75.00	2.50	1483.50
Computer Sys Serv Tech	1320.00	86.00	75.00	2.50	1483.50
Diesel Engine Electronics Tech	330.00	21.50		2.50	354.00
Diesel Engine Mechanic ELTT	1416.00	90.30		2.50	1508.80
Drafting					
Architectural Design	1320.00	86.00		2.50	1408.50
Civil Drafting	1320.00	86.00		2.50	1408.50
Mechanical Drafting	1320.00	86.00		2.50	1408.50
Structural Drafting	1320.00	86.00		2.50	1408.50
Elect Control Service Tech	1320.00	86.00	75.00	2.50	1483.50
Electrical Prod Distribution	660.00	43.00	75.00	2.50	780.50
Electricity ELTT and Ind Electronics	1350.00	86.00	75.00	2.50	1513.50
-Off Campus	1350.00	36.00	75.00		1461.00
Electronics Technician					
(Core) Full-time Day	990.00	64.50	75.00	2.50	1132.00
-Off Campus	990.00	27.00	75.00		1092.00
Electronics Technician (Core)					
Part-time Evening (Per Year)	613.00	32.25	40.00	2.50	687.75
Fresh Start Program	627.00	40.85		2.50	670.35
H.V.A.R. Program-Term 1	1005.00	66.00		2.50	1073.50
H.V.A.R. Program-Term 2	660.00	43.50		2.50	706.00
H.V.A.R. Program-Term 3	330.00	21.50		2.50	354.00
Heavy Duty Mechanic ELTT	1020.00	64.50		2.50	1087.00
Inboard/Outboard Mechanic	1152.00	73.10		2.50	1227.60
Ind InstrumentationService Tech	1320.00	86.00	75.00	2.50	1483.50
Indus Maint Mechanic-Term 1	768.00	50.40		2.50	820.90
Indus Maint Mechanic-Term 2	768.00	50.40		2.50	820.90
Indus Maint Mechanic-Term 3	528.00	34.40		2.50	564.90
Ironworker ELTT	789.00	49.45		2.50	840.95
Joinery ELTT	855.00	53.75		2.50	911.25
Machinist Core	1254.00	81.70		2.50	1338.20
*new					
Machinist/CNC - Term 1	1254.00	81.70		2.50	1338.20
*new					
Machinist/CNC Coop - Term 2	448.00	16.00		2.50	466.50
*new					
Machinist/CNC - Term 3	1056.00	66.80		2.50	1127.30
Machinist/CNC - Term 3	660.00	43.00		2.50	705.50
*last intake Oct/00					

Program Name	Tuition Fee	Activity Fee	Lab Fee	OneCard Fee	Total
Marine Elect Service Tech	1320.00	86.00	75.00	2.50	1483.50
-Off Campus	1320.00	36.00	75.00		1431.00
Millwright ELTT	1317.00	83.85		2.50	1403.35
Motorcycle Mechanic ELTT	1152.00	73.10		2.50	1227.60
Painting and Decorating	660.00	43.00		2.50	705.50
Plumbing ELTT	1020.00	64.50		2.50	1087.00
Power Eng (Gen and Tech)	1320.00	86.00		2.50	1408.50
Power Engineering					
(Power • Process)	1320.00	86.00		2.50	1408.50
Power Equipment Mechanic ELTT	1152.00	73.10		2.50	1227.60
Refrigeration Mechanic ELTT	855.00	53.75		2.50	911.25
Security Alarm Installer	924.00	60.20	75.00	2.50	1061.70
Sheet Metal ELTT	690.00	43.00		2.50	735.50
Steamfitting ELTT	1020.00	64.50		2.50	1087.00
Steel Fabrication ELTT	789.00	49.45		2.50	840.95
Steel Fabrication-Welding	561.00	36.55		2.50	600.05
Telecommunication Technician	1320.00	86.00	75.00	2.50	1483.50
Tool and Die Tech - Term 1	1254.00	81.70		2.50	1338.30
*new					
Tool and Die Tech Coop - Term 2	448.00	16.00		2.50	466.50
Tool and Die Tech - Term 2	960.00	63.00		2.50	1025.50
*last intake Oct/00					
Tool and Die Tech - Term 3	1056.00	66.80		2.50	1127.30
*new					
Tool and Die Tech -Term 3	660.00	43.00		2.50	705.50
*last intake Jan/01					
Trades Discovery for Women	660.00	43.00		2.50	705.50
Welding Level B	528.00	34.40		2.50	564.90
Welding Level C	990.00	64.50		2.50	1057.00
Part Programs	varies	varies	varies		varies
Part Program Welding	varies	varies	varies		varies

* Part-time students are students who are not registered for an entire program and are assessed as stated below:

Initial Registration: \$132 per month (four weeks), \$8.60 per month S.A. fee and \$2.50 OneCard fee = \$143.10 month (four weeks)

Program Extensions(subject to change for 2001/2002): There will be a minimum charge of \$75 tuition and \$2.15 Student Activity fee. Program extensions with a duration of three weeks or more will be assessed at a weekly rate of \$33 tuition and \$2.15 Student Activity fee, as noted below. The OneCard fee will be assessed only if the program duration is 30 hours or more.

Program Extensions	Tuition	SA fee	OneCard fee	Total
1 week	.75.00	2.15	2.50	79.65
2 weeks	75.00	4.30	2.50	81.80
3 weeks	99.00	6.45	2.50	107.95
4 weeks	132.00	8.60	2.50	143.10

Book and Equipment Costs

Please note, in addition to your tuition fees, there will be books and/or equipment costs associated with most programs. Each program will have unique requirements for books and equipment. To obtain an estimate of these costs, please contact Student Services or your Departmental offices associated with your program.

Miscellaneous Fees

Application Fee	\$30
Application Fee-International	\$200
Prior Learning Assessment Fee	Cost Varies For Each Program
Duplicate Tax Receipt-T2202A	\$10
Duplicate Welding Log Books	\$10
Late Fee	\$50
	after 1st week of classes
Late Fee	\$150
	after 30 calendar days
NSF Cheques	\$15
*Parking: Technology Students	\$60
	September-December
January-May	\$75
*Parking: Trades Students	\$15 monthly
*Parking: Night School Students	\$16 per Term
*Other Student Parking Rates	\$7.50 per month
	-student handicapped
	\$7 per month
	-student motorcycle
	\$25 per course
Reassessment of Marks	\$50 per course
Student Appeal of Reassessment	\$50
Replacement Diploma/Certificate	\$50
Transcript of Marks	\$5 for first copy and \$3 for each additional copy
Additional Transcript Service	\$10 Rush Copy
	\$20 Rush/Fax Copy
	\$20 International
	Fax copy
Verification of Enrolment Letter	\$5 per copy
	\$10 Fax
Overseas Fax	\$20
*all taxes included	

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continued next page

WITHDRAWAL AND REFUND PROCEDURES (subject to change)

How to Withdraw

Students (excluding apprentices) who wish to withdraw officially from their full program must begin the process by first reporting to BCIT Registration and Information.

Students who are asked to withdraw from a course/program for reasons of discipline or unsatisfactory progress may forfeit any right to a refund under this section.

Refund Policy: Full-time Technology Students

Refund of fees for all full-time and part-time day students who withdraw up to 14 days after the commencement of classes:

General Tuition: Complete refund less \$200.

Student Activity: Complete refund.

In all cases the commitment fee is non-refundable.

Refund of fees for students who withdraw after 14 days from commencement of classes:

General Tuition: No refund.

Student Activity: After these dates, any request for student activity fee refund must be submitted in writing to the BCIT Student Association office and the BCIT Library card must be turned in. Withdrawal verification will be made by the BCIT Student Association before processing the refund request.

Refund Policy: Full-time Trades Students

Students registered in Trade programs and/or levels within a program of up to and including 20 weeks duration have 14 calendar days after the start of class to withdraw to receive a full refund less \$100.

In all cases the commitment fee is non-refundable.

Students registered in Trade programs and/or levels within a program of 21 weeks or more in duration have 28 calendar days after the start of class to withdraw to receive a full refund less \$100.

No refunds are given after these dates. This also applies to students who are involuntarily withdrawn by the department due to poor performance or conduct.

Tuition T2202A Tax Receipts

An official income tax receipt will be mailed by Financial Services on or before February 28. To allow for normal mail delivery, students should wait until March 15 before contacting Financial Services if their tuition fee tax receipt has not been received. A charge of \$10 will be levied for a duplicate receipt.

Note: To ensure that your receipts are mailed to the correct address, students should notify the Student Records office immediately if there has been a change of address. The receipts are mailed to the mailing address and not to the permanent address.

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Financial Obligation to the Institute

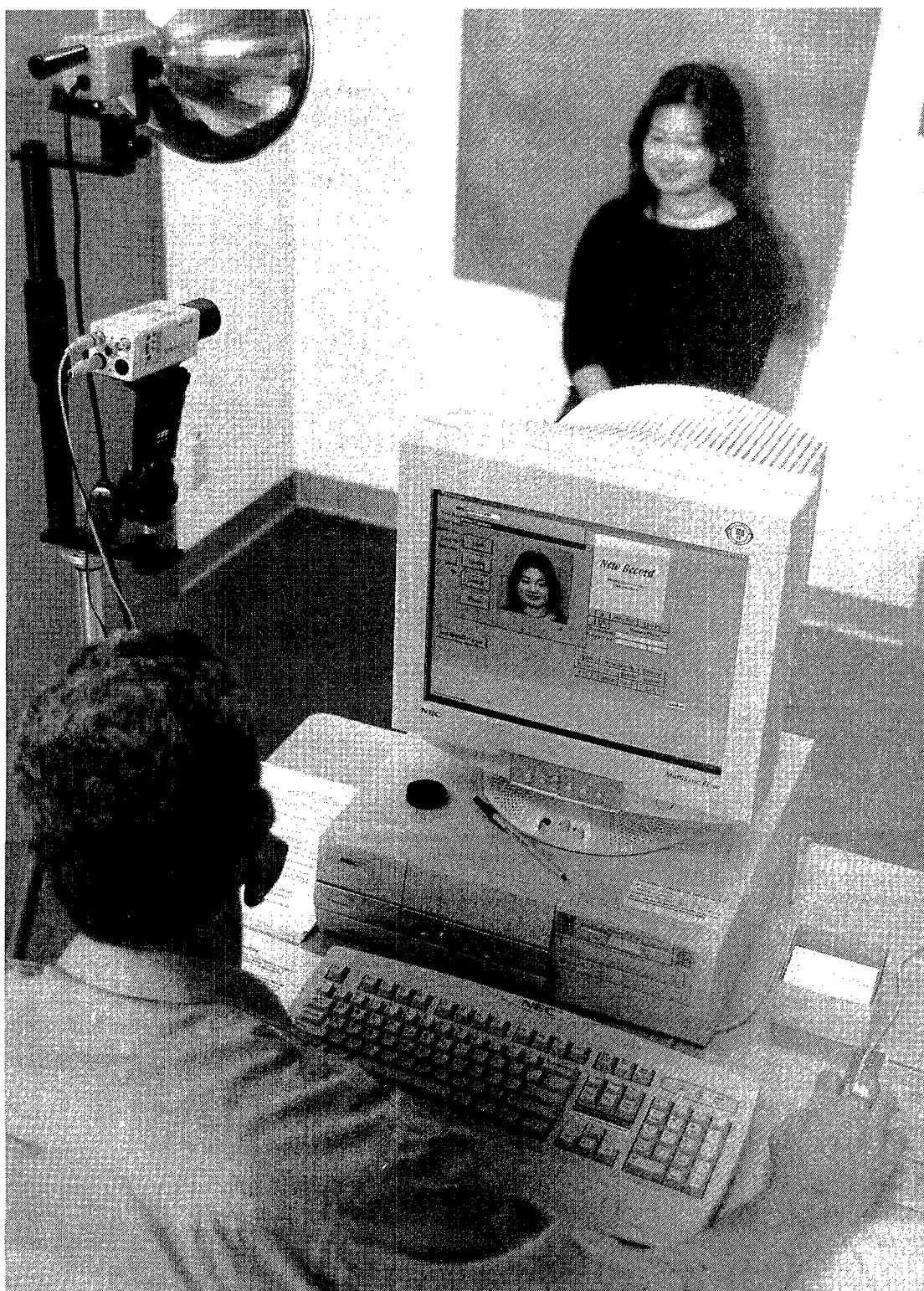
No statement of marks, transcript, diploma or certificate will be issued until the student has cleared up all financial obligations to the Institute, such as tuition fees, library fines, rent and NSF cheques.

Cancellations

The Institute will make every effort to offer all programs as listed in the Calendar. Nevertheless, the Institute reserves the right to limit enrolment, to select students, to cancel courses, to combine classes or to alter time of instruction without prior notice.

**Access Programs
bring you up to
speed. See page 60
for more details.**





Calendar of Events 2001/2002

2001

MAY

- 1 Tue Last day to withdraw and receive a "W" on transcript for Term B courses
- 21 Mon Victoria Day - BCIT closed
- 22-25 Tue-Fri Examinations for most Technologies, all levels

Electronic Engineering Technology

- 1 Tues Last day to withdraw and receive a "W" on transcript for Term B courses

Technology Entry

- 8 Tue Last day to withdraw and receive a full refund (less \$200 commitment fee)
- 8 Tue Last day to apply for course credit (exemption) or change registration to "audit" status for full-time courses

Nursing

- 7-11 Mon-Fri Examinations for all Levels

JUNE

- 2 Sat Winter Term Technology grades available on the BCIT Web site
- 20 Wed Spring Award ceremonies
- 20-22 Wed-Fri Spring Convocation ceremonies

Technology Entry

- 29 Fri Last day to withdraw from courses and receive a "W" on transcript

JULY

- 1 Sun Canada Day
- 2 Mon In lieu of Canada Day - BCIT closed
- 6 Fri Level 1,5,7 (full-time programs only) fee deadline for Fall term

Technology Entry

- 27 Fri Last day of classes
- 30-Aug 3 Mon-Fri Examinations

AUGUST

- 6 Mon B.C. Day - BCIT closed

Electronic Engineering Technology

- 28-29 Tue-Wed Registration for students on modified programs

Nursing

- 20 Mon Level 1-5: Registration and Orientation
- 24 Fri Level 2-5: Fee deadline for classes starting August

SEPTEMBER

- 3 Mon Labour Day - BCIT closed
- 4-5 Tue-Wed Level 1,3,5,7 Full-time programs registration
- 5 Wed Level 1,3,5,7 Full-time programs classes start
- 7 Fri Fee deadline for returning students
- 19 Wed Last day to withdraw and receive a full refund (less \$200 commitment fee)
- 19 Wed Last day to apply for course credit or change status of registration to "audit" status for full-time courses

TBA Shinerama

Electronic Engineering Technology:

- 4 Tue Level 1 Registration and Orientation
- 4 Tue Co-op Work Terms 1 and 2 begin
- 5 Wed Levels 2,3,4 timetable pickup and Orientation, classes commence for all levels
- 14 Fri Last day to change sections for students on modified programs

Technology Entry

- 4 Tue Registration and Orientation
- 19 Wed Last day to withdraw and receive a full refund (less \$200 commitment fee)
- 19 Wed Last day to apply for course credit (exemption) or change registration to "audit" status for full-time courses

Nursing

- 4 Tue Last day to withdraw and receive a full refund (less \$200 commitment fee)
- 4 Tue Last day to apply for course credit (exemption) and/or change registration to "audit" status for full-time courses

OCTOBER

- 8 Mon Thanksgiving Day - BCIT closed
- 24 Wed Fall Awards ceremony

Electronic Engineering Technology

- 9 Tue Last day to withdraw and receive a "W" on transcript for Term A courses
- 26 Fri Term A courses end
- 29 Mon Term B courses begin

Nursing

- 31 Wed Last day to withdraw in order to receive a "W" on transcript

NOVEMBER

- 2 Fri Level 1 fee deadline for Winter term of full-time Technology programs for January 2, 2002 start
- 7 Wed Last day to withdraw and receive a "W" on transcript for Fall term full term courses
- 11 Sun Remembrance Day
- 12 Mon In lieu of Remembrance Day - BCIT closed

Electronic Engineering Technology

- 14 Tue Last day to withdraw and receive a "W" on transcript for Fall term full-time courses

Technology Entry

- 7 Wed Last day to withdraw from courses and receive a "W" on transcript

Medical Radiography, Nursing

- 2 Fri Level 1: Fee deadline for January 2, 2002 start

DECEMBER

- 10-14 Mon-Fri Examination Week for Most Technologies
- 22 Sat Fall term Technology grades available on the BCIT Web site
- 24 Mon Christmas Eve
- 25 Tue Christmas Day - BCIT closed
- 26 Wed Boxing Day - BCIT closed
- 31 Mon New Year's Eve - BCIT closed

Electronic Engineering Technology

- 5 Wed Last day to withdraw and receive a "W" for Term B courses
- 14 Fri Last day of classes before Christmas break

Nursing

- 10-14 Mon-Fri Examinations

Technology Entry

- 7 Fri Last day of classes
- 10-14 Mon-Fri Examinations

2002

JANUARY

1	Tue	New Year's Day - BCIT closed
2	Wed	Classes begin for most full-time programs
4	Fri	Levels 2, 4, 6, 8: Fee deadline for Winter term
16	Wed	Last day to withdraw from classes and receive a full refund (less \$200 commitment fee)
16	Wed	Last day to apply for course credit (exemption) and/or change registration to "audit" status for full-time courses

Electronic Engineering Technology

2	Wed	Classes resume for Electronic Engineering Technology
7-11	Mon-Fri	Examinations for all Levels
23-24	Wed-Thr	Timetabling/Registration for students on modified programs
25	Fri	Registration and Orientation for Level 1 students
28	Mon	All Levels: First day of classes for Winter term

Technology Entry

2	Wed	Registration and Orientation
16	Wed	Last day to withdraw and receive a full refund (less \$200 commitment fee)
16	Wed	Last day to apply for course credit (exemption) or change status of registration to "audit" status for full-time courses

Medical Radiography

2	Wed	Level 1: Student Orientation
4	Fri	Levels 3 & 5: Fee deadline

Nursing

7	Mon	Levels 1-4: Registration and Orientation/classes begin
11	Fri	Levels 2-4: Fee deadline
14	Mon	Level 5: Registration/classes begin
18	Fri	Level 5: Fee deadline
21	Mon	Levels 1-4: Last day to apply for course credit (exemption) and/or change registration to audit status
21	Mon	Levels 1-4: Last day to withdraw and receive a full refund (less \$200 commitment fee)
28	Mon	Level 5: Last day to withdraw and receive a full refund (less \$200 commitment fee)

FEBRUARY

13	Wed	Last day to withdraw from Term A courses and receive a "W" on transcript
21	Thr	Winter Convocation ceremonies

Electronic Engineering Technology

1	Fri	Levels 2, 3, 4 and Co-op fees due
8	Fri	Last day to change sections for students on modified programs
11	Mon	Level 1: Last day to withdraw from classes and receive a full refund (less \$200 commitment fee)
11	Mon	Last day to apply for course credit (exemption) and/or change registration to "audit" status for full-time courses

MARCH

11-15	Mon-Fri	Spring break (except Electronic Engineering Technology)
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MARCH cont'd

18	Mon	Term B courses begin
29	Fri	Good Friday - BCIT closed

Electronic Engineering Technology

5	Tue	Last day to withdraw to receive "W" on transcript for Term A courses
22	Fri	Term A courses end
25	Mon	Term B courses begin

Technology Entry

8	Fri	Last day to withdraw from courses and receive a "W" on transcript
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APRIL

1	Mon	Easter Monday - BCIT closed
10	Wed	Last day to withdraw and receive a "W" on transcript for full term courses

Electronic Engineering Technology

10	Wed	Last day to withdraw and receive a "W" on transcript for full term courses
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Nursing

2	Tue	All Levels: Last day to withdraw and receive "W" on transcript
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Technology Entry

12	Fri	Last day of classes
15-19	Mon-Fri	Examinations
22	Mon	Registration and Orientation

Medical Radiography

TBA		Examination week
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MAY

1	Wed	Last day to withdraw and receive a "W" on transcript for Term B courses
20	Mon	Victoria Day - BCIT closed
21-24	Tue-Fri	Examinations for most Technologies, all Levels

Electronic Engineering Technology

1	Wed	Last day to withdraw and receive a "W" on transcript for Term B courses
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Nursing

6-10	Mon-Fri	Examinations for all Levels
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Technology Entry

6	Mon	Last day to withdraw and receive a full refund (less \$200 commitment fee)
6	Mon	Last day to apply for course credit (exemption) or change status of registration to "audit" status for full-time courses

JUNE

1	Sat	Winter term Technology grades available on the BCIT Web site
19	Wed	Spring Award ceremonies
19-21	Wed-Fri	Spring Convocation ceremonies

Technology Entry

28	Fri	Last day to withdraw from courses and receive a "W" on transcript
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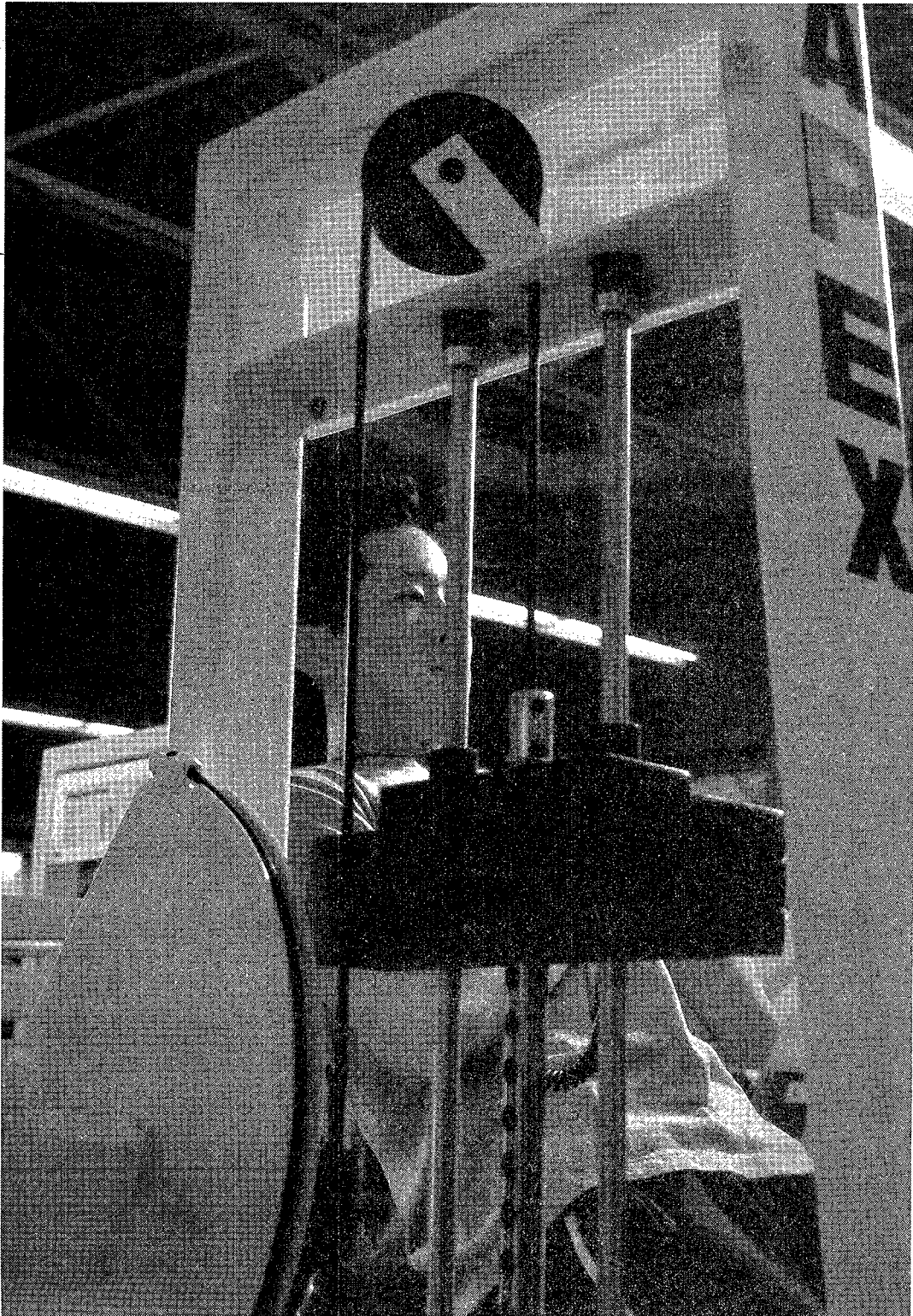
JULY

1	Mon	Canada Day - BCIT closed
5	Fri	Levels 1,5,7 (full time programs only) fee deadline for Fall term

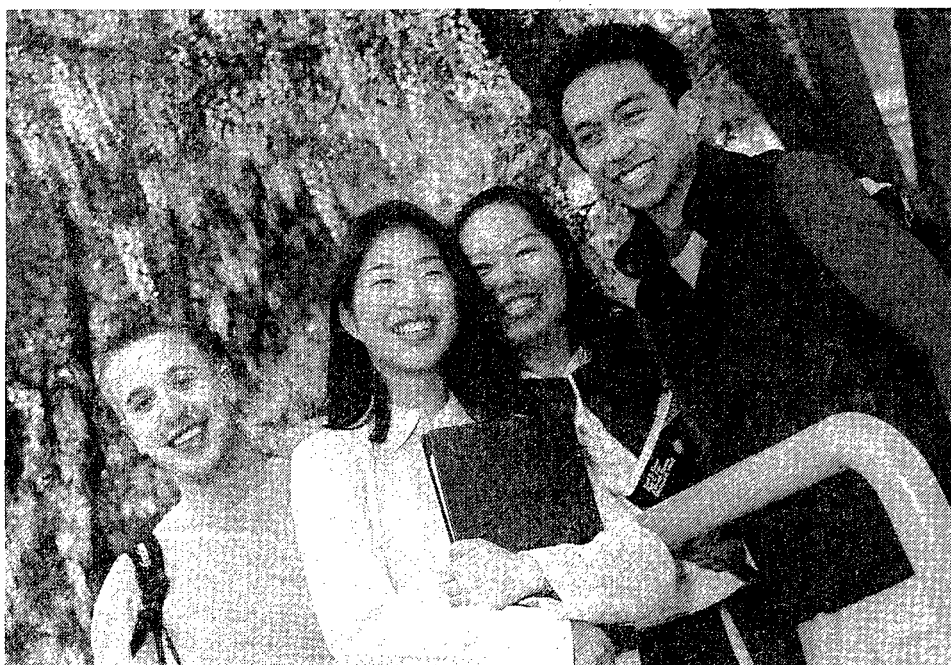
Technology Entry

26	Fri	Last day of classes
29-Aug 2	Mon-Fri	Examination

Services



Services



Services

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Program Advising Services – What we can do for you

Program advisors are able to provide information on:

- BCIT Programs
- Entrance requirements
- Application process
- Upgrading
- Program costs
- How to be a competitive applicant
- Program start dates
- Pre-test information
- Trades wait list
- Applying for transfer credit
- Job placement
- Entry level salaries

Although the program advisors can provide a great deal of valuable information about BCIT and its programs, they are not career counsellors. Prospective students with undefined goals may be referred to BCIT's career, educational and personal development courses. In addition, program advisors do not evaluate educational documents for admission, transfer credit or credential equivalencies.

Program advisors also participate in secondary school, college and community liaison visits throughout the province and attend many of the BCIT evening information sessions.

Contacting Program Advising – www.bcit.ca/~stuserv/advising

Program advisors are available to answer questions for prospective students by phone, appointment or online.

Phone: call (604) 434-1610 to leave your name and number

Appointment: call (604) 434-1610 to book an appointment

Online: www.bcit.ca/askadvisor

Program Advisors:

Ann McNaughton, Cert., Coordinator

Janeen Alliston, B.A.

Katy Bobetsis, B.A., Dipl.T.

Raelene Christie, B.A.

Debbie Saxby, P.D.P., B.A.

Part-time Studies: Program Advisors

Linda Becerra, B.A., Engineering Technologies and Trades

Chikako Fong, B.A., Business and Computing Studies

Amy Haugejorden, Dipl.T., Business and Computing Studies

Sandra Zanatta, B.A. Business and Computing Studies



**Access Programs
bring you up to
speed. See page 60
for more details.**

The NOW Project

The NOW Project helps people who are, or have been receiving income assistance to prepare for and succeed at BCIT. Supports and services available are:

- Information, assistance and advocacy for students regarding income assistance and training issues.
- Assist students to access academic assessments and upgrading for educational and career planning.
- Assistance in navigating through the application, admission and financial aid processes as well as other BCIT systems and procedures.
- One on one support and student support groups.
- Use of resource centre for academic, career, labour market and income assistance information.
- Referral to tutoring and workshops.
- Referrals and assistance to access services in BCIT and in the community.
- Job search coaching and workshops.

Appointments can be booked at the NOW Project office SW1 Building Room 2115, call 451-6983 or e-mail nowproject@bcit.ca.

Hours of operation Monday–Friday 0830-1630.

Drop in hours for registered clients on a first come, first serve basis: 1230 -1600, Monday to Thursday.

Resource centre is open for independent work Monday, Tuesday, Thursday, Friday: 0830-1630 Wednesdays: 1100-1630.

Staff

Amanda Hill, Manager

Janice Pontes, Now Project Advisor

Lisa Moy, Now Project Advisor

Robert Tudhope, Employment Officer

Donna Mitchell, Project Assistant

Medical & Counselling Services

Medical Services

A drop-in medical office, located in the Student Activity Centre, SE16, is staffed by physicians and nurses Monday to Friday, 0830 - 1630. All visits are strictly confidential.

Medical Services operates as a regular doctor's office. Services include immunizations, some free medications, Sexually Transmitted Disease (STD) information and testing, pregnancy tests, pap test, ice bags and tensors, bandages, crutches and canes, blood pressure checks, literature on numerous health issues and beds for resting.

A psychiatrist and physiotherapist are also available. Referral to the psychiatrist is through Medical Services or your own physician. The physiotherapist's office is adjacent to the Medical Services facility.

All patients who wish to see a doctor must have valid medical coverage. Information and application forms regarding the Medical Services Plan of B.C. and private medical insurance coverage are available as well as information about premium assistance (reduced rates) for eligible low income students. Emergencies are always seen.

Confidentiality of Medical Records

All medical records are confidential. Information will not be released to anyone without the written consent of the patient. For more information on Medical Services please visit us or call (604) 432-8608.

Counselling Services

A counsellor can help you to:

- Enhance your performance and maximize your success as a student
- Develop decision-making and problem solving skills
- Work toward your educational, personal and career goals
- Access community and Institute resources and services
- Receive confidential professional services

Educational Counselling

Attending a post-secondary institute can present unexpected challenges. The transition from high school to post-secondary or re-entering school after an absence can be big adjustment. Our counsellors help you with study, time management, test writing and communication skills and to increase your level of concentration and motivation.

Personal/Relationship Counselling

Stress, relationships, grief and loneliness can all affect your life as a student. We offer ongoing counselling and support to help individuals and couples to identify and clarify problems, establish priorities, set goals, and make successful and effective decisions.

Student Development and Wellness Workshops

Workshops are offered for students during Fall and Winter terms on such topics as:

- Study skills strategies
- Stress management
- Time management
- Coping with performance/test anxiety
- Overcoming procrastination
- Self-esteem and assertiveness
- Communication skills
- Coping with perfectionism
- Conflict resolution skills
- Strategies for working on team projects
- Job search strategies and interview skills
- Resume writing
- Post-diploma and degree completion options.

See Counselling Services posters for term schedule. Classroom-based workshops are offered on request, subject to availability

Ongoing Weekly Counselling Support Groups/Personal Development Workshops

- Building Self-Esteem and Assertiveness.
Pre-registration is required.

Crisis/Critical Incident Counselling

Some students experience an unexpected or traumatic event in their lives that affects their ability to concentrate and study. We can help you develop strategies to cope during this period. We refer students to Institute and community resources where appropriate.

Orientation to BCIT

Early Orientation

Counsellors provide early and special orientations to assist students in preparing for BCIT. Counsellors offer a short course called BCIT Preparation: An Early Orientation. See the list of courses near the end of this section.

Term and Class Start-up Orientation

Throughout the year, counsellors welcome new students and encourage them to take full advantage of activities and services.

Special sessions are offered for out-of-town students, returning adult students, and students with children.

Career Exploration, Planning and Development

Selecting a career path can be overwhelming. Sometimes you discover that you're not in the best program for you. We can help you to determine your interests, skills, and life and career values. You can then make informed decisions about your goals and focus on finding the program you want and securing employment after graduation. We also can discuss degree completion opportunities.

Counselling Resource Centre

Brochures, handouts and reference materials on student life, career planning and educational information is available in our centre and (in future) at our Web page.

Referrals to Counselling

- Self-referral: Drop in at SE16 Room 127 or call the counselling reception at (604) 432-8608
- Peer referral: classmates, residence advisors
- Faculty/Instructor/Staff/Administration
- Family/friends referral
- Agency referral
- Student Services referral

Referrals from Counselling to

- Faculty or administration.
- Other Student Services.
- Community Resources and Support Services

Counselling Services for Future Students

Future students are seen for career counselling on referral from:

- Career, educational and personal development courses
- Program advisors
- Faculty/staff or administration

Future students are encouraged to register for Career, educational and personal development courses listed below.

Career, Educational and Personal Development Courses

These courses help you to:

- Make a first time career choice
- Make a career change
- Develop your career
- Access current information about career and educational options
- Learn about jobs of the future
- Prepare to become a BCIT student.

To register, contact BCIT Registration and Information at (604) 434-1610 or (604) 412-7777.

Looking for a New Career?

If you don't know where to start, attend:

CEPD 0100: INTRODUCTION TO CAREER PLANNING

If you are considering BCIT, are undecided about your career choice and would like to learn more about the career planning process, this two-hour course will introduce you to the following topics:

- Steps in the career planning process
- Introduction to exploring interests
- Research career/educational options.

If you want to relate your interests and strengths to a career, attend: CEPD 0101: CAREER TESTING

If you want to explore your career options by writing a series of standardized tests, this course will assist you to access information to identify you:

- Interests
- Aptitudes
- Values
- Personal style
- Summary profile for career and lifestyle planning.

If you want to write tests and explore work and educational options, attend:

HRMG 0315: CAREER SEARCH WORKSHOP

If you want to explore and research career options by writing tests, accessing current information and resources and learning how to specify goals and make a career change, this course will cover the following topics:

- Interests, aptitudes, values clarification and testing
- Career and educational opportunities
- Decision-making
- Goal setting and implementation.

If your organization is downsizing or restructuring, arrange for: CEPD 0103: CAREER TRANSITIONS

This is a program of tests and activities designed for groups of workers or companies experiencing restructuring or downsizing. Call Counselling Services at (604) 432-8435 for more information.

Preparing to Become a BCIT Student?

If you have been accepted into a BCIT full-time program and want to get ready for BCIT attend:

CEPD 0200: BCIT PREPARATION: EARLY ORIENTATION

This course is an early orientation for students accepted into BCIT's programs. Topics will include introduction to factors in student success, study skills, time and stress management and accessing support and assistance at BCIT.

Professional Counselling Team

Our counsellors are professionally trained and have extensive experience with adults in post-secondary settings. They are committed to providing the highest level of service, consistent with the College of Psychologists and the B.C. Colleges and Institutes Counsellors' Association's accepted ethical standards.

Stu Gibbs, B.A., M.S. Ed., Counsellor
(604) 432-8436, sgibbs@bcit.ca

Heather Hyde, B.A., M.A., C.C.C., R. Psych, Counsellor/Coordinator
(604) 432-8432, hhyde@bcit.ca

Jean Spence, B.A., M.Ed., C.C.C., Counsellor
(604) 432-8435, jspence@bcit.ca

Confidentiality

All information gathered in counselling sessions is held in strict confidence. No information is released to Institute administrators, instructors, outside agencies or anyone else unless authorized by the student or required by law.

Counselling Services

Counselling Reception: SE16-127

Telephone: (604) 432 8608

Web site: www.bcit.ca/services.home.htm

Appointments

Enrolled students have priority for appointments.

- Quick response and emergency appointments are available as well as regularly scheduled appointments.
- Students in crisis are seen immediately.
- Future students seen for career counselling appointments on referral only.
- Counselling services are free of charge and available from 08:30 a.m.-16:30 p.m. Monday to Friday.

Aboriginal Programs and Services

The Aboriginal Programs and Services department provides culturally appropriate services and programs for students of Aboriginal ancestry including status, non-status, Metis and Inuit people.

Whether you are a current BCIT student or you are considering enrolment at BCIT, you are encouraged to contact the Aboriginal Programs and Services staff for information on the programs and services right for you.

- Pre-admission advisory
- Referral services
- Tours
- Orientation
- Liaison with band/tribal administrations, sponsoring agencies, community resources, BCIT programs & services
- Study skills workshops
- Cultural activities
- Entrance awards
- Sweat lodge
- Advocacy.

Aboriginal Access Programs

Aboriginal Access Programs are technical literacy programs that offer academic upgrading using an applied approach for Aboriginal students wishing to enter BCIT. Access programs provide skills development in applied mathematics, physics, communication, computers and study skills in an environment that honours and respects Aboriginal cultures, values, and views. Current Aboriginal Access Programs:

- Computer Systems Entry for Aboriginal People
- Fundamentals of Electricity and Electronics for Aboriginal People.

Contact Information:

General Inquiries: (604) 432-8474

Fax: (604) 434-2057
or 431-0724

Web site: <http://www.bcit.ca/~stuserv/firstnations/index.htm>

E-mail: Firstnations@bcit.ca

Office Location: Burnaby Campus, SW1, Room 2130

Office Hours: Monday to Friday
8:30 a.m.- 4:30 p.m.

Aboriginal Staff:

Brenda Ireland, M.A., Coordinator

Kim Cameron, Advisor

Celeste Spinks, Administrative Assistant

Shirley Bear, Elder Advisor

Bob George, Elder Advisor

Telephone Numbers:

(604) 451-6901

(604) 451-7026

(604) 432-8474

(604) 412-7414

(604) 432-8474

BCIT seeks to enhance the Aboriginal learner's participation and success rate in trades and technology training.

Disability Resource Centre

BCIT is committed to providing access to students with disabilities. We offer a variety of support services to any full- or part-time student with a disability including:

- Career, personal, educational and vocational rehabilitation counseling
- Interpreting services
- Agency and faculty liaison
- Note taking
- Taped books
- Learning strategies support
- Exam accommodations
- Access to service and technology loans.

Students with learning disabilities should provide recent documentation in order to determine learning strengths, identify appropriate support services and access accommodations. Also, for students with learning difficulties we suggest taking advantage of the Learning for Success Program to assist students with general learning skills and strategies that can be applied in any environment where structured learning is required. Please contact the Disability Resource Centre for further information. Funding may be available for those who qualify.

Students with mobility impairments: Disabled parking is available for students with a SPARK sticker. Also, arrangements may be made through the DRC for timetable and locker adjustments to obtain a close proximity of classes.

Students who are deaf and hard of hearing: Interpreting services are provided for all courses and programs at BCIT based on reasonable advance notice, documentation and availability of interpreters.

Students with visual disabilities or learning disabilities which severely affect reading abilities should apply for taped textbooks and/or adapted equipment with as much lead time as possible before classes begin, to ensure availability.

It is recommended that three to four months lead time be given to access support services, particularly for taped books and visual language services. Please contact the Disability Resource Centre regarding these services.

Our Web site is: www.bcit.ca. If you are a prospective student, you can research BCIT programs and services there before booking an appointment.

Appointments

Students in crisis can be seen with a minimum of delay. Counseling services are free of charge.

For an appointment please contact the DRC reception at:

Tel (604) 451-6963, Fax (604) 433-1184, or TTY (604) 432-8954,

e-mail kharvey@bcit.ca.

Web site: www.bcit.ca.

Hours of service are Monday to Friday 0830-1630.

We are located in Building SW1-2300.

Staff – Disability Resource Centre

Marna Arnell, BA, Dipl. Int., Provincial Interpreting Facilitator
 Shirley Coomber, MEd, ARP, Vocational Rehabilitation Specialist
 Joyce Davidson, BA, Admin. Assistant/Interpreting Supervisor
 Karen Harvey, DRC/SS Reception Specialist
 Derek McLauchlan, Ph.D., Learning Specialist
 Kathleen Musial, BSc., B.Ed., Instructor,
 Learning for Success Program
 Lorena Pelly, RN, MEd., Vocational Rehabilitation
 Specialist/Coordinator
 Karen Poirier, Admin. Support, Provincial Interpreting Project
 Linda Young-Jones, MEd., CCRC,
 Vocational Rehabilitation Specialist

Free Information Sessions on Full-time Programs at BCIT

Information sessions are an excellent way for you to find out about BCIT programs. If you have a general interest in an area but are unsure of specific program offerings, information sessions can give you some direction and help with your educational decision. Visit the BCIT information session Web page at: www.bcit.ca/infosessions for an up-to-date list of additional "program specific" information sessions that are held throughout the year.

Note: The Web page listing will contain the most current details regarding each information session, including cancellations, room changes, etc. Please be sure to call Registration and Information at (604) 434-1610 or check online at: www.bcit.ca/infosessions before attending a session.

BCIT's Big Information Session and Program Expo

This is an opportunity for you to visit BCIT's Burnaby campus and learn about our full-time, part-time and degree programs. Presentations by BCIT graduates and displays of all programs are highlights of this event.

Wed – Oct. 25, 2000

Wed – Feb. 21, 2001

Where: Building SE6–Telus Theatre Room 233

When: 1800-2000

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Women's Work, Women in Technology and Trades

This session will cover all aspects of women entering into non-traditional jobs in the Technology and Trades areas. Included will be information about program content, career information and requirements.

Sat – Jan 27, 2001

Where: Building SE6 – Telus Theatre Room 233

When: 0900-1200

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Business Programs

These sessions will provide information on programs offered through Business (except Broadcast). Come out and meet program heads and faculty members to learn more about business programs.

Mon – Mar 05, 2001

Tue – Apr 17, 2001

Where: Building SE6–Telus Theatre Room 233

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Bachelor of Technology Programs – Business

Join us at these sessions to learn about BCIT's new degree credentials within Business. Information on the following programs will be presented: Bachelor of Technology in Accounting, Bachelor of Technology in Management and the Bachelor of Business Administration Degree (Open Learning University/BCIT collaborative program).

Mon – June 11, 2001

Where: Building SE6–Telus Theatre Room 233

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Business – Program Specific Information Sessions

Broadcast and Media Communications

Mon – Sep 11, 2000

Mon – Oct 2, 2000

Mon – Nov 6, 2000

Mon – Dec 4, 2000

Mon – Jan 8, 2001

Mon – Feb 5, 2001

Mon – Mar 5, 2001

Mon – Apr 2, 2001

Mon – May 7, 2001

Mon – June 4, 2001

Where: Broadcast Centre – Building SE10–Lobby

When: 1730-1830

Register: Call Broadcast department at (604) 432-8863.

New Media Design CD ROM & Web Development

Wed – Jan 10, 2001

Wed – May 30, 2001

Where: Broadcast Centre – Building SE10–Lobby

When: 1700-1830

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Digital Animation

Wed – Jan 17, 2001

Thu – June 7, 2001

Where: Broadcast Centre – Building SE10–Lobby

When: 1700-1830

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Applicants to the Tourism Management program are urged to attend one of the information sessions offered in the Fall and Spring. These are two hours, free of charge, and open for anyone to attend, with no prior registration required. Sessions will be held in Room 207 of the IBM Building (SE6) at the Burnaby campus, with signs posted at entrances to the building if a room change occurs. Scheduled dates and times for 2000/01 are shown. For further information, please contact Registration and Information at (604) 434-1610 or contact the Tourism program head.

Commercial Real Estate

Join us at a session to find out all the exciting aspects of real estate – it's not just about selling residential property! Meet the program head and learn about licensed and unlicensed careers available upon completion of this program.

Tue – Nov 28, 2000
Tue – Apr 10, 2001
Tue – Mar 6, 2001
Where: Building SE2 Town Square D
When: 1830-2030
Register: Call Registration and Information at (604) 451-6735
or check online at: www.bcit.ca/infosessions.

These sessions will cover all aspects of the Professional Sales and Marketing program, which emphasizes professional selling skills needed to present sophisticated products and services to professional buyers.

Fri – Oct 20, 2000 Sat – Mar 17, 2001
Sat – Nov 18, 2000 Fri – Apr 20, 2001
Fri – Feb 16, 2001 Sat – May 12, 2001

Where: Building SE2 Town Square D
When: Fridays 1900-2100 Saturdays 1000-1200
Register: Call Registration and Information at (604) 451-6735
or check online at: www.bcit.ca/infosessions.

These sessions will cover all aspects of the Applied Operations Management Certificate program, the Operations Management and International Trades and Transportation Diploma programs. Included will be information about workload, class structure, program content and career information.

Wed – Jan 24, 2001
Wed – Jun 6, 2001
Wed – Mar 21, 2001
Where: Building SE2 Town Square A
When: 1830-1930
Register: Call Registration and Information at (604) 451-6735 or
check online at: www.bcit.ca/infosessions.

For more information on the Call Centre program, please visit the Web site at: www.callcentrereaining.com

Thu – Sep 14, 2000
Thu – Apr 26, 2001
Thu – Jan 11, 2001
Where: Downtown Campus Room 750
When: 1830-2030
Register: Call Registration and Information at (604) 451-6735 or
check online at: www.bcit.ca/infosessions.

These sessions will cover all aspects of the Computer Systems program. Included will be information about workload, class structure, program content, and career information. Computer Systems applicants are highly encouraged to attend an information session prior to applying.

Wed – Oct 18, 2000
Mon – Dec 4, 2000
Wed – Jan 17, 2001

Wed – Feb 14, 2001
Wed – Mar 21, 2001

Where: Building SE6–Telus Theatre Room 233
When: 1830-2030
Register: Call Registration and Information at (604) 451-6735 or
check online at: www.bcit.ca/infosessions.

Join us at these sessions to learn about BCIT's degree credential in Computer Systems. The program head for this degree program will present valuable information on entrance requirements, course content and graduate outcomes.

Thu – Sep 28, 2000 Thu – July 19, 2001
Thu – Feb 15, 2001 Thu – Sep 27, 2001
Thu – Apr 19, 2001 Thu – Nov 1, 2001
Thu – June 7, 2001

Where: Building SE6–Telus Theatre Room 233
When: 1830-2030
Register: Call Registration and Information at: (604) 451-6735 or
check online at: www.bcit.ca/infosessions.

Information Technology Professional

For more information on the ITP program, please visit the Web site at: <http://thisisit.bcit.bc.ca>

Tue – Sep 12, 2000	Tue – Feb 6, 2001
Tue – Oct 3, 2000	Tue – Mar 6, 2001
Tue – Nov 7, 2000	Tue – Apr 3, 2001
Tue – Dec 5, 2000	Tue – May 1, 2001
Tue – Jan 9, 2001	Tue – June 5, 2001

Where: Building SE2 Town Square A/B

Thu – Sep 14, 2000	Thu – Mar 8, 2001
Thu – Oct 5, 2000	Thu – Apr 5, 2001
Thu – Nov 9, 2000	Thu – May 3, 2001
Thu – Dec 7, 2000	Thu – June 7, 2001
Thu – Jan 11, 2001	Thu – Aug 16, 2001
Thu – Feb 8, 2001	

Where: Downtown campus, Room 282

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Construction Programs

These sessions will provide information on programs offered through Construction. Come out and meet program heads and faculty members to learn more about construction programs.

Wed – Nov 8, 2000

Wed – Mar 28, 2001

Where: Building SE2 Town Square A/B

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Construction Trades Programs

These sessions will provide you with a better understanding of the following construction programs: Boilermaking, Carpentry, Drafting, Ironworking, Joinery, Painting & Decorating, Drywall, Plumbing, Sheet Metal Working, Steamfitting and Welding. Topics covered will include content and scope of programs, entrance requirements, career options and information on the Provincial Apprenticeship program. A question and answer period will follow.

Mon – Sep 11, 2000	Mon – Feb 5, 2001
Mon – Oct 2, 2000	Mon – Apr 2, 2001
Mon – Dec 4, 2000	Mon – June 4, 2001

Where: Building NW5, Construction Industry Seminar room

When: 1800-2000

Register: Call (604) 430-8854 or e-mail: wstevens@bcit.ca to reserve a seat.

Construction Operations and Supervision Programs

Interested in entering the construction industry? Working in industry and wish to enhance your career potential? BCIT and the Vancouver Regional Construction Association (VRCA), have teamed up to offer a Part time Studies training program specifically designed to accommodate individuals with a trade background. Job opportunities for construction operations/supervision professionals include: foreman, leadhand, junior site coordinator to site superintendent, junior estimator and junior project coordinator.

Mon – Oct 2, 2000

Mon – Dec 4, 2000

Wed – Feb 7, 2001

Wed – Apr 4, 2001

Mon – Aug 27, 2001

Where: Building NE1 Room 317

When: 1800-1915

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Bachelor of Technology in Construction Management

Join us at these sessions to learn about BCIT's degree credential in Construction Management. The program head for this degree program will present valuable information on entrance requirements, course content and graduate outcomes.

Tue – Sep 5, 2000

Mon – Oct 2, 2000

Where: Building NE1 Room 317

When: 1930-2100

Register: Call (604) 412-7469 or e-mail: msadowski@bcit.ca to reserve a seat.

Associate Certificate in Building Design and Architectural CAD

This Associate Certificate program is designed to provide students with a competency skill level for working in the field of housing design and presentation graphics. Recommended to individuals who want to advance in their careers or are currently working in home design offices, material suppliers, retail, and real estate marketing and municipal offices. All credits earned may be applied to the Certificate in Architectural & Building Engineering Technology.

Associate Certificate in Building Construction Technology

This Associate Certificate program is designed to provide students with a competency skill level for working in the field of housing and small building design and construction. Recommended to individuals, who want to advance in their careers or are currently working in design/build offices, working with construction documents, material suppliers and installers, estimating, and municipal offices. All credits earned may be applied to the Certificate in Architectural and Building Engineering Technology.

Certificate in Architectural Building Engineering Technology

The requirements for the Certificate in Architectural and Building Engineering Technology have been revised starting September 1999 to meet the industry's continual growth and changing technology. If you are currently enrolled in an approved program of studies, your credits may be applied to the new certificate programs. Recommended to individuals who want to advance in their careers or are currently working in design/build offices for homes and small commercial projects, material suppliers and installers, estimating, and real estate marketing, property management and municipal offices. Part-time Studies courses listed as BLDC have been developed to align content with first year courses in the day time Diploma program in Architectural & Building Engineering Technology. Course credits may now be granted to students on an individual basis transferring to two-year full time Diploma program.

Wed – Nov 15, 2000

Wed – Mar 14, 2001

Wed – Jan 3, 2001

Mon – Aug 27, 2001

Where: Building NE1 Room 317

When: 1800-1915

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Bachelor of Technology in Environmental Engineering

Wed – Jan 17, 2001

Wed – May 16, 2001

Wed – Feb 14th, 2001

Wed – June 13, 2001

Wed – Mar 14th 2001

Wed – Aug 15, 2001

Wed – Apr 11, 2001

Where: Building SW1 Room 1205

When: 1830-2030

Register: Call (604) 451-6906 or e-mail: caspdn@bcit.ca to reserve a seat.

Electrical and Electronic

These sessions will provide information on programs offered in the Electrical and Electronic area. Come out and meet program heads and faculty members to learn more about these programs.

Wed – Sep 13, 2000 (Security Alarm Installer)

Where: Building SE1 Room 109

When: TBA – call (604) 432-8769 or check www.bcit.ca/infosessions.

Tue – Oct 10, 2000 (Electrical & Electronic programs)

Wed – Feb 28, 2001 (Electrical & Electronic programs)

Where: Building SE2 Town Square A/B

When: 1830-2030

Wed – Nov 15, 2000 (Electricity and Industrial Electronics)

Where: Thompson Community Centre
5151 Granville Avenue, Richmond, B.C.

When: 1900-2100

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Manufacturing and Industrial/Mechanical

These sessions will cover all programs offered within Manufacturing and Industrial Mechanical.

Wed – Nov 08, 2000

Wed – Apr 25, 2001

Wed – Mar 07, 2001

(Mechanical Design and Manufacturing Technologies only)

Where: Building SW9 Room 110

Wed – June 13, 2001 (Industrial Mechanical only, includes:

HVAC and Refrigeration, Machinist and Millwright Programs, Power Engineering and Saw Trades)

Where: Building NE1 Room 110

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Plastics Technology

Wed – Feb 28, 2001

Wed – Apr 25, 2001

Thu – Mar 22, 2001

Where: Building SW9 Room 117

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Process, Energy and Natural Resources Forestry

Thu – Feb 01, 2001

Thu – Mar 22, 2001

Where: Building SW1 Room 2055

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Chemical Sciences Technology

Wed – Mar 07, 2001

Where: Building SE2 Town Square C

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Health Sciences Nursing

These sessions will cover all aspects of the Nursing program. Included will be information about class structure, program content and career information.

Mon – Sep 18, 2000

Mon – Feb 19, 2001

Where: Building SE6–Telus Theatre Room 233

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Environmental Health Four-Year Degree

These sessions will provide details on the Public Health Inspector/Environmental Health Officer Bachelor of Technology (four-year) degree program. Join us and learn about the employment possibilities in municipal, regional, provincial and national health agencies, environmental and pollution control agencies and private businesses and industries such as food processing, catering and fisheries.

Thu – Oct 19, 2000

Thu – Mar 8, 2001

Where: Building SE2 Town Square C

When: 1830-2030

Register: Call Registration and Information at (604) 451-6735 or check online at: www.bcit.ca/infosessions.

Financial Aid and Awards

It is important that careful financial planning takes place prior to any decision to pursue post-secondary studies to ensure that enough resources are available to cover all costs. The more you contribute to your education, the less you will have to borrow and repay. For this reason you are urged to contact the Financial Aid and Awards office for information well before the start of a new school year. Many financial assistance and award programs have early application deadline dates so planning well in advance is to your advantage.

How Much Will it Cost?

The first step in determining your total financial picture is to calculate expenses and resources. Your educational expenses include tuition, fees, books and supplies costs. Depending on your program, other costs could include specialized equipment, field trips, clinicals or practicums. Next, calculate living expenses. Single students not living with their parents can expect to spend approximately \$1000 per month on living expenses. Expenses for married students and sole-support parents will be significantly higher. It is important that costs such as rent, food, utilities, transportation, clothing, laundry and entertainment are taken into account.

Resources may include your savings, income from a part-time job while you attend school and any assets such as bonds, mutual funds or term deposits. Other suggested sources to investigate are gifts, educational trust/scholarship plans or loans from parents or other relatives and sponsorship from agencies such as Employment Insurance, HRDC or WCB. If you are married or living common-law, your partner may be able to assist.

If your estimated expenses exceed your available resources you should consider the government student assistance program available in your home province, state or country. B.C. residents are eligible to apply for the B.C. Student Assistance Program.

B.C. Student Assistance Program

The B.C. Student Assistance Program (BCSAP) is administered by the Student Services Branch of the Ministry of Advanced Education, Training and Technology. By completing one application form you are automatically applying for five different kinds of assistance: Canada Student Loan, B.C. Student Loan, Canada Millennium Scholarship Bursary, B.C. Grant and Canada Study Grant for Students with Dependents. BCSAP is a needs-based program designed to supplement the resources of eligible B.C. residents who could not otherwise afford to attend full-time post-secondary education. Students must be enrolled in at least 60 percent (40 per cent for students with permanent disabilities) of a 100 per cent post-secondary level course load, in credit courses leading towards a certificate, diploma or degree, for a minimum study period of at least 12 weeks.

Canada Student Loans and B.C. Student Loans must both be repaid. At the time you cash your loan(s), your service provider is responsible to explain your loan agreement, the interest rate policies and the repayment requirements to you. Canada Student Loans and B.C. Student Loans are both payment-free and interest-free while a student is enrolled in full-time post-secondary studies. The interest on both loans becomes your responsibility effective within the month following your full-time study end-date.

The Canada Millennium Scholarship Bursary, the B.C. Grant and the Canada Study Grant for Students with Dependents all provide non-repayable grant assistance for eligible high-need students. Not every applicant receives grant funding. Grants are taxable income and the Ministry will mail you a T4A form.

The Student Services Branch of the Ministry will assess your application according to BCSAP Policy. Your assessed resources will be compared to your BCSAP eligible costs (allowable educational costs, a Moderate Standard of Living allowance plus applicable child/dependent, day-care and other allowances). Your eligible cost minus your assessed resources is your assessed need, from which your BCSAP award is calculated. Every BCSAP application is subject to this standard assessment. Not every applicant receives the same amount of funding. The combined loan and grant maximum funding limits for the 2000/2001-program year were:

\$260 per week of study for students without dependent children

\$435 per week of study for students with dependent children

Note: Both federal and provincial governments introduce revisions to their funding programs each year. Details of changes for 2001/2002 were not available at the time of printing.

The revised BCSAP application package, for study periods starting between August 1, 2001 and July 31, 2002 will be available as of May 2001 from Financial Aid and Awards. Workshops are offered to help BCIT students complete the BCSAP application correctly and thus avoid assessing delays at the Ministry.

Work Study Program

This program, jointly funded by BCIT and the B.C. Government, provides part-time jobs on campus to a maximum of 10 hours a week for students who have applied for BCSAP and who require more funds than they are receiving as their BCSAP award.

Entrance Awards Program

BCIT President's Entrance Awards: Up to 60 awards equivalent to a full year's tuition (maximum \$2238) will be presented to students entering a full-time BCIT program (or a formal BCIT transfer program at a regional college) directly from B.C. Grade 12. To be considered, a student must have applied for admission to BCIT and have submitted a BCIT President's Entrance Award application by April 15. BCIT Entrance Awards packages are distributed to B.C. secondary schools in February of each year.

BCIT Alumni Association Entrance Awards provide up to seven entrance awards equivalent to a full year's tuition (maximum \$2238) to students who are entering a full-time BCIT Technology or Trades program after taking one or more years since secondary school for activities such as work or attending another post-secondary institution.

BCIT Board of Governors Entrance Awards for Bachelor of Technology provide up to six awards valued at up to \$3600 to students entering a BCIT Bachelor of Technology Degree program. To be considered, a student must be registered in at least 12 credits per term.

Numerous other BCIT Entrance Awards are available for students entering BCIT. Apply early as application deadline dates vary with each entrance award.

Technology Scholarships

Scholarships varying from \$100 to \$2,000 are awarded to Technology students who obtain the highest standing in the first year of their program. No application is necessary. To be eligible for scholarships, a student must carry a 100 per cent course load in first year.

Other Programs

The Financial Aid and Awards office also administers many other financial need-based programs and academic merit-based programs for BCIT students, including:

- Tuition Fee Deferral program
- Emergency Loan program
- Bursary program
- Technology First Year Achievement Awards
- Technology Graduating Awards
- Trades Graduating Awards
- Part-Time Student Assistance program.

Further Information

More information on the above programs may be obtained from:

Financial Aid and Awards, Building SW1-Room 2300
Office Hours: 0830 to 1600, Monday to Friday
Telephone (604) 432-8555
Web site: www.finaid.bcit.ca

Offices are closed Saturdays, Sundays and holidays. Where a BCIT Financial Aid and Awards office deadline falls on a day when offices are closed, the deadline will be extended to the next working day.

Information contained in this publication is accurate at the date of publication but may be subject to change.

BCIT International

BCIT International Office

The office is located in NW1. Tel: (604) 432-8816,
Fax (604) 430-9042, e-mail: infobcit@bcit.ca.
Online advising: www.international.bcit.ca

Administration

Henry Arthur, Executive Director	(604) 432-8622
Jeanne Kurz, Director	(604) 432-8968
Dorothy Deagle, Operations Manager	(604) 432-8969
Donna Hooker, Marketing & Recruitment	(604) 432-8842
Karen Wantke, Operations Administrator	(604) 432-8674
	(On leave)
Karin Giron, Executive Assistant	(604) 432-8966
Patricia Chu, Department Assistant	(604) 432-8967
Kerri Ferrero	(604) 451-7068

International Students

Anna-Lisa Jones, Manager, International Student Centre & Development Opportunities	(604) 432-8232
Lexie Atherton, International Student Administrator	(604) 432-8475
Reception	(604) 432-8816

International Projects

Ernesto Calica, Manager, Business Development	(604) 432-8983
Rae Kerr, Trades Specialist	(604) 451-7015

To find out more
about BCIT, go to
www.bcit.ca



International Students

BCIT's international students come from many different cultural backgrounds and from virtually every point on the globe. International education plays a strong role at BCIT. The philosophy of BCIT International is to:

- TechnologyProvide quality programs that will prepare international students and new permanent residents for academic success
- TechnologyAssist international students and new permanent residents with their integration into BCIT and surrounding community

Several programs have been designed to meet the specific needs of our international students and new permanent residents.

International applicants/students are defined as having a permanent residence outside Canada. For those international applicants who do not meet the English language requirements for BCIT programs, BCIT International offers special programs, which are designed to integrate technical training with English language development. The programs offer students an opportunity to develop practical skills and earn credits while continuing to develop their English language skills. Graduates of these programs can immediately put their new skills to work or they can transfer their credits to BCIT regular programs.

The following programs have been developed specifically for international students and are administered by BCIT's International Student centre:

Interior Design Program (IDP)

This 12-month, three-term program combines English language training with an introduction residential Interior Design preparing students for careers in design offices, retail stores or industry suppliers featuring residential or office design. Students who successfully complete this program can enrol in the senior certificate program offered by BCIT. Alternatively, students who have successfully completed this program will possess a portfolio they can use for applying for work or further study programs.

Prerequisite: High school completion and TOEFL 500 or BCIT's English Placement Exam.

The Interior Design program is held at 549 Howe Street, in the heart of Vancouver's Business District.

Fees: \$200 Application fee

\$3,900 tuition each of three terms

Program content: Courses are 6-12 weeks delivered over three consecutive terms. Completion of all courses leads to a Management Certificate in Interior Design. Intakes are in September and January.

Women in Trades

Things to Know about Women and Trades Training at BCIT

BCIT has established a number of support structures to assist students. Some of these are directed specifically towards Women in Trades students, others are not but may also be of interest and help to women. It is our intent that all students at the Institute have a positive and rewarding experience while in training.

Personnel

Anne St. Eloi, Coordinator, Women in Trades/
Special Initiatives (LOA)

Tel. (604) 432-8233

e-mail asteloi@bcit.ca

Tamara Pongracz, Instructor, Women in Trades/Special Initiatives

Tel. (604) 432-8233

e-mail tpongac@bcit.ca

Heather Tomsic, Instructor, Women in Trades/Special Initiatives

Tel. (604) 412-7457

e-mail: htomsic@bcit.ca

Financial Aid and Awards

(For a complete list of awards for students call (604) 432-8555)

- CN Scholarship for Women (September 2000 only)
- The Simons Foundation Award for Women in Trades
- Women in Trades Entrance Bursaries
- B.C. Women's Equality Bursary
- Bridging the Gap Bursaries.

Financial Aid and Awards has an information session every Tuesday afternoon at 1230 in SW1 Room 126, Registration and Information. For more information call (604) 432-8555.

Special Training Programs

BCIT Trades Training offers special training programs to increase the number of Women in Trades training. In 1994 the 50/50 Sheet Metal program trained eight women and eight men in entry-level sheet metal skills. In 1995 BCIT provided the Trades Training for Pre-Trades Exploratory for Aboriginal Women and Trades Discovery for Women, Aluminum Vessel Construction for Women program, which trained 22 women welders in 1996 and 1998.

Dean's Advisory Committee on Equity

A committee of people both internal and external to BCIT has been established to advise the dean on equity issues.

Instructor's Workshop

To give instructors insight and skills to help them be more effective in teaching women in their classes we have developed a workshop: Playing the New Game - a workshop on strategies for successfully integrating women into the classroom.

Additional Support

There are organizations that are outside of BCIT especially for women in trades, specifically the Women in Trades and Technologies National Network (WITTNN)
Contact: 1 (800) 895-WITT (9488).

BCIT Libraries

The BCIT Libraries include the Burnaby Campus Library as well as specialized Libraries at the Pacific Marine Training campus and the Aerospace and Technology campus.

The libraries play a leading role in the educational process by providing the BCIT community with access to current materials using the latest information technology, assistance in retrieving information, and instruction in research methods.

The Burnaby Campus Library has a wide variety of books, periodicals, technical reports, videos, maps, and course outlines. There are specialized collections of legal materials, standards, Statistics Canada publications and much more.

The Library Microcomputer Centre on the lower floor has recently undergone extensive renovations. Students have access to more computer workstations including personal notebook connections, bookable study and presentation rooms, group project rooms and a work resource area for photocopying and scanning materials.

The PMTC Library collection specializes in nautical, marine engineering, marine emergency, radar simulator, and ship operations materials.

The ATC Library collection specializes in aircraft maintenance and repair, and avionics materials.

The Library has the latest in computerized information on the Library Catalogue System, Internet, and in-house CD-ROM access. The libraries are wheelchair accessible and have special needs facilities such as a print-to-voice machine for the visually challenged. These are your libraries. Use them for your information needs.

Library Hours (Changes will be posted)

Burnaby Campus Library (604) 432-8557
(SE-14 Bldg)

September to May
Monday to Thursday: 0730-2230
Friday: 0730-1700
Saturday and Sunday: 0900-1700
Circulation Desk: (604) 432-8370
Reference & Information Desk service: (604) 432-8371
Library fax: (604) 430-5443

PMTC Library (604) 453-4107

Monday to Friday: 0800-1600
Closed Tuesday and Thursday: 1300-1400
Library fax: (604) 980-0827

ATC Library (604) 419-3708

Monday and Friday: 0730-1500
Tuesday to Thursday: 0730-1800
Closed daily: 1215-1245
Library fax: (604) 207-8437

Internet Access

The Library's Web site is available at: <http://www.lib.bcit.ca>

Be sure to visit this site to use the Library Catalogue System and to obtain more detailed information about BCIT Libraries and services as well as the many resources and links that we have to offer.

Librarians

Brigitte Peter-Cherneff, B.A., P.D.P., M.L.S., Institute Librarian

Yu-Mei Choi, B.S.Sc., M.L.S., Cataloguing

Kathy Dutchak, B.A., B.L.S., C.N.E., Systems Librarian

Ana Ferrinho, B.A., M.L.S., Reference – Health; Distance Education Services

Jim Gormican, M.L.S., Reference – Manufacturing & Industrial Mechanical/Processing & Natural Resources

Merilee MacKinnon, B.A., M.L.S., Reference – Construction; Degree Programs

Linda Matsuba, B.Ed., M.L.S., Reference – Business

Tony O'Kelly, B.A., M.L.S., Coordinator, Public Services;

Reference – Computer & Academic Studies

Rob Roy, B.A., M.A., B.L.S., Coordinator, Collection Management; Reference – Transportation, ATC & PMTC Libraries

First Aid

First aid attendants are on call as follows:

Emergency: (604) 432-8820

Non-emergency: (604) 432-8872

Monday to Friday 0700-2200

Saturday 0800-1530

Location: Building NE16

First aid attendants are on duty:

- a) If an injury or health problem is life-threatening or if a patient is otherwise immobile:
 - (i) Call attendant giving precise location of patient.
 - (ii) Call ambulance at 911
 - (iii) Call security at (604) 451-6856 (24 hrs.), give location of patient.
- b) If patient is mobile, escort to first aid attendant in Building NE16.

When first aid attendants are not on duty:

If medical treatment is required, call ambulance at 911.

Aerospace and Technology campus - Hours

0800-1600 Monday to Friday.

PMTC campus - Hours

0800-1630 Monday to Friday.

Childcare

The BCIT Childcare Centre opened September 1990 and serves 25 children, ages two and a half to five, with the majority of spaces being allocated to students' children. The Centre is closed during July and August.

The centre, designed by Mineo Tanaka Architects using a pre-manufactured building, is located in the SW7 building.

The Institute and the Student Association are pleased that this important service is available to our students. For more information on the Childcare Centre, please call (604) 432-8919.

Housing

The BCIT Housing and Residence office, located on the Burnaby campus, is available to assist students in finding suitable accommodation in the greater Vancouver area.

Office Hours:

Monday to Friday 0830-2200 (Sept-May)
0830-1630 (June-August)

Address: 4200 Willingdon Avenue
Burnaby, B.C. V5G 4J3

Location: Southwest corner of Burnaby campus
Building SW11,
Salish House

Maquinna Residence

Telephone: (604) 432-8677

Fax: (604) 438-4174

Web site: www.bcit.ca/~housing

Maquinna Residence

When you are accepted into a full-time BCIT program of four months duration or longer, you are eligible to live at Maquinna Residence.

The residence is situated on campus, a short walk from classes, the Campus Centre, recreational facilities and medical services. It accommodates 336 residents in seven low-rise, split-level buildings. The buildings consist of townhouse style units where 12 students live together sharing kitchen and cooking facilities, living/dining rooms, washrooms and laundry facilities. Residents may choose all female, all male or co-ed units.

Each house has a residence advisor who is there to help with counselling and advice, in case of emergency and to facilitate social events.

Each resident has a private bedroom, fully carpeted and comfortably furnished with a single bed, desk, dresser, mirror, two chairs and a desk lamp. Ample closet space is provided.

Cost of Residence Accommodation

The cost of a room at Maquinna Residence in 2000-2001 was \$372 per month. This does not include meals, as students do their own cooking. Cost is subject to change.

How to Apply for Residence

When you are advised of your academic acceptance by BCIT, you will also receive a booklet entitled "Preparing for BCIT," which contains a pull-out application form for Maquinna Residence. Residence accommodation is limited and you should return your completed Maquinna Residence application to the Housing office as soon as possible.

Off-campus Accommodation

The Housing office maintains a free listing service of local, short-term and long-term accommodation. General information, area maps and a free local telephone are available to students seeking accommodation.

Listings for long-term, off-campus accommodation (e.g. more than three-four months) are posted at the Housing office (SW11) for viewing during office hours, and are also available on the BCIT Housing department Web page at: www.bcit.ca/~housing/offcamp.htm.

Costs for off-campus accommodation vary according to the type and location you select. Average monthly costs in 2000 were approximately:

Room and board	\$550
Room with cooking facilities	\$350
Basement suites (one bedroom)	\$450
Apartments (one bedroom)	\$550
Shared accommodation	\$400

Short term accommodation listings can be mailed or faxed upon request. Call the Housing office at (604) 432-8677 to receive a copy.

Please note that BCIT does not assume any responsibility for agreements made between students and landlords.

Family Housing

BCIT does not have residence accommodation for couples or families. The off-campus housing service includes listings appropriate for families.

Dining Services

Mr. SUB @ Campus Cafe (SE12)

Monday to Thursday	0700-2100
Friday	0700-1600
Saturday	0800-1430

Pacific Wok @ Town Square Cafe, (SE2)

Monday to Thursday	0630-1900
Friday	0630-1500
Saturday	CLOSED

Starbucks @ The Rix (SE2)

Monday to Thursday	0700-2100
Friday	0700-1600
Saturday	0800-1400

E.T.C. Building (SE1)

Monday to Friday	0700-1430
Saturday	CLOSED

Road Runner (SW1, Room 2322)

Monday to Thursday	0730-2100
Friday	0730-1500
Saturday	CLOSED

J.W. Inglis Building (NE1)

Monday to Thursday	0630-2100
Friday	0630-1530
Saturday	0800-1400

Hours of operation will be adjusted according to academic calendar.

Parking

All vehicles parking on campus, day or night, must display a valid Institute parking permit. Paid parking is in effect 24 hours a day, year round and is administered and controlled by Impark. All inquiries on parking, i.e. tickets, towing, etc., are to be directed to Impark at (604) 681-7311. The parking coordinator for BCIT is located in the Parking office on Goard Way, 0800 to 1600. Tel: (604) 432-8719.

Persons parking on campus are encouraged to read the parking and traffic regulations available at the parking office. Vehicles should be kept locked at all times. BCIT/Impark do not accept liability for theft from, or damage to, vehicles parked on campus.

Parking permits can be purchased from the cashier in the registration area in Building SW1.

Parking for the Physically Challenged

Special parking arrangements are available by contacting the parking office, (604) 432-8719.

Parking Rates

Day Students	
Monthly	\$15
Semester:	
Sep 1 – Dec 31	\$60
Jan 1 – May 31	\$75
Night School (term)	\$16
Physically challenged (monthly)	\$15
Motorcycle (monthly)	\$7
Semester:	
Sep 1 – Dec 31	\$28
Jan 2 – May 31	\$35
Daily (ticket dispenser)	\$1.50
Visitor (one hour limit)	\$1.50
Visitor SE14 Lot Only (all day)	\$6

Parking Violations

- First violation, \$20 fine; (reduced to \$15 if paid within 72 hours)
- Second violation, \$20 fine plus tow warning (Fine reduced to \$15 if paid within 72 hours)
- Third violation, \$20 fine plus tow at owner's expense unless previous ticket paid. (Fine reduced to \$15 if paid within 72 hours.)

Immediate Impoundment

A vehicle will be towed in the first instance when:

- blocking fire lanes, roadways, fire hydrants, yellow curbs, other vehicles
- parked in Campus Square
- displaying a fraudulent permit
- or otherwise impeding the normal traffic/pedestrian movement.

Vehicle Assistance

Vehicle breakdowns or other problems should be referred to security staff at (604) 451-6856. You can also use the emergency phones located throughout the campus.

Security

The security office is located in SW1-1001, open 24 hours a day, seven days a week. Security is responsible for:

- safer escorts, call security at (604) 451-6856
- locking and unlocking schedules
- investigations of personal and property crimes
- crime prevention programs
- maintaining accessible statistics
- security can be contacted at (604) 451- 6856, 24 hours a day, all year round.

Transit

The BCIT campus has frequent daily bus service providing direct access to campus. In addition, the SkyTrain rapid transit service is a short bus ride from the campus. The cost of monthly transit passes varies according to number of zones travelled. Passes are available from "This 'N That" stores on campus.

For information about bus routes, fares and schedules within the Vancouver Regional transit system, call the Metro Transit Information line at (604) 561-0400. You can also pick up bus schedules for Greater Vancouver at the Maquinna Residence.

Student Employment Services

FIND WORK! If you're looking for full-time or part-time work on or off campus drop by Student Employment Services. We average over 200 new jobs per month. Register early for Ejobs, BCIT's online job posting system. You can have new jobs in your program area e-mailed directly to you and post your resume online. Apply for jobs from the comfort of your own home or from our office, we have two computers for students to access. Our resume review service is popular, we'll help you build a resume that will get noticed and get results. Combine this with our tips on interview techniques and you'll be sure to get short-listed for more jobs. Drop by and see us for all your employment needs.

BCIT Student Employment Services SW1-1022

Tel: (604) 432 8666

Fax: (604) 435 3122

E-mail: bciteps@bcit.ca

BCIT Bookstore (432-8379)

SE-2 Campus Centre

BOOK-mark our Web-site: www.bookstore.bcit.ca for a wealth of information.

- Generally open 0830-1600, Monday to Friday.
- Closed Fridays from Victoria Day until after Labour Day.
- As there are many "ad hoc" extended openings, check www.bookstore.bcit.ca to verify hours.
- Your Burnaby campus source for texts designated essential for course use.
- Low-priced software (educationally priced, but full capacity) – proof of enrolment required.
- Special value packages for some leading business textbooks (text plus study guide) – subject to availability.
- For that little extra help: Schaum's Outlines, selected computer reference books and many others are on permanent discount.
- General school/office merchandise/drafting supplies.
- Visa, MasterCard, American Express, personal cheques and Interac Direct. Credit cards with magnetic stripe must be presented – account numbers alone will not be accepted.
- Student accounts can be set up by companies or government agencies if billing/invoicing details are faxed to (604) 432-7923 prior to first class.

RETURNS ARE RESTRICTED - PLEASE READ BELOW.

Books in a technical school can be expensive and are specialized materials. Purchase only if you're positive you need the material. It's best to go to your first class before purchasing – but you can check the booklists in the bookstore to verify information.

The Bookstore does not sell books for browsing or for reviewing purposes – if you're not sure, please don't buy.

The Three R's of Returns:

- 1) Mandatory course books only have returns protection, but require a Registration drop slip (proof of cancellation or withdrawal) within 14 days of book purchase. ASK FOR IT even if withdrawing via telephone or fax. No returns on reference books or general merchandise/supplies or BCIT lab manuals, course notes, or any opened 3-hole punched materials.

Plus

- 2) Cash register receipt – 14 day window – from date of purchase to return date. Remember – 14 days from the date of purchase.

Plus

- 3) Mint condition. Book must be unmarked and shrink-wrap intact if applicable. No exceptions – if you write in it or mark it, you must keep it.

About Used Books

As there are many variables, which determine resale value of a used book, there is no guarantee that a book will be purchased at the buyback.

- Course text changes or new editions occur frequently, so used book availability is limited.
- Neither BCIT staff nor BCIT funds are used. As the buyback is managed under contract, the bookstore staff cannot answer questions about potential resale value.
- The concept is to get you into the store.
- Limited quantities of used books are available at term start-up. Personal shopping only.
- Used book buybacks are in September, January, and May. Check www.bookstore.bcit.ca for exact dates and times.

Recreation Services

BCIT has a variety of indoor and outdoor recreation facilities available for use by all students. These include two squash courts, and four racquetball/handball courts, which can accommodate wallyball. We have an excellent gymnasium with eight badminton, two basketball or three volleyball courts which be used for many sports and recreational activities. Our weight room "The Fit Pit" is fully equipped with a wide selection of free weights, apex circuit machines and over 25 new cardio stations (including computer bikes, step machines, treadmills and more). Four tennis courts, one sports field, a fitness trail as well as a 396-metre track offer excellent outdoor recreation. Complete shower facilities, change and locker rooms are available.

Hours of Operation, September to May:

Monday to Thursday	0600-2300
Friday	0600-2100
Saturday and Sunday	0900-1700

Hours of Operation, June to August:

Monday to Thursday	0700-2100
Friday	0700-1600
Saturday	0900-1600
Sunday	Closed

Facility hours are subject to change; check the weekly schedule posted outside the Recreation and Athletic equipment office.

Facilities and Services

All students are encouraged to use the recreation facility. Locker, towel and laundry service is available for a small fee. Most equipment is provided on loan, however a nominal fee is charged for racquet rentals. BCIT identification is mandatory. Many structured programs are organized for student participation, see the program guide for details. There is plenty of recreation time where the gym is available for individual activity. Check the facility schedule for open and programmed times.

BCIT Fitness Center (The Fit Pit)

BCIT's Fitness Center, The Fit Pit is fully equipped with stairmasters, treadmills rowing machines, super circuit, stationary programmable bikes, a warm up area, a wide selection of free weights and a complete apex gym which meet the needs of enthusiasts of every fitness level.

Valid student, staff or member ID is mandatory to use the gym or there is a \$5.00 drop-in charge. For general public membership information call 451-6859.

Drop-in Programs

BCIT hosts a variety of regular activities for students and the community to participate in as follows:

Monday evenings – Volleyball
 Tuesday and Thursday evenings – Badminton
 Wednesday evening – Basketball
 Friday evenings – Indoor Soccer
 Sunday afternoon – Floor Hockey
 Saturday and Sunday mornings – Badminton
 Saturday and Sunday afternoons – Basketball

Programs are subject to change so check the weekly schedule or call 451-6859 for up to date information.

How to book gym time

During most of the day the gym is not booked so students may use the gym for pick up activities. Just sign in at the Equipment office and book out any equipment that you need.

How to book table tennis

Bookings are made on a first come, first served basis with no charge for table time, but there is a small fee for racquet rental. You must check in and book a table at the equipment office. No pre-booking allowed and there is a 45 minutes table time limit.

How to book tennis courts

Tennis courts can be booked for a small fee or you may play for free on a first-come, first-served basis. You must check in and pay prior to playing if you have booked a court.

How to book squash and racquetball courts?

Courts may be booked in person or by phoning (604) 432-8612 up to seven days in advance. Rates are lower for students (BCIT ID is required) than for staff, part-time students, alumni or general public. Safety glasses are strongly recommended and may be borrowed free of charge from the equipment office.

Payment of Court Fees

All fees must be paid prior to court use. Current BCIT ID must be presented in order to get the student rate. Players are required to check in at the Equipment office prior to using the courts. A ten-minute grace period is provided for players to claim their courts; if left unclaimed, they may be resold to someone else. Players must vacate their courts at the end of the specified booking period whether the game has ended or not. Failure to observe court courtesy rules will result in loss of playing privileges.

Facility Regulations

The Recreation Services staff is responsible for the facility. Proper attire and accessories, shorts and shirts or sweat suits, and clean, non-marking gym shoes are highly recommended. Safety eye protection is highly recommended while playing squash or racquetball and is provided free of charge.

Recreation Programs

We are here to assist you in planning your leisure time. Fitness activities and leagues are scheduled around your academic programs. If you have a special interest that does not appear in this section, drop in or call the Recreation and Athletic Services office located in the lobby of the SAC Building (SE 16 192) or telephone (604) 432-8287.

Intramurals

Leagues for volleyball, 3 on 3 basketball, ultimate Frisbee, ice hockey, non-contact floor hockey, wallyball, flag football, and more are organized for school breaks, and evenings. For further information, pick up one of our program guides.

Instructional Programs

Courses in relaxation massage, squash, racquetball, ballroom dancing, golf, etc., are ongoing during the school year. For further information, pick up one of our program guides.

Aerobic Fitness Classes

A variety of classes are offered each term, lunch hours and afternoon. You can pay a per/term fee or drop-in fee, both at very reasonable rates.

Special Events

Throughout the year, we schedule special events for students and staff to promote fitness and social activities. Thanksgiving Turkey Shoot is a popular fall event and the Quintathlon is our major spring event. We can assist you to schedule noncompetitive tournaments within your technology or trade. If you have any interests that you feel may attract other students or staff, drop in or call the Recreation and Athletic Services office at (604) 432-8287.

Additional Information

A program guide with dates and times for all recreation activities is available in September and January from the Recreation Services office or the equipment office in the SAC.

Recreation Services Information

Program office	(604) 432-8287 or (604) 432-8282
Facility and Equipment office	(604) 451-6859
Racquet court bookings	(604) 432-8612

Student Association

3700 Willingdon Ave,
Burnaby, B.C. V5G 3H2
Tel: (604) 432-8600 Fax: (604) 434-3809

Student Government

Elections for the Student Association are held in the Spring each year. BCIT students are invited to run for the following positions: President, VP Public Relations and Marketing, VP Finance and Administration, VP Student Affairs, Campus Life Coordinator, Chairperson of Business Society and Health Sciences Society, Chairperson of Electrical and Electronics Society and Computer Information Society, Chairperson of Transportation Society and Construction Society, Chairperson of Manufacturing and Mechanical Society and Process, Energy, Natural Resources Society.

Student Representation

Students are represented on the following Institute committees: Board of Governors, Alumni Association, Harassment and Discrimination, Health and Safety, Multiculturalism, Computer Resources, Education Council and many others.

The Student Association Campus Centre Building

The S.A. Campus Centre provides centrally located study, meeting and retail space. The building has been a dream of students since 1979 and is the heart of BCIT.

Childcare

The Student Association operates the childcare facility on campus. The Centre provides a language-based program, which encourages three to five-year-old children to express themselves creatively through a variety of learning circles and learning centres as well as positive social interaction. Tel: (604) 432-8919.

The Link

The Link, BCIT's campus newspaper, publishes every two weeks with a new issue full of interviews, on- and off-campus activities, sports, movies, theatre, music and social issues. The Student Orientation Handbook is also produced by **The Link**. Tel: (604) 432-8974.

Student Assistance Fund

This is a major fundraising event held by the Student Association in February to raise money for the Student Assistance Fund. This fund allocates the monies raised to students showing a need for money not provided by student loans or other educational loans. All money raised is matched by a government grant.

Support Programs

This department has developed four programs in the five years it has been in existence: Tutoring, recycling, childcare and a safety program. Tel: (604) 432-8549.

Open House

BCIT's Open House provides an opportunity for students from each program to showcase their particular talents through unique and innovative displays. Sporting and entertainment activities are also a part of this exciting event, which attracts more than 20,000 visitors.

Recreation

The Student Association provides support to assist the Recreation and Athletic department in promoting the concept of physical well-being and aims to encourage and maintain interest in physical and non-physical recreation. As an integral part of staff and student life on campus, the department attempts to provide activities so all members are able to participate in any of the four programs offered: intramurals, intercollegiate athletics, recreation instructional courses and special events, and general recreation.

Shinerama

Shinerama is a charity event held primarily in the month of September by post-secondary institutes all across Canada to raise funds for cystic fibrosis research. Coordinated by the C.F. Foundation, the BCIT Student Association operates and manages this event.

Copy Centre

The Student Association Copy Centre offers full Cerlox binding service, fax service, laminating, recycled paper, coloured and high-grade bond papers, student identification and self-service copiers located throughout the campus. Tel: (604) 451-7039.

Lease/Management Operations

Several services at BCIT are available through lease and management agreements: Campus Travel Agency, Elephant on Campus Student Pub and Sooky's Cappuccino.

This 'N That

With various locations on campus the TNT stores carry a wide range of products. They include everything from necessary stationery supplies, drafting supplies and calculators to exclusive BCIT imprinted clothing (infant to adult), and assorted gift ideas complete with cards and wrap. Whether snack food, stamps or service are your needs, we'll be happy to assist you.

Tel: (604) 451-7041.

The BCIT Student Association Operates, Leases or Supports:

- Environment Week
- Safety Program
- Video Arcades
- Open House
- This 'n That Stores (NE1, SE12)
- Recreation (SE16)
- The Link
- Colour Laser Printing
- Virtual Used Book Site
- Science World Pass
- Copy Centre/Desktop Publishing (SE14)
- Shinerama (Cystic Fibrosis Research)
- Campus Travel
- Tutoring
- Orientation Handbook
- Elephant on Campus
- Student Assist. Fund
- Childcare (SW7)
- Vending Operations
- Legal Aid
- Video Store
- Dukes Cappuccino (SE16)

Alumni Association

The BCIT Alumni Association provides a vital communication link between graduates and the Institute.

The Association's membership includes all Technology/Trades/Vocational graduates who have completed a program or certificate with a minimum of 21 credits. Membership is free of charge. Graduates receive the Alumni Ambassador, published twice a year.

Priorities for the Alumni Association include: involvement in fundraising for student scholarships, bursaries and awards; the presentation of up to 11 Alumni Entrance Awards to first-year, full-time students; promoting professional recognition for BCIT graduates and maintaining current alumni address records. The Association also assists with organizing reunions and offers group life insurance.

The Alumni office is located at the BCIT Burnaby Campus – Building SW1 Room 1024.

Tel: (604) 432-8847
E-mail: alumni@bcit.ca

Fax: (604) 431-8911,
Web site: www.bcit alumni.org

Banking

The Canadian Imperial Bank of Commerce provides an Instant Teller Machine with Interac Network, at the entrance to Building SE2 first floor.

Lost and Found

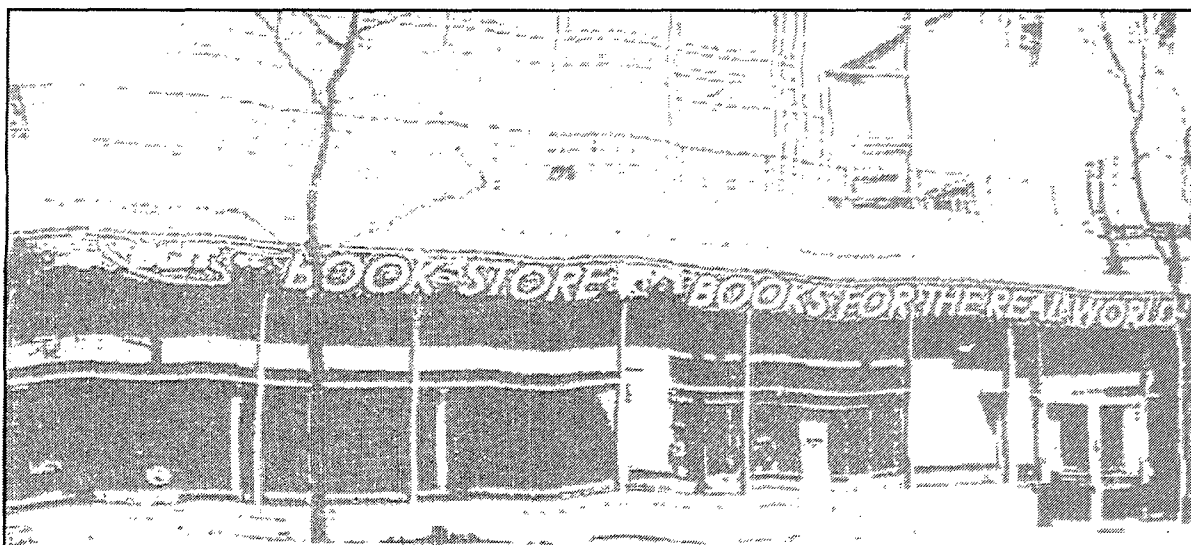
Please refer inquiries to Safety and Security Building SW1, Room 1001, 24 hours a day.

Changes to Curricula, Regulations and Services

BCIT is presently undergoing a significant number of program revisions in an attempt to provide a better focus on programs. Although BCIT proposes to adhere to the programs of study set forth in our publication, the Institute reserves the right to make, without prior notice, whatever changes are deemed necessary to the programs of study, courses, services or regulations. The Institute reserves the right to cancel any program or service.

Lockers

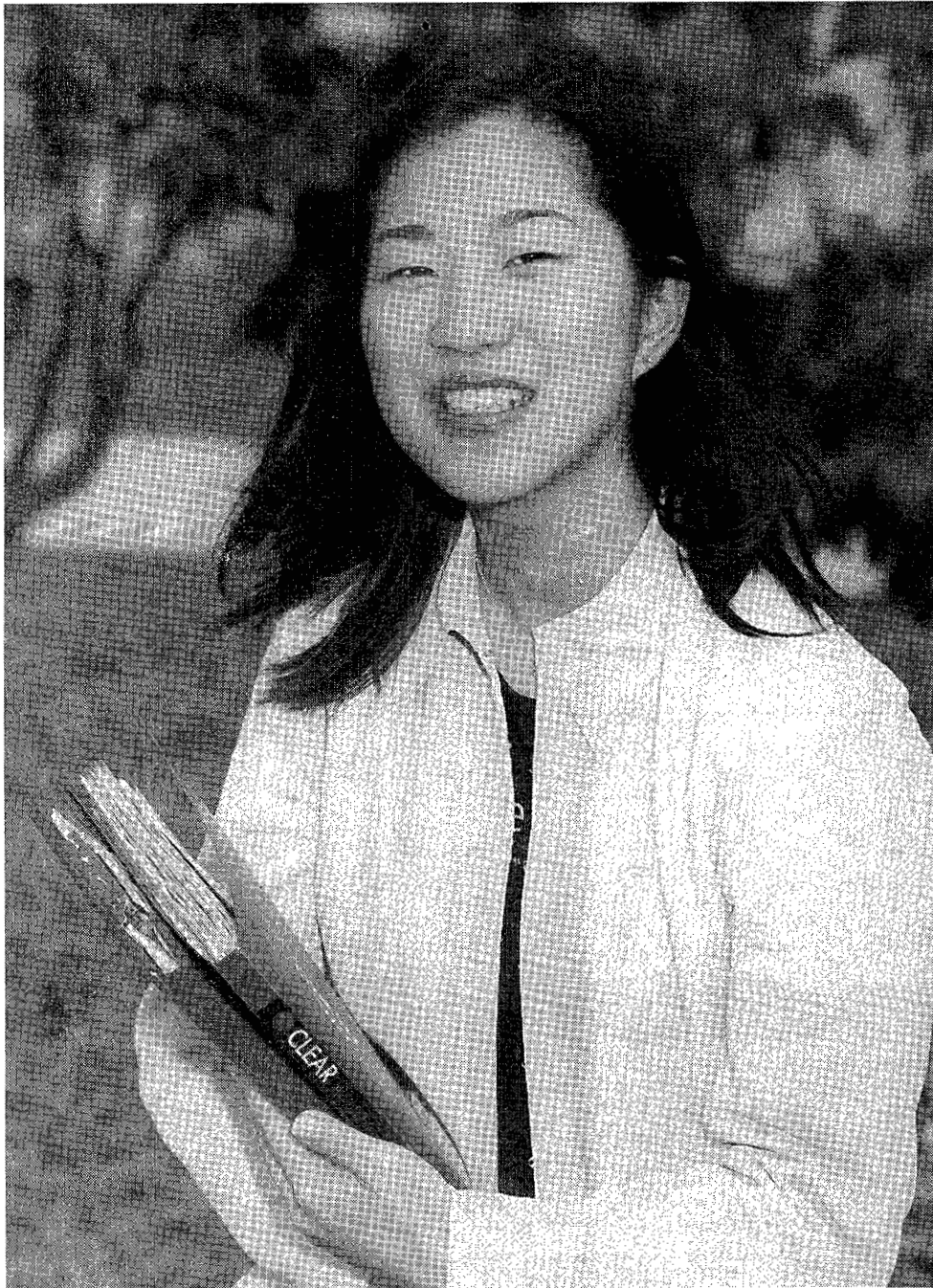
Lockers at BCIT are available to students on a first-come basis. Lockers are situated throughout the Institute on each floor of most buildings. Lockers must be vacated at the end of each academic year, or no later than May 31. The Institute will not accept responsibility for loss or damage to a student's personal property. Lockers are the property of BCIT, and the Institute reserves the right to inspect lockers at its discretion.



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Access Programs

Technology Entry (TE)

The Technology Entry program (TE) is a 15-week full-time, day school program that provides academic upgrading to students who wish to register in Engineering, Electronic and Health Science programs at BCIT.

The TE program is for individuals who want solid academic preparation before entering BCIT and individuals who are missing two or more prerequisites for a BCIT program.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites in selected technology programs at BCIT. The program also includes an introductory course in computer applications and a learning skills seminar course. The program is supportive to those who need English language training. All TE courses accept some Part-time Studies enrolment, space permitting. Students may choose not to take either the physics or the chemistry course if that course is not a prerequisite for the program in which they plan to enrol, but are expected to take all other courses in the program.

Students enrolled in TE may be provisionally accepted into an Engineering, Electronic, or Health Sciences program in a subsequent term, subject to satisfactory completion of the TE program with marks equivalent to program prerequisites. Marks required vary with the program chosen. Provisional acceptance is based on marks obtained in TE and these marks take precedence over previous course marks where applicable.

Some programs have prerequisite requirements not offered by the TE program, such as computer programming or biology courses. Please check calendar entries for individual programs which list prerequisites and preferred attributes.

Additional assessment of student applications is required for some programs. Provisional acceptance may be decided by some programs on a case-by-case basis. Additional course work outside the TE program and/or personal interviews may be required before provisional acceptance is offered. There are annual enrolment limits for programs that accept TE students, which may affect acceptance into the TE program. Applicants may be asked to make a second program choice if there are no more seats available in their first program choice.

Students enrolled into Technology Entry may* be provisionally accepted into the following BCIT programs:

Biomedical Engineering Technology, Building Technology, Chemical Sciences Technology, Civil & Structural Technology, Computer Systems Technology, Electronics Engineering Technology, Food Technology, Geomatics Technology, Mechanical Engineering Technology, Mining, Nursing, Occupational Health & Safety, Petroleum & Natural Gas, Plastics Technology, Renewable Resources (Forestry, Fish & Wildlife), Robotics & Automation, and Wood Products Manufacturing. Applicants should indicate their choice of follow up program when applying for the Technology Entry program.

*This list is subject to change; please check with the BCIT Admissions office about the availability of provisional acceptance into a specific program when you register for TE. Students may also enrol in TE to meet the entrance requirements for Electronics Technician – Common Core, Electricity & Industrial Electronics, Security Alarm Installer but will have to submit a separate application form for admission into these programs.

Program Length

15 weeks, full-time, beginning in September, January and April. Chemistry is not offered in the September session. Students needing chemistry should enrol in January or April. Normal course hours are 0830-1730, Monday through Friday.

Program Content

The complete Technology Entry program consists of the following courses:			hrs/wk
CHEM	0010	Introductory Applied Chemistry (grade 11 level)	6
COMM	0007	Introductory Communication (grade 12 level)	5
COMM	0016	Technology Entry with English Language Training	3
MATH	0005	Introductory Technical Mathematics (grade 12 level)	6
PHYS	0309	Introductory Applied Physics (grade 11 level)	6
COMP	0107	Introductory Computer Literacy	3
NTRY	0301	Learning Skills seminar	1

Tuition Fees 2001/2002 (subject to change)

\$1171.65 for the 15-week program.

Books and Supplies 2001/2002

\$ 396.65 (including Chemistry) \$ 291.95 (excluding Chemistry)
(general estimated cost and subject to change).

Entrance Requirements

Math 11 (C) and English 11 (P); preference will be given to applicants with English 11 (C). All entrance requirements for this program must have been completed within eight years of the application date. Depending on the Technology program the student wishes to enter following TE, specific grade requirements will need to be achieved in TE courses. Additional assessment of student applications is required for some programs. Additional coursework outside the TE program and/or personal interviews may be required before provisional acceptance is offered.

There are enrolment limits for programs that accept TE students, which may affect acceptance into the TE program. Applicants may be asked to make a second program choice if there are no more seats available in the first program choice.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Faculty and Staff

Kent Yakel, B.Sc. (Hons), M.Sc., Associate Dean
Nargis Abraham, M.A., Ph.D., Program Head
Gurpreet Hamjole, Administrative Assistant

Pre-entry Courses

Pre-entry courses are individual day or night courses available for students who lack the necessary prerequisites to apply for their chosen technology programs, or for those who wish to prepare for a full-time program workload by reviewing the academic prerequisites.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT. Fresh Start provides training in applied math, physics, communications, computers and study skills. The program accepts students who have written the pre-entry test for trades and who are two grade equivalents from the prerequisite. The objective is to provide students with the skills they will need to successfully complete a trades/technical program.

Fresh Start is usually offered twice a year with intakes in January and August. Once a student becomes acceptable into the Fresh Start program, he/she is then placed on the waitlist for their selected trades/technician program.

For further information on the Fresh Start program, please call the department at (604) 451-6832 or visit the department's home page at www.bcit.ca/~sott/freshstart/.

Program Length

Full-time, 19 weeks.

Normal Course Hours

0800-1500, Monday through Friday

Tuition Fees 2001/2002 (subject to change)

No fee at this time. Fees for this program are currently under review

Books and Supplies 2001/2002

\$344 (general estimated cost and subject to change).

Entrance Requirement

This program will accept students who have written the BCIT pretest for Trades and who are within at least two grade equivalents from the entrance requirements for entry into their desired Trade program.

Moving From Fresh Start into a BCIT Trades Program

Many students attend the BCIT Fresh Start program as a method for meeting entrance requirements into a BCIT Trades program. To ensure your application is correctly completed please follow these instructions:

1. When applying for the Fresh Start program applicants must also indicate which follow-up trades program they wish to attend after they complete the Fresh Start program.
2. On successful completion of the Fresh Start program, applicants will be placed on a "waiting list for seat availability" for their follow-up trade program. The date used will be the date the applicant became "complete and acceptable" for entrance into the Fresh Start program.

Instructors

Francis Atkinson, fatkinso@bcit.bc.ca
Ewan Sheard, chief instructor, esheard@bcit.bc.ca

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. On completion the women will be able to evaluate their suitability for working in the trades, determine a trade they wish to pursue, work safely in the shop and on a construction site, use hand and power tools, and participate effectively in Trades Training at BCIT. For further information on the Trades Discovery for Women program please contact (604) 432-8233 or (604) 412-7457.

Grading

Grading Mode - S/U (Satisfactory/Unsatisfactory)

Program Length

Full-time, 20 weeks.

Normal Course Hours

0730-1430, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$705.50 for the 20-week program.

Books & Supplies:

Approximately \$235. For complete breakdown, please contact Trades Discovery for Women program area or access our Web site at www.bcit.ca

Entrance Requirement

High school graduation or GED. BCIT pretest is acceptable for Math and English. Interview with the department is required.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Content

Courses	Hours
TEXP 0010 Program Orientation	6
TEXP 0019 Employability Skills (Lifeskills)	66
TEXP 0021 Job Shadowing/Industry Tours	108
TEXP 0022 Introduction to Hand and Power Tools	30
TEXP 0023 Trade Specific Skills	318
TEXP 0024 Applied Math	30
TEXP 0025 Lift Truck Training/Certificate	18
TEXP 0026 Occupational Fitness	6
TEXP 0027 Occ. First Aid Level 1/Certificate	6
TEXP 0028 Occupational Health & Safety	12
Total	600

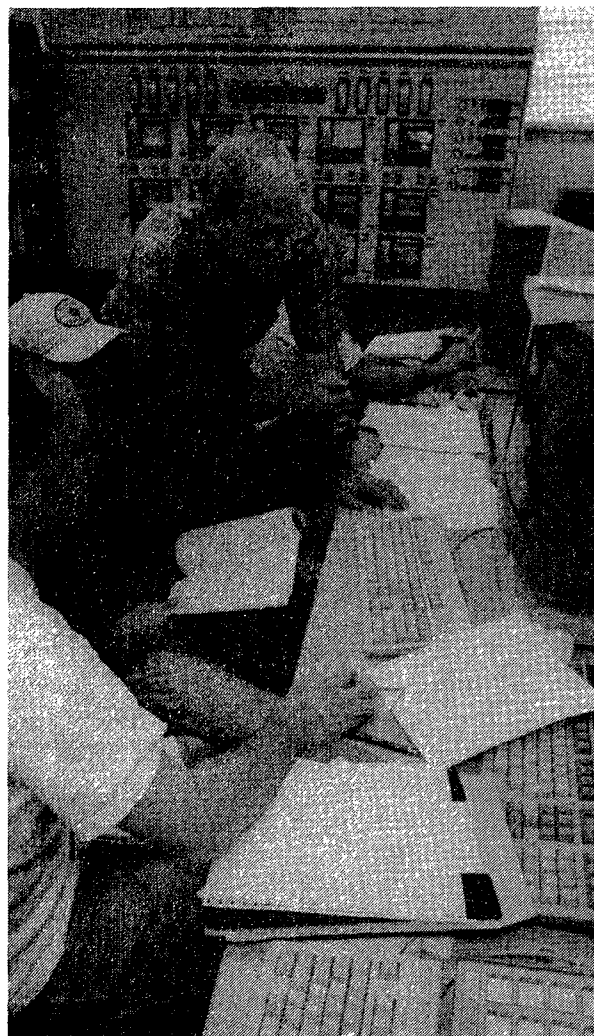
Instructors

Anne St. Eloi, asteloi@bcit.ca (LOA)

Tamara Pongracz, tpongrac@bcit.ca

Heather Tomsic, htomsic@bcit.ca

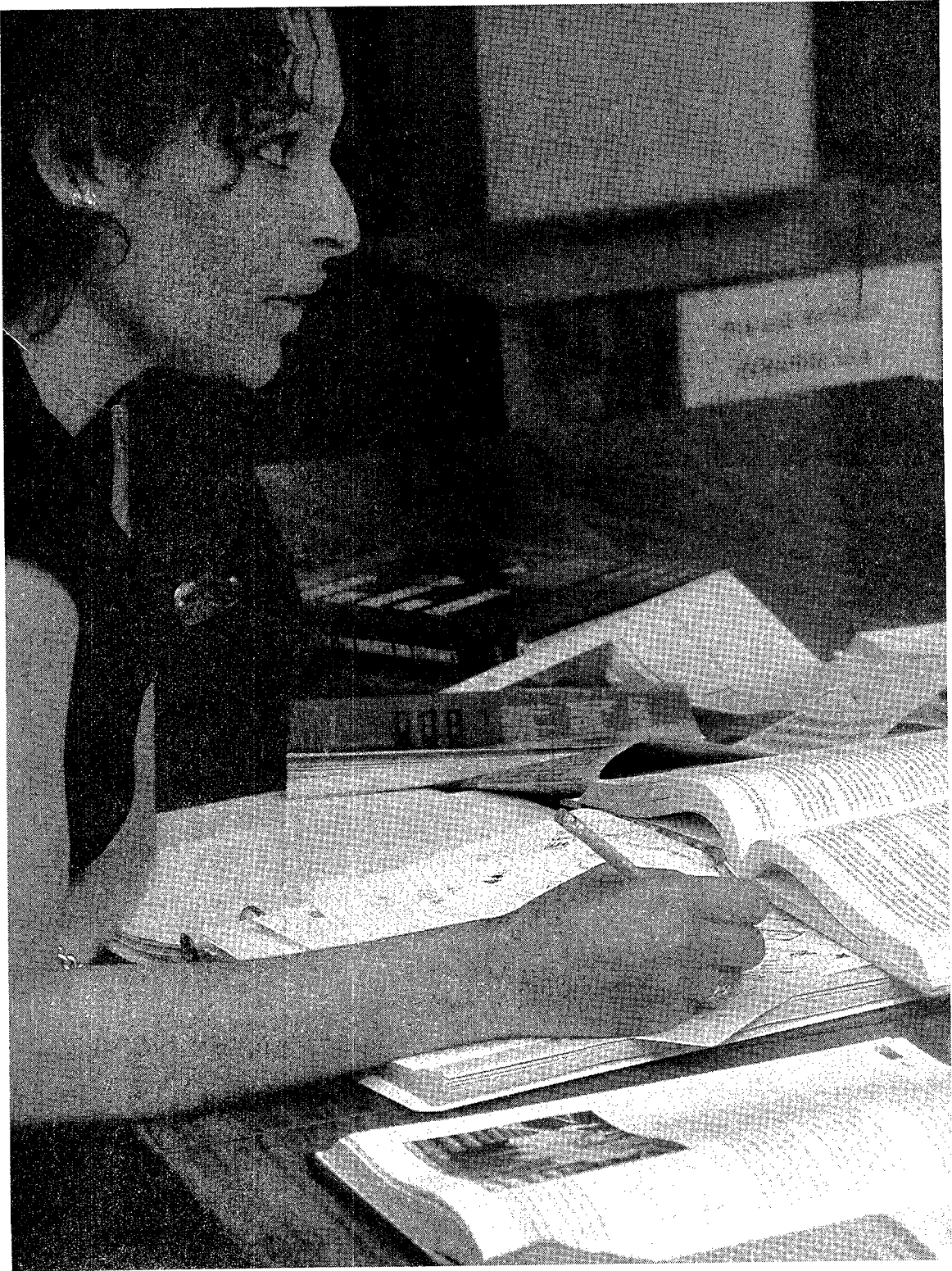
Trade specific skills will be taught by qualified journeypersons.



Access Programs

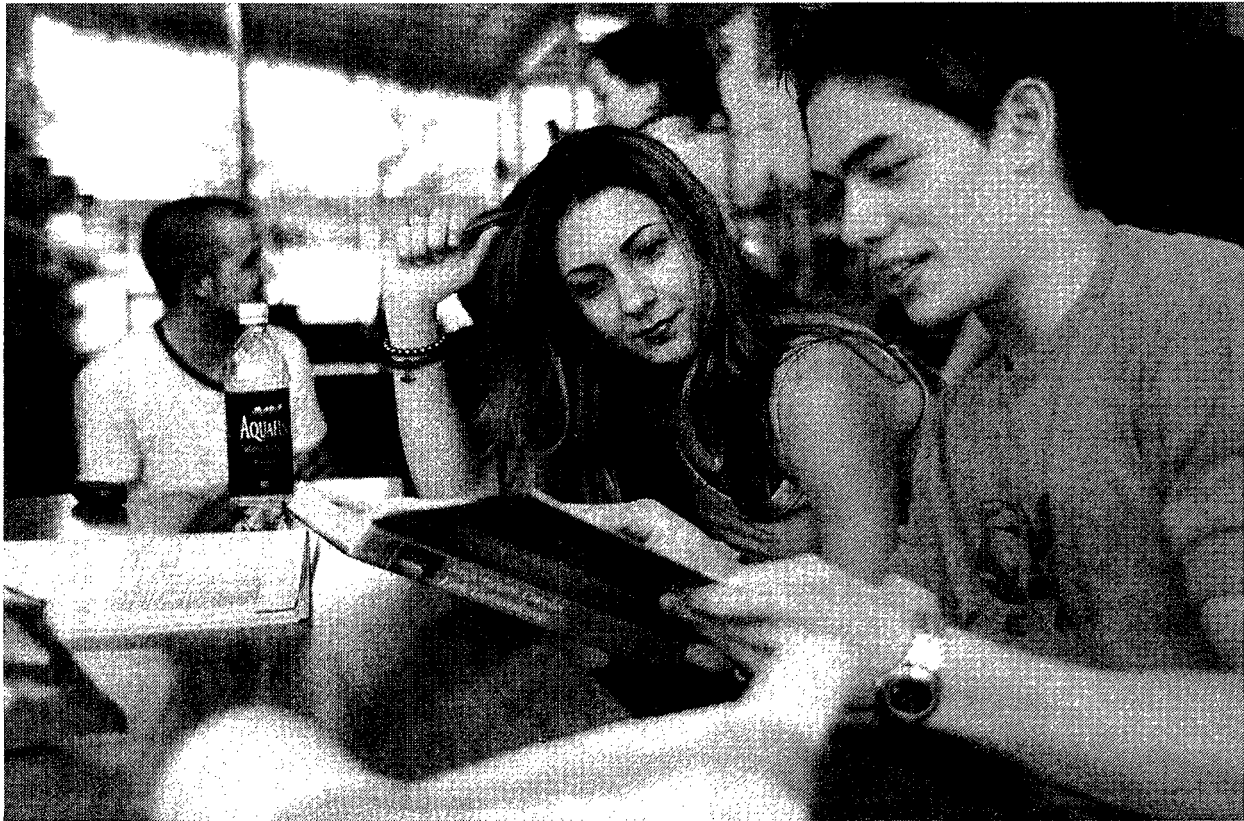
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Academic Studies

Academic Studies



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General Description

The Academic Studies division provides courses, essential to many technological programs at BCIT, in Chemistry, Communication, Mathematics, and Physics. Academic upgrading courses and the Technology Entry program (TE) are offered to prepare individuals for their work in two-year diploma programs at BCIT.

Administration

Ken Takagaki, B.A.(Hons.), C.M.A., C.D.P., Ph.D., Dean
Kent Yakel, B.Sc.(Hons.), M.Sc., Associate Dean,

Academic Studies
Susan A. (Susanne) Geddes, B.A., B.Sc., Operations Manager
Gurpreet Hamjole, Administrative Assistant

Computer Systems Technology

Ken Takagaki, B.A.(Hons.), C.M.A., C.D.P., Ph.D., Dean

Academic Studies Division

The Academic Studies division offers Communication, Chemistry, Mathematics and Physics courses for full-time and part-time programs.

Pre-entry courses are offered throughout the year to students needing entrance requirements for BCIT. These courses will be of interest to mature students who need a review, or to students who do not have the necessary prerequisites for entrance into BCIT programs.

In addition, the division offers Refresher Mathematics and Refresher Physics specifically for students who need a brief review in these subjects. These refresher courses provide such a review but are not acceptable substitutes for Mathematics or Physics.

The division also offers the Technology Entry (TE) program. This 15 week full-time, day school program provides academic upgrading to students who wish to enrol in engineering-based programs at BCIT.

Academic studies courses are offered throughout the year as:

- part-time evening classes
- part of full-time program requirements
- part-time, daytime classes (usually in the summer term)
- integrated 15 week packages through the Technology Entry Upgrading program, in September, January and April.

Interested students are encouraged to call (604) 434-1610 for further information.

How to make up Course Deficiencies

Preparatory programs are available for those students who lack specific prerequisites or desire refresher courses. For information, contact Registration and Information at (604) 434-1610.

Special In-house Communication Courses

All BCIT Communication courses can be delivered in-house for interested groups in three-day, week-long, or other flexible formats.

These are practical courses designed to help you write effectively on the job. Special courses can also be designed to meet your company's communication requirements.

Instructors will conduct needs assessments in your company and design relevant course materials. Please call the Communication department at (604) 432-8861 for more information.

English Language Proficiency

Students enrolling in part-time Communication courses who have severe language difficulties may be referred to other, more appropriate courses.

Pre-entry Courses

Pre-entry courses are individual day or night courses available for students who lack the necessary prerequisites to apply for their chosen technology programs, or for those who wish to prepare for a full-time program workload by reviewing the academic prerequisites.

For more information about other preparatory programs at BCIT, please refer to page 60 of this calendar.

Provisional Acceptance and Pre-entry Courses

A student who lacks one or more prerequisites may still apply for provisional acceptance into his/her desired technology program and enrol in the appropriate pre-entry course(s). Upon satisfactory completion of the necessary pre-entry course(s), the student will be fully accepted into the technology program. Pre-entry courses are offered in each of the BCIT terms: September, January, April and throughout the summer months. Check the part-time flyer for dates, or call (604) 434-1610. The following pre-entry courses are offered to those who need prerequisites or who wish to improve their existing grades:

- Technical Mathematics: Introduction - preparation math course for every BCIT technology program requiring Math 12 as a prerequisite.
- Writing, Speaking, Listening, and Reading Skills for Technical Communication for Second Language Students – offered to those who need to improve their English language skills prior to taking further English upgrading at BCIT.
- Technical Communication Skills for Second Language Students – provides English language training needed to take the English 12 equivalent pre-entry course at BCIT.
- Technical English and Learning Skills for Second Language Students – BCIT equivalent of English 12 for speakers of English as a second language, for entry into every technology program.
- Technical English and Learning Skills - BCIT equivalent of English 12 for entry into every technology program.
- Chemistry - preparation chemistry course for BCIT technology programs requiring Chemistry 11 as a prerequisite.
- Physics - preparation physics course for BCIT technology programs requiring Physics 11 as a prerequisite.

Financial Assistance

Limited financial assistance is available to financially needy students registered in COMM 0003, COMM 0004, COMM 0005 and COMM 0008. The deadline for applications for assistance is 21 days before classes start. For more information on financial assistance for part-time students, please phone BCIT Registration and Information at (604) 434-1610.

Chemistry Online Resource Centre

(<http://www.cas.bcit.ca/cje/#resource>)

The BCIT Chemistry Resource Centre is a Web site that is available to those who wish to assess their Chemistry knowledge or upgrade their Chemistry skills. Try the online assessment test and interactive problems at this site. Programs that require first-year Chemistry assume students have this level of Chemistry knowledge. There are direct textbook references made to topics in General Chemistry and many interesting WWW Science links. A CD-ROM version of the Resource Centre that includes more interactive assessment exercises is also available for purchase.

Faculty and Staff

Chemistry Department

Kevin Soulsbury, B.Sc.(Hons.), Ph.D, Program Head
Dianne Dinnes, Administrative Assistant
Graham Anderson, M.I.Sc.T. (U.K.), M.C.I.C., A.Sc.T. (on leave)
Hilary Bicho, Dipl.Tech
Edwin Chan, B.Sc., M.Sc.
Dave Conder, B.Sc., M.Sc.
Rosamaria Fong, B.Sc.(Hons.), M.Sc.
Cheryl Heady, Dipl.Tech
Kevin Hoy, B.Sc.(Hons.), Ph.D.
Yvonne Manson, Dipl. Tech.
Marilyn Pickering, C.Tech., A.S.T.T.
Shirley Reynolds, B.A.(Hons.), M.Sc.
Joe Salvo, B.Sc.(Hons.), B.Ed.
Ana Talaba, B.A.Sc., M.Sc.
Richard Tarn, Dipl.Tech., CCT, M.C.I.C., M.A.C.S.

Communication Department

Nargis Abraham, Ph.D., Program Head, Pre-Entry
Clark Cook, B.A.(Hons.), Program Head, Continuing Education
Dennis Johnston, B.Ed., Program Head, Administration
Linda Pashka, B.A.(Hons.), M.A., Ph.D., Program Head, Curriculum
David Vale, B.A., B.Ed., M.Ed., M.B.A., Program Head, Personnel
Judy Dahl, Administrative Assistant
Jackie Saponaro, Dipl. T., Administrative Assistant, Pre-Entry and Continuing Education Communication
Rider Cooley, B.A.(Hons.)
Roger Etkind, B.A., M.A.
Thorsten Ewald, B.A., M.A.
Dale Fitzpatrick, B.Journ., M.A.
Linda Hale, B.A., M.A.
David Hamilton, B.Sc.
Keith Johnson, B.A., M.A.
Valda-Jean Johnston, B.A., B.Ed.
Wayne Kean, B.A., M.A.
David Kipling, F.E.T.C., A.L.A. (U.K.)
Christine Liotta, B.A., M.A., Ph.D.
Richard Lund, B.A.(Hons.), M.A.
David McNeal, B.A., M.A., Ph.D.
Pat Murray, Dipl.T., M.A.
Jennifer Nachlas, B.A.(Hons.), M.A., Ph.D.
Bill Oaksford, B.A., M.A.
Michael Otte, B.A.(Hons.), M.A.
Gretchen Quiring, B.A., M.A.
Lorraine Robson, B.A., M.A.
Patricia Sackville, B.A., M.Ed.

Frank Schnurr, B.A., M.A.
Jean Scribner, B.A., M.A.
Kathy Vance, B.A.(Hons.), M.A., Ph.D.
Susan Woo, B.Sc., Dipl. Ed.

Mathematics Department

Tony Webb, B.A., M.Sc., Ph.D., M.B.A., Program Head
Judy Dahl, Administrative Assistant
Ross Bradbeer, B.Sc., M.Sc.
Michael Chen, B.Sc., M.A., Ph.D.
Graham Cocksedge, B.Sc.For., M.Eng.
Erika Crema, B.Sc.(Hons.), F.C.S.T.
Stela Dumitrescu, B.A.Sc., M.Sc.
Michele Hemphill, B.A.Sc., P.Eng. (on leave)
Eric Hiob, B.Sc., M.Sc., Ph.D.
David Holloway, B.A., Ph.D.
Alan Isaak, B.Sc.(Hons.), B.Ed., Dipl.T
Colin Lawrence, B.Sc.(Hons.)
Andrew McConnell, B.Sc., M.Sc., Ph.D.
Arch McFarlane, B.Sc., M.Sc.
Domenica Mastromatteo, B.Eng., M.Sc.
Louise Routledge, B.A., B.Ed., C.Q.E.
Paul Rozman, B.A., M.Sc.
David Sabo, B.Sc.(Hons.), M.Sc., Ph.D.
Val Sawadsky, B.A., B.Sc.(Hons.)
G. John Smith, B.Sc., M.A., Ph.D.
Jim Waterman, B.A.Sc.(Hons.), M.A.Sc.

Physics Department

Frank DiSpirito, B.A.Sc., P.Eng., Program Head
Dianne Dinnes, Administrative Assistant
Jim Booth, Ph.D.
Gary Bodnar
Cor Deurzen, B.Sc., M.A., Ph.D.
Kevin Dunphy, Ph.D.
Brian Gaensbauer, Dipl.Tech.
Dieter Hecker, Dipl.Tech.
Dave Kenyon, B.Sc.
Donna MacDuff, M.Ed., B.Sc., Cert. Ed.
Umit Olcay, B.Sc.
Barry Pointon, B.Sc., M.Sc.
Gary Schellenberg, Dipl.Tech.
Owen Shuen, B.A.Sc., B.Sc.
Randall Woods, B.Sc., M.Sc., M.A.Sc.

Technology Entry (TE)

This full-time, day school program provides academic upgrading to students wishing to enrol in engineering, electronic and health science programs at BCIT.

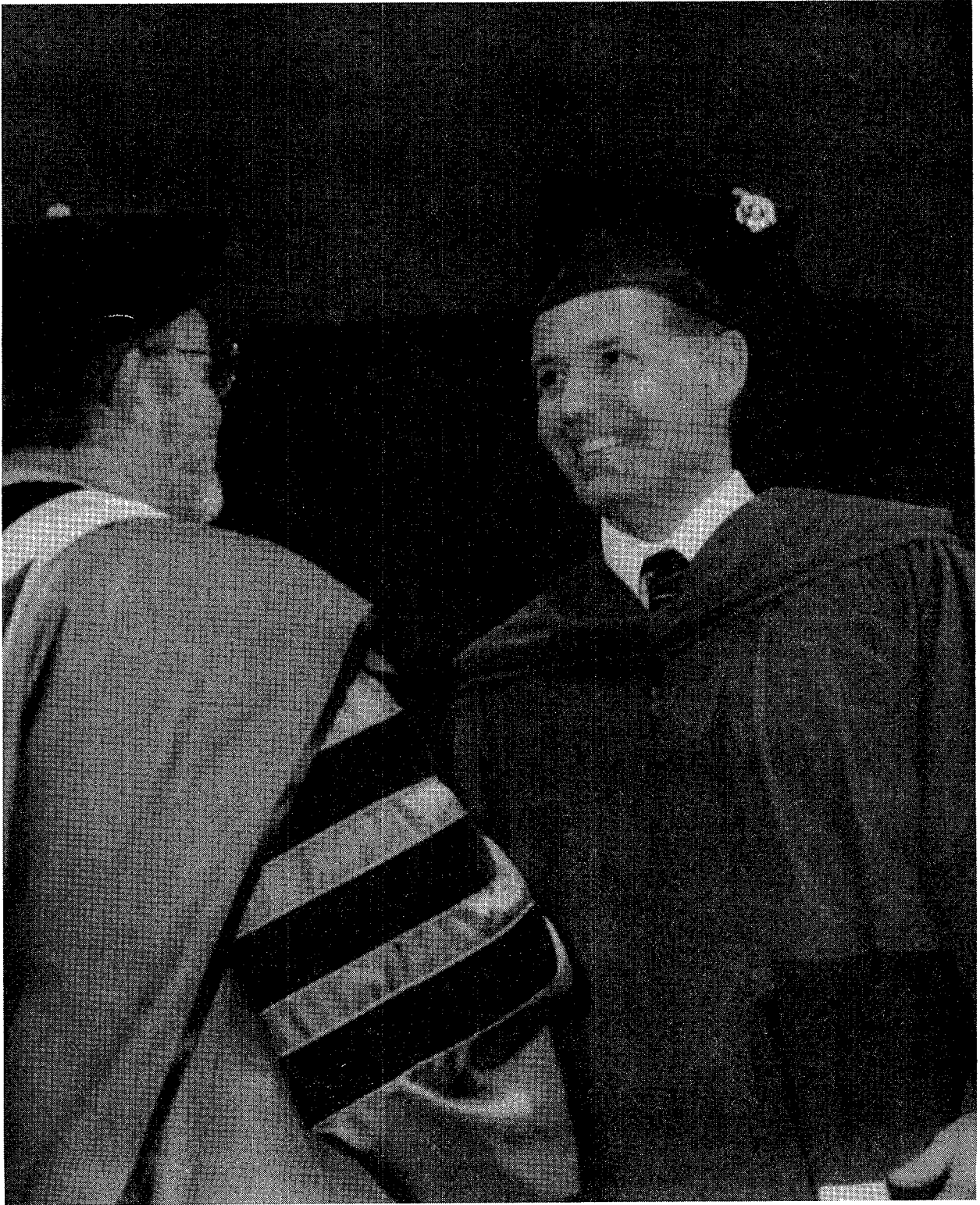
The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course.

For information about the TE program, please refer to page 61 of this calendar.

Faculty and Staff

Kent Yakel, B.Sc.(Hons.), M.Sc., Associate Dean
Nargis Abraham, Ph.D., Program Head
Gurpreet Hamjole, Administrative Assistant

Bachelor of Technology



Bachelor of Technology Degree

BCIT's degree has real value in the real world so you learn the skills to get ahead – and stay ahead – in today's global marketplace. We've expanded our degree offerings to include some of today's most dynamic fields.

Bachelor of Technology programs to date:

- Accounting
(for details see page 73)
- Computer Systems
(for details see page 111)
- Construction Management
(for details see page 120)
- Electronic Engineering
(for details see page 140)
- Environmental Engineering
(for details see page 122)
- Environmental Health*
(for details see page 168)
- Geomatics
(for details see page 225)
- Management
(for details see page 89)
- Manufacturing
(for details see page 192)
- Medical Imaging
(for details see page 172)
- Nursing (General)
(for details see page 180)
- Specialty Nursing
(for details see page 180)

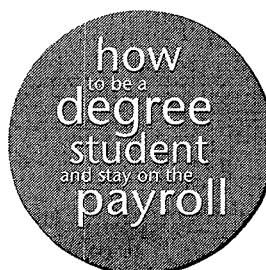
Other programs under development

Forensic Studies
Forest Engineering Technology
Business Process Integration

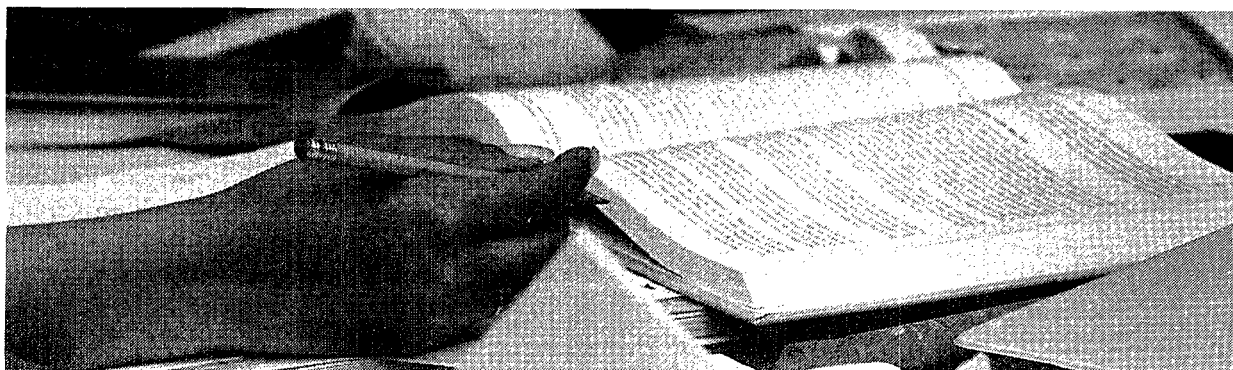
*The Bachelor of Technology in Environmental Health is offered as a four-year degree through full-time studies. Admission is based on a number of criteria including specific high school courses.

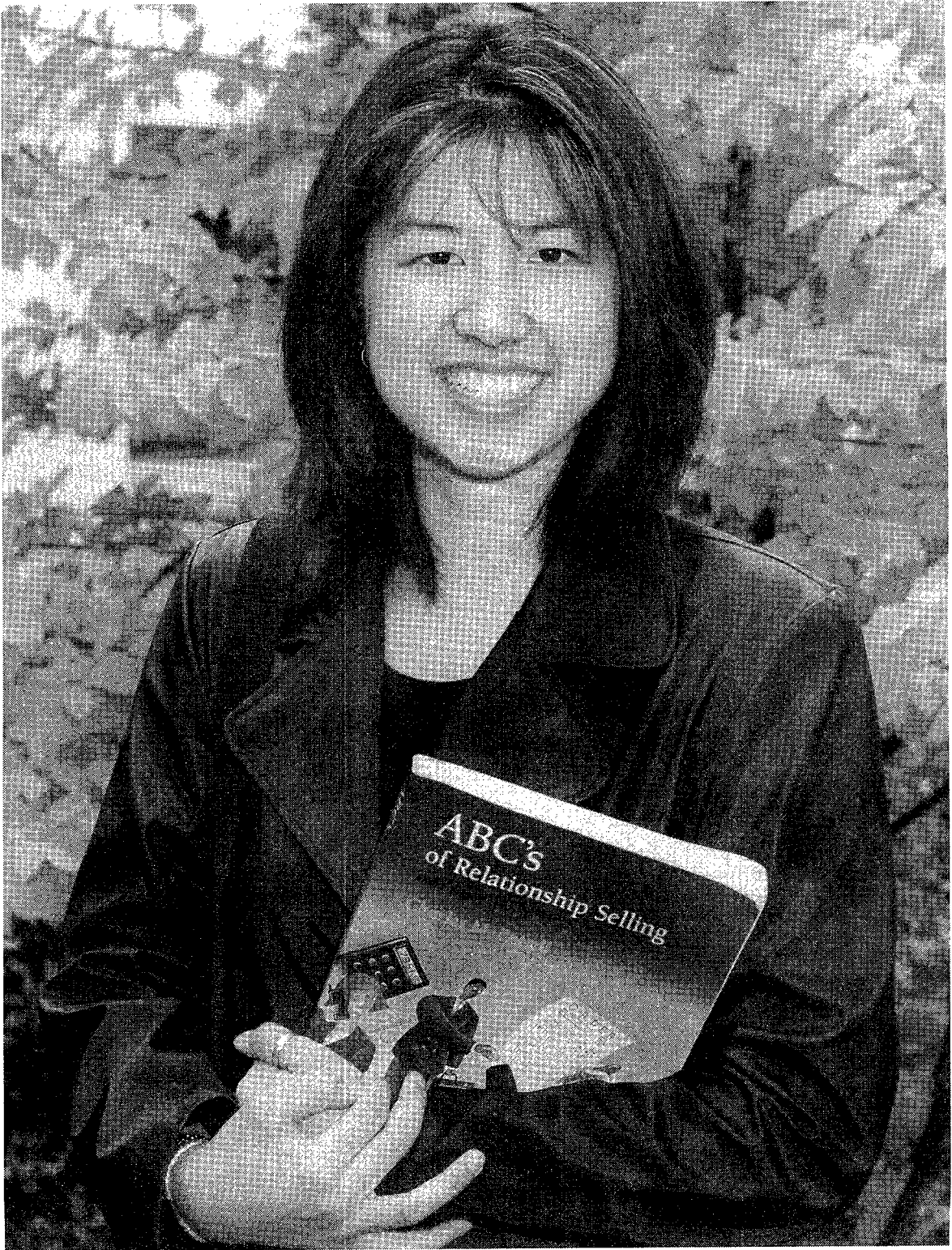
All Bachelor of Technology programs, unless otherwise noted, are offered on a part-time basis and require a relevant BCIT Diploma or equivalent, English 12, and two years of relevant work experience.

For more information, please call (604) 434-1610 or visit our Web site at www.bcit.ca.



Bachelor of Technology





School of Business



Business

"The BCIT Marketing Management program gave me hands-on, current skills that are in demand in marketing, advertising, public relations and high tech industries. I chose, from a variety of job opportunities, an exciting marketing position with a company that leads the way in E-business solutions."

*~ Julie Koel
BLASTRADIUS,
Marketing Management, 2000*

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Starting your own business?

The BCIT Venture Program can help

Venture Program A FULL-TIME THREE-MONTH PROGRAM

If you have decided that becoming an entrepreneur is right for you, then taking the Venture Program is the best investment you can make to successfully launch your own business.

This comprehensive, practical training program helps you minimize the risks in the start-up of your business.

What does the program offer you?

- Instruction from successful entrepreneurs
- A fully equipped high-tech office facility in a downtown setting

- Hands-on business plan development
- Networking with current and past entrepreneurs in the program
- Mentorship and advice from experts in the field
- Computer simulation of your business finances
- On-going support after you complete the program

Since 1989, BCIT's Venture Program has helped entrepreneurs to successfully develop and launch their own businesses. We can help you too!

Program start dates: September and February

Call: (604) 412-7651 E-mail: lynne_larsson@bcit.ca www.bcitventure.com



WEST COAST LOG HOMES
Dave Gardine, Andy & Franz Koberwitz



BATAVIA IMPORTS INC.
Judith Law



SPOOTRIDE MANUFACTURING INC.
Peter & Chris Spatzl



STAMP OF APPROVAL
Wendy Copeland-Knott

Exploring Self-Employment A FREE HALF-DAY WORKSHOP (TCTR0249)

If you are undecided about going into business for yourself, this workshop will help you evaluate and explore your entrepreneurial options. You will be better able to answer the question, "Is self-employment right

for me?" If you decide that it is, then the next step in becoming a successful entrepreneur is the three-month Venture Program. To register call 412-7777.



The Venture Development Centre
BCIT Downtown Campus, 7th Floor
555 Seymour St., Vancouver, BC V6B 3H6

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

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Advanced Studies in Business (Degree Completion)
Business Administration Post Diploma Program
Human Resource Management Post Diploma Program
Human Resource Management Diploma Program
Management Systems Diploma Program

Broadcast and Media Communications

B. Antonson, Dipl.T., Associate Dean,
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Broadcast Journalism
Radio
Television

Financial Management

Dick Dolan, B.B.A., M.B.A., Associate Dean,
Tel. (604) 432-8898 Fax: (604) 439-6700

Advanced Accounting
Corporate Finance
Financial Planning
Microfinancial Systems
Professional Accounting
Taxation
Bachelor of Technology in Accounting

Marketing Management

Mike Powley, B.Ed., M.B.A., Associate Dean,
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Marketing Communications Program
Direct Response Marketing Program
Commercial Real Estate Program
Entrepreneurship Program
Professional Sales and Marketing Program
Tourism Management Program

Operations Management

Chris Clark, M.A. (Econ), Acting Associate Dean
Tel. (604) 451-6714 Fax: (604) 439-6700

International Trade and Transportation
Operations Management

Accounting

Bachelor of Technology (Part-time)

Introduction

The Bachelor of Technology in Accounting has been structured on a degree-completion basis with BCIT's Financial Management diploma as the foundation. Applicants who have taken courses at other post-secondary institutions or from the professional accounting bodies will be individually assessed and a program of studies will be designed to meet their needs. This degree has been introduced at a time when the accounting profession is moving towards making a degree a mandatory prerequisite to the awarding of a professional designation. The CA's and the CGA's already require a degree and CMA's have announced their intention to do so. BCIT is working in partnership with the professional accounting bodies to ensure a smooth fit between the Accounting degree program and the professional programs.

BCIT's Bachelor of Technology in Accounting is offered on a flexible part-time basis so that students can work and study at the same time. It provides graduates with an academic credential leading to a professional accounting designation or to an MBA program. Students will acquire the key technical, interpersonal, communication, problem-solving and computer skills demanded by employers. They will also learn to work in teams, which is becoming an increasingly important ability in the workplace. The liberal education courses, which form an important element of the program, will provide graduates with the broad perspective required in a rapidly changing business environment.

Entrance Requirements

1. BCIT Financial Management Diploma or equivalent with an average of at least 70 per cent.
2. English 12 or equivalent.

Registration Procedures

Individuals interested in applying for entry into the Bachelor of Technology in Accounting program should complete a BCIT Bachelor of Technology Application Form and send it to the BCIT Admissions department.

An interview with the program head is required either before or after submission of the official Application Form. Contact the program assistant at (604) 451-7134 to arrange for an interview. Twelve credits of Liberal Education courses are required. Please contact the Bachelor of Technology Office at (604) 432-8230 for more information.

continued next page

Courses to be offered each term will be advertised in the BCIT Part-time flyer. Candidates should be aware that they may complete a maximum of six credits of Bachelor of Technology level course work prior to acceptance into the degree program. Candidates are required to complete the Bachelor of Technology in Accounting within six years.

Program Structure

1. Up to 20 credits of Technical Core courses may be required, depending of the student's background (to be determined by the program head).
2. 28 credits of Advanced Technical Specialty courses (see below).
3. 12 credits of Liberal Education courses
4. Two years of relevant work experience.

Advanced Technical Specialty Courses

Courses	credits
Required Courses (both courses must be completed):	
FMGT 7910 The Business Environment	3.0
FMGT 8910 Integrative Business Management Practices	6.0
Students must complete six courses from those listed below:	
FMGT 7121 Advanced Accounting	4.0
FMGT 7210 Advanced Management Accounting	3.0
FMGT 7310 Advanced Auditing	3.0
FMGT 7410 Taxation of Close Corporations	3.0
FMGT 7510 Advanced Finance	3.0
FMGT 7710 Management Information Systems	3.0
FMGT 8120 Accounting Theory	3.0

Required Equipment

All students are required to have access to a computer with a modem. Detailed specifications are available from the program head.

Additional Information

For more information about BCIT's Bachelor of Technology programs, please see **page 64** of this calendar.

For the most current information package on the Bachelor of Technology in Accounting, please contact:

Allan Cobbett, Dipl.T., LL.B., M.B.A., C.M.A.
Program Head, Accounting Degree
Financial Management Department
Telephone (604) 432-8786
e-mail: acobbett@bcit.ca

Maria Antidormi, Program Assistant
Bachelor of Technology in Accounting Degree
Telephone (604) 451-7134
e-mail: mantidor@bcit.ca

Advanced Studies in Business

Degree Completion Program/Bachelor of Business Administration granted by the Open University (OU) (Full-time and Part-time)

Provides BCIT Business diploma graduates with additional educational opportunities to meet the needs of B.C. business, government and industry for more highly trained management generalists, through a program leading to a Bachelor's degree in Business Administration.

Degree completion

The Open Learning Agency (through its Open University), collaborates with BCIT to offer degree completion programs. The Open University (OU) grants BCIT Business diploma graduates a block transfer of up to 72* credits toward the Bachelor of Business Administration degree. BCIT graduates generally need to complete at least 48 credits at BCIT, the OU, or other institutions to meet the Open University degree requirement of 120 credits. For additional information on credit transfer for these and other diploma programs please contact OLA's Student Services at (604) 431-3300.

* Credit transfer depends on which BCIT diploma program was taken, when the student graduated and the date when the student applies to the OU for program plan approval and the student's overall diploma GPA. Students may receive additional credit for courses taken at other institutions.

BCIT admission and registration procedures for the Bachelor of Business Administration degree offered in collaboration with the Open University

These procedures apply to BCIT Business Diploma graduates who wish to embark on the Open University's Bachelor of Business Administration degree completion program, granted by the Open University in collaboration with BCIT.

1. Apply to the Open University

The Open University is responsible for reviewing the student's academic record from BCIT and any other post-secondary institution the student has attended, to determine the amount of credit that will be awarded toward the degree. This critical first step tells the student what courses they require to earn the degree. Contact OLA's Student Services at (604) 431-3300 for a complete information package containing admissions instructions.

2. Apply to BCIT

To apply, submit an application for admission (please designate if you wish to attend on a full-time/day school or part-time/night school basis) together with a copy of your Open University approved program plan (sent to applicant approximately six to eight weeks after step one as soon as possible. You must state your intent to complete the program on a full-time or Part-time Studies basis on your application. You are not required to submit transcripts from other post-secondary institutions with your application. Admission is based on the following:

- academic performance in your BCIT Diploma program.
- a 200-word statement indicating your reasons for choosing the program.
- evidence of computer fluency since graduation, e.g., familiarity with microcomputers and software.

You will receive confirmation from BCIT by letter that your Admission has been approved.

Applications for part-time enrolment in the degree completion program for diploma graduates may be made at any time.

3. Course Registration

Once your admission has been confirmed, you can register for Advanced Studies in Business Degree Completion courses offered at the BCIT Burnaby campus. Check the current Part-time flyer to determine which courses are available. Courses are normally offered in the spring/summer, winter and fall terms.

The liberal arts requirements may be met by arts and sciences courses taken through the Open University by distance education, or other accredited universities and colleges with a letter of permission from the OU. The advanced business courses are offered at BCIT and through the OU. Additional business courses can usually be taken at BCIT to meet requirements established in your program plan.

Advanced Specialty Certificate in Business

Students completing the eight advanced business courses (24 credits) qualify for the Advanced Certificate in Business.

Advanced Diploma

While the degree completion track is designed for the business generalist who wishes to obtain a Bachelor's degree in Business Administration from the Open University, BCIT recognizes that many of its diploma graduates already have a degree or for other reasons wish to increase their knowledge in their specialized field. The Advanced Diploma in Business will consist of 12 advanced business courses, four generalist and eight specialist courses (presently under development.)

For specific information on the above degree, certificate or diploma please call Kevin Wainwright, acting program head at (604) 451-6839.

Program Content -

Advanced Studies in Business

September		hrs/wk	credits
BUSA	5200 Business, Society and Ethics	3.0	3.0
ECON	5200 Intermediate Macroeconomic Analysis	3.0	3.0
OPMT	5740 Integrated MIS	3.0	3.0
OPMT	5751 Math Models for Business	3.0	3.0
January - April			
BUSA	6800 Strategic Management	3.0	3.0
ECON	6500 Managerial Economics	3.0	3.0
OPMT	5701 Calculus for Management	3.0	3.0
ORGB	5600 Managing Change	3.0	3.0

Broadcast and Media Communications

Two-Year Diploma Program (Full-time)

Broadcast and Media Communications programs were initiated through the combined efforts of the British Columbia Association of Broadcasters and the Canadian Broadcasting Corporation in this province. The need for trained personnel continues in radio and television, broadcast journalism and related areas. Those interested in entering fields other than broadcasting, such as audio and video production, public relations and cablecasting will find much of the basic background included in these programs. The educational emphasis is upon versatility. A graduate may find employment in a variety of occupations within broadcasting and associated industries. Students enrol in one of three programs: Radio, Television or Broadcast Journalism.

Job Opportunities

Graduates are employed throughout B.C. and the world over, wherever radio, television, cable facilities, audio and video production operations exist. Graduates find employment in entry-level positions including: radio on-air host (disc jockey), commercial copywriter, audio producer, sales/marketing/promotion representative, music programmer, sports reporter, video editor, ENG/EFM camera operator, production assistant, feature editor/reporter, researcher, news reporter, freelance video/film staff, scriptwriter and media relations.

Radio

Provides detailed and intensive training in radio operations and programming. Extensive instruction is given in announcing, on-air operations, interviewing, commercial copywriting, digital and analog commercial production, news and sports reporting, music programming, feature and program production, as well as other operational areas including sales, promotion, management, computerized musical program scheduling, and news. Full digital facilities provide training on current industry equipment. Students receive a great deal of practical experience via structured simulations in first year and operation of the campus radio station CFML (cable 104.5 in the Greater Vancouver listening area, <http://ram.insinc.ca/cfml/live.ram> on the Internet) in second year.

Television

Provides training in all aspects of video and television production. Students are exposed to a broad range of experience in commercials, public affairs, variety and studio program production, music videos, dramas, corporate and industrial videos, single-camera and studio production techniques, news video, editing and post-production, television audio and multi-track recording. Also covered are non-linear (digital) video and audio editing, as well as production, lighting, writing, etc. These skills enable them to work in a variety of positions in television, video production houses, corporate and industrial production, cable television operations and as freelancers.

Broadcast Journalism

Prepares students for careers as news reporters, newscasters and editors in radio and television. Training includes basic news broadcasting skills and academic courses. News writing, audio and video editing, research, reporting and announcing are combined with a substantial background in politics, economics and other applicable subjects. Regular newsroom and field reporting operations develop students' experience in news judgement, reporting and presentation. Full digital news generation and management systems are utilized. Students must have a valid driver's license and access to a motor vehicle in Levels 2 through 4.

New media technologies and techniques are being introduced in all programs. A digital focus co-exists with analog technology, as both are found extensively in industry.

General Information

Applicants must pass an entrance exam that evaluates English literacy, current events awareness, general knowledge and computer literacy. Normally, only qualified applicants will be interviewed.

In each of the programs, students are graded against industry and professional standards and must achieve these standards in order to graduate.

Students must participate in a series of industry work experience assignments and field trips to local and provincial broadcast and related operations facilities during their tenure in all Broadcast and Media Communications programs.

Students with part-time employment require flexible hours to accommodate the work schedules of the various programs.

BCIT's Broadcast and Media Communications department is affiliated with:

- The British Columbia Association of Broadcasters (BCAB)
- The Canadian Association of Broadcasters (CAB)
- The Radio-Television News Directors Association (RTNDA)
- Canadian Women in Communications (CWC)
- The Broadcast Educators Association of Canada (BEAC).

For further information you can contact us at:

Tel. (604) 432-8863 Fax: (604) 432-1792
e-mail: bcitbcst@bcit.ca.

Program Length

Two years, full-time running from September to May each year.

Tuition Fees 2001/2002

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

Student spending above and beyond tuition depends largely on individual preferences and practices. The following estimates provide a range of spending:

Radio

First year: \$1,000-\$2,000

Second year: \$1,000-\$1,500

Television

First year: \$1,000-\$3,000

Second year: \$1,000-\$2,500

Broadcast Journalism

First year: \$1,000-\$1,700

Second year: \$750-\$1,500

Entrance Requirements

High school graduation. English 12. All applicants for any Broadcast and Media Communications program must provide proof of basic computer literacy or demonstrate competence by successfully completing a challenge exam prior to being selected. Applicants must provide test results to prove a minimum keyboarding speed of 25 wpm. Applicants should apply early in the calendar year and ensure their application is complete with required documentation in order to be considered.

Applications must include a short essay (approximately 500 words) detailing personal history, career goals and reasons for choosing broadcasting as a career. The application must also contain all pertinent documents, letters of reference, recommendations, school and university/college transcripts and details of related experience.

Applicants are encouraged to attend information seminars which are held on the last Monday of August and the first Monday of each month during the school year (September to June) at 1730 in the Broadcast Centre, Building SE10. (When the first Monday of a month is a holiday, the meeting is held on the second Monday.)

If an on-campus interview is not possible, please contact the program head and an interview in the field may be arranged.

All applications may be enhanced by enrolling in night school courses, volunteering at cable operations, university or community radio stations, etc.

The prospective applicant is expected to have a thorough knowledge of, and fluency in, English. Previous studies in the areas of political science, history, psychology, business, law, computer science and other humanities, as well as an up-to-date awareness of current events will prove valuable.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 451-6735.

Re-admission Requirements

Where a student fails a term in the Broadcast and Media Communications program, and where that failure requires the student to leave the program, the following conditions will apply for re-admission:

1. The student must apply for re-admission with application to the Admissions department. An additional application fee must be paid.
2. Courses previously taken at BCIT do not automatically qualify for course credit. BCIT reserves the right to require the applicant to re-take any course within the program. This may include courses that have already been successfully completed, and/or courses where transfer credit may have been previously granted.
3. Re-admission is conditional upon space availability. Where more applicants apply than there are seats available, BCIT reserves the right to select those applicants deemed to have the best chance for success in their chosen program.

Program Content - Radio

Level 1 (15 weeks)			hrs/wk	credits
BCST	1100	Industry Operations	2.0	2.0
BCST	1101	Technical Introduction	3.0	3.0
BCST	1103	Copywriting 1	3.0	3.0
BCST	1110	Radio Programming & Operations 1	8.0	8.0
BCST	1111	Radio Announcing 1	6.0	6.0
BCST	1112	Contemporary Issues 1	2.0	2.0
BCST	1113	Introduction to Radio News 1	2.0	2.0
BUSA	1200	Business Concepts	3.0	3.0
COMM	1112	Communication 1 for Broadcasters	3.0	3.0
Level 2 (16 weeks plus 4 week practicum)				
BCST	2203	Copywriting 2	3.0	3.0
BCST	2209	Practicum 1	35.0	11.5
BCST	2210	Radio Programming Operations 2	8.0	8.0
BCST	2211	Radio Announcing 2	6.0	6.0
BCST	2212	Contemporary Issues 2	2.0	2.0
BCST	2213	Radio News	2.0	2.0
BCST	2214	Music and Programming	2.0	2.0
BLAW	3300	Broadcast Law	3.0	3.0
COMM	2212	Communication 2 for Broadcasters	3.0	3.0

Level 3 (15 weeks)			hrs/wk	credits
BCST	3303	Copywriting 3	3.0	3.0
BCST	3310	Radio Programming & Operations 3	16.0	16.0
BCST	3312	Radio Marketing, Sales & Promotion	2.0	2.0
BCST	3315	Feature Program Production 1	2.0	2.0
BCST	3316	Audio Production	2.0	2.0
OPMT	1319	Statistics for Broadcasters	2.0	2.0
ORGB	2500	Interpersonal Skills	2.0	2.0
Level 4 (16 weeks plus 4 week practicum)				
BCST	4403	Copywriting 4	3.0	3.0
BCST	4409	Practicum 2	35.0	11.5
BCST	4410	Radio Programming & Operations 4	25.0	25.0
BCST	4415	Feature Program Production 2	2.0	2.0

Program Content - Television

Level 1 (15 weeks)				
BCST	1100	Industry Operations	2.0	2.0
BCST	1101	Technical Introduction	3.0	3.0
BCST	1120	Video Basics	10.0	10.0
BCST	1124	Writing for Television	3.0	3.0
BCST	1223	Television Production Planning	3.0	3.0
BUSA	1620	Computers in Broadcasting	3.0	3.0
COMM	1112	Communication 1 for Broadcasters	3.0	3.0
ORGB	2510	Interpersonal Relationships	3.0	3.0
Level 2 (16 weeks plus 4 week practicum)				
BCST	2207	Advanced Computers for Television	3.0	3.0
BCST	2209	Practicum 1	35.0	11.5
BCST	2220	Video Production	15.0	15.0
BCST	2222	Theory of Colour Television Systems	3.0	3.0
BCST	2224	Dramatic Writing for Television	3.0	3.0
BUSA	1201	Television Management	3.0	3.0
BLAW	3300	Broadcast Law	3.0	3.0
COMM	2212	Communication 2 for Broadcasters	3.0	3.0
Level 3 (15 weeks)				
BCST	3320	Video Production	18.0	18.0
BCST	3322	Television News	4.0	4.0
BCST	3325	News Shooting and Editing	4.0	4.0
COMM	3312	Corporate Writing in Television	3.0	3.0
BCST	3317	Non Linear Audio Editing	3.0	3.0
BCST	3318	Non Linear Video Editing	3.0	3.0
Level 4 (16 weeks plus 4 week practicum)				
BCST	4409	Practicum 2	35	11.5
BCST	4420	Video Production	18.0	18.0
BCST	4425	News Shooting and Editing	4.0	4.0
COMM	4412	Project Writing in Television	3.0	3.0

continued next page

Program Content - Broadcast Journalism

Level 1 (15 weeks)		hrs/wk	credits
BCST	1100 Industry Operations	2.0	2.0
BCST	1130 Introduction to News Reporting	2.0	2.0
BCST	1131 Introduction to Announcing	3.0	3.0
BCST	1132 Introduction to Radio	3.0	3.0
BCST	1134 News Writing	4.0	4.0
BCST	1137 Visual Fundamentals for Journalists	2.0	2.0
COMM	1112 Communication 1 for Broadcasters	3.0	3.0
ECON	1150 Economic Issues	3.0	3.0
Level 2 (16 weeks plus 4 week practicum)			
BCST	1331 Media Law	2.0	2.0
BCST	2209 Practicum 1	35.0	11.5
BCST	2230 News Reporting	2.0	2.0
BCST	2231 Announcing for Journalists	4.0	4.0
BCST	2232 Radio News 2	6.0	6.0
BCST	2233 Television News 2	4.0	4.0
BUSA	1620 Computers in Broadcasting	3.0	3.0
COMM	2212 Communication 2 for Broadcasters	3.0	3.0
Level 3 (15 weeks)			
BCST	3235 Government & Politics	2.0	2.0
BCST	3431 Labour and Business	2.0	2.0
BCST	3332 Radio News 3	10.0	10.0
BCST	3333 Television News 3	10.0	10.0
Level 4 (16 weeks plus 4 week practicum)			
BCST	4409 Practicum 2	35.0	11.5
BCST	4430 Reporting Toolbox	2.0	2.0
BCST	4432 Radio News 4	10.0	10.0
BCST	4433 Television News 4	10.0	10.0

Alterations in course offerings and hours may occur because of adaptation to changing industry conditions and demands. Some classes and practicums operate around the clock and on weekends to emulate industry situations.

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Kathy Baan, Promotion Director, CFAX, Victoria, Victoria
 Robbie Dunn, President and General Manager, CHNL/CKRW, Kamloops
 Matthew McBride, RCS Canada
 Diane Johnson, Walt Disney Company
 Gary Milne, (Chairperson), General Sales Manager, CKWX, Vancouver
 Al Murdoch, CKLG, Vancouver
 Don Pennington, CBC Radio, Vancouver
 Tom Plasteras, Program Director, CKNW, Vancouver
 Nancy Wall-MacKenzie, Marketing Representative, CKKS Broadcast Sales, Vancouver

Advisory Committee Members Television

Dave Calder, Okanagan Skeena Group Ltd.
 Catherine Gage, CBC
 Peter Davison, Rogers Cablesystems
 Ron Harrington, Director, TV Production and Operations, Knowledge Network
 Heather Hawthorne Doyle, VTV Vancouver Television, Vancouver
 Martin Hendriks, Operations Manager, Shooters
 Effie Klein, Global Television
 Scott Hinde, TSN, Netstar
 Deepak Sahasrabudhe, Soma Television Ltd.
 Dave Sherwood, Creative Director, CKPG-TV Prince George
 Scott Stewardson, CBC
 Don Thompson, General Manager, Finale Productions
 Martin Truax, (Chair), Freelance Producer
 Rob Weller, Production Manager, CHBC-TV Kelowna

Advisory Committee Members Broadcast Journalism

Denelle Balfour, Reporter, VTV, Vancouver
 Mike Bothwell, Reporter, U-TV, Vancouver
 Lorna Haeber, CBC Radio News, Vancouver
 Ian Koenigsfest (Chair), Executive Producer - Current Affairs, CKNW, Vancouver
 Tom Mark, News Director, CKWX, Vancouver
 Moira McLean, News Director, CFAX, Victoria
 Mark Schneider, CTV News, Bureau Chief, Vancouver
 Gabrielle Veto, Global
 Carolyn Warner, Global
 Wayne Williams, Assignment Editor, CBC-TV, Vancouver
 Steve Wyatt, News Director, BCTV, Burnaby

Business Administration

One-Year, Post-diploma Program (Full-time)

This nine-month, post-diploma program is designed for students with college or university graduation (any major) or a diploma of technology in Health or Engineering. Preferably following some experience in the work force, graduates of other programs may wish to assume supervisory and managerial responsibilities and benefit from further training in business management to be effective administrators.

The Program

This program includes such basic business subjects as management accounting, economics, marketing, law, human resource management, labour relations and business systems computer software applications. These courses will give students an introduction to current business practice preparing them to apply a disciplined and professional approach to management. Lectures are supplemented by case studies and group discussions throughout the program.

Program Length

Nine months, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$2,343.30 for the nine-month program.

Books and Supplies 2001/2002

\$918 (general estimated cost and subject to change).

Entrance Requirements

English 12. College or University graduation (any major) or Diploma of Technology in Health or Engineering, or equivalent. Applicants should be interested in supervisory and managerial positions or operating their own businesses. Previous business experience is preferable but not mandatory.

Post-graduation

Degree transfer opportunities are possible on completion of the diploma. Graduates may earn advanced credit toward designation as a Chartered Accountant, a Certified General Accountant, or a Certified Management Accountant.

Credential

Students who successfully complete this post-diploma program will graduate with a Diploma of Technology.

Program Content - Business Administration

Level 1 (15 weeks)				hrs/wk	credits
BLAW	3100	Business Law		4.0	4.0
BUSA	3700	Spread Sheet for Business		3.0	3.0
COMM	3310	Advanced Communications for Business Administration		4.0	4.0
BUSA	1700	Computer Applications 1		3.0	3.0
ECON	2000	Managerial Economics		3.0	3.0
FMGT	1110	Financial Management 1		4.0	4.0
OPMT	1510	Business Mathematics		4.0	4.0
ORGB	2100	Organizational Behaviour		2.0	3.0
Level 2 (20 weeks)					
BUSA	3515	Management Science		3.0	3.0
BUSA	4610	Microcomputer Software Applications		3.0	4.0
BUSA	4810	Management Policy		4.0	5.5
ECON	2200	Macroeconomics		3.0	4.0
FMGT	2110	Financial Management 2		4.0	5.5
HRMG	3010	Human Resource/Industrial Relations Management		3.0	4.0
MKTG	1113	Introduction to Marketing		3.0	4.0

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Financial Management

Two-Year Diploma Program (Full-time)

No enterprise can survive without the means for funding and financial control, and in modern business the techniques of financial management, financial planning, budget preparation and financial control have gained increasing importance as management tools. The advent of microcomputers has meant increased sophistication in financial management techniques. In the first year, students will receive a good grounding in core business subjects. In the second year, the program becomes increasingly specialized, and students will be required to select one of the six programs listed below.

Job Opportunities

The Professional Accounting program leads to middle management positions in financial accounting, cost accounting, internal audit and budget preparation. Graduates of this program will usually go on to obtain a professional designation such as a C.A., C.G.A. or C.M.A.

A limited number of students will be accepted into the Advanced Accounting program. Most graduates of this program will find employment with professional accounting firms and will go on to obtain the C.A., C.G.A. or C.M.A. designation.

The Taxation program will be of interest to those who would like to work for government or in a professional accounting firm where added tax knowledge would be beneficial. Again, graduates will usually go on to obtain a professional accounting designation.

The Microfinancial Systems program will enable a select group of students to obtain greater expertise in the use of microcomputer hardware and software applications related to financial management. There is high demand for graduates with knowledge both of accounting and of microcomputers.

The Corporate Finance program emphasizes the finance function of a corporation; topics include banking, venture capital, international finance and hedging through financial derivatives. The program will be of interest to those students who will be seeking employment in the finance department of an enterprise.

The Financial Planning program will be of interest to those students who are interested in the retail side of financial planning. The objective of the program is to equip students with the basic skills and knowledge necessary to provide individual or personal financial advice in such areas as: taxation, investments, estate and retirement planning.

Beginning Salaries

Successful graduates who complete additional training can expect, with significant varied experience, to achieve middle to senior management positions earning annual salaries in excess of \$60,000. Achieving this level of success means starting in entry-level positions in financial accounting, cost accounting, internal audit, budget preparation, brokerage, banking, trust and insurance, with starting salaries as high as \$3,000 per month.

The Programs

In the first year, all Financial Management students complete the same course of studies in core business subjects. Many of the second-year courses are also common. Specialized courses in each of the six programs are:

1. Professional Accounting - Auditing, Security Fundamentals and Projects in Industry
2. Advanced Accounting - Advanced Accounting and Auditing
3. Taxation - Selected Topics in Tax, Auditing and Security Fundamentals
4. Microfinancial Systems - Advanced Computer Applications, Auditing and Security Fundamentals
5. Corporate Finance - Enterprise Finance, Investment Banking, Security Analysis and Money and Banking
6. Financial Planning - Security Analysis, Money and Banking and Financial Planning.

Students who are eligible to enter second year Financial Management are guaranteed a seat in either Professional Accounting or Corporate Finance. Admission to other programs may be limited with selection based on academic performance.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1268; Second year: \$980 (general estimated cost and subject to change).

Program Length

Two years, full-time beginning in September each year.

Direct Entry to Second Year

Applicants who already possess a University Degree, Associate of Arts Degree or a Diploma of Technology may be eligible for direct-entry to the second year of any Financial Management program. Applicants who have completed the equivalent of the first-year program at BCIT may also be eligible for direct-entry to second year. Please note that FMGT 2100 (or its equivalent), with 70 per cent or better, is required to enter the second year of the program. All applicants are encouraged to contact the department directly to clarify their opportunities as early as possible, (604) 432-8898 or the Direct Entry department in the Registrar's office, (604) 432-8230.

Entrance Requirements

High school graduation. English 12(C+). Math 11(C+). Applicants must have inquiring and logical minds, the capacity for hard work, excellent communication skills and the ability to work well with others.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 464-1610.

Advanced Training/Degree Transfer and Completion

The Financial Management department offers an Accounting degree completion program to those who already have a Financial Management diploma or equivalent.

Universities will give credit for subjects taken in the program where students wish to continue their training and qualify for a university degree. For example, graduates in Financial Management will receive up to 72 credits toward the Bachelor of Administrative Studies degree from the Open Learning Agency through its Open University (120 credits are required for a degree).

Block transfer credit arrangements are in effect with Simon Fraser University (SFU), the University of Northern British Columbia (UNBC), Royal Roads University and Lakehead University (Ontario).

Accreditation

The accounting profession, through its professional bodies, recognizes a wide variety of subjects offered in the program. The Canadian Institute of Chartered Accountants, the Certified General Accountants' Association of Canada, the Certified Management Accountants Society and the Canadian Credit Institute give credit for various subjects, and our graduates are able to achieve a professional designation within two years of receiving their BCIT diploma.

Students who choose the Finance program will write the Canadian Securities Course examination while they are students at BCIT. Successful completion is a mandatory step for anyone considering a career in a financial planning field or indeed any aspect of the investment world. In addition, it is a prerequisite course for all the other courses and programs offered by the Canadian Securities Institute.

The Financial Planning Option is accredited by the Financial Planning Standards Council of Canada as meeting the academic prerequisites necessary to be permitted to write the Certified Financial Planners (CFP) national examinations.

Program Content - Financial Management

Level 1 (15 weeks)			hrs/wk	credits
COMM	1100	Business Communications	3.0	3.0
ECON	2100	Microeconomics	3.0	3.0
FMGT	1105	Accounting 1 for Financial Management	4.0	4.0
MKTG	1102	Essentials of Marketing	3.0	3.0
OPMT	1110	Business Mathematics	4.0	4.0
OPMT	1600	Computer Applications 1	3.0	3.0
ORGB	1100	Organizational Behaviour	3.0	3.0
Level 2 (20 weeks)				
BUSA	2100	Principles of Management*	3.0	2.0
COMM	2200	Business Communications 2	3.0	4.0
ECON	2200	Macroeconomics	3.0	4.0
FMGT	2105	Accounting 2 for Financial Management	4.0	5.5
FMGT	2540	Working Capital Management*	3.0	2.0
FMGT	2710	Computerized Accounting*	3.0	2.0
FMGT	2910	Finance Reports*	3.0	2.0
OPMT	1130	Business Statistics	4.0	5.5
OPMT	2650	Computer Applications 2*	3.0	2.0
OPMT	2660	Computer Applications 3*	3.0	2.0

*denotes a half-term (10-week) course.

Normally, students will not be allowed to proceed into second-year Financial Management unless they have achieved at least 65 per cent in FMGT 2105 or 70 per cent in FMGT 2100.

Program Content - Professional Accounting

Level 3 (15 weeks)-			hrs/wk	credits
BLAW	3100	Business Law	4.0	4.0
FMGT	3110	Financial Accounting 1	5.0	5.0
FMGT	3210	Cost and Managerial Accounting 1	4.0	4.0
FMGT	3310	Auditing 1	3.0	3.0
FMGT	3410	Taxation 1	4.0	4.0
FMGT	3510	Finance 1	4.0	4.0
FMGT	3720	Advanced Computer Applications 1	4.0	4.0
Level 4 (20 weeks)				
FMGT	4110	Financial Accounting 2	5.0	7.0
FMGT	4210	Cost & Managerial Accounting 2	4.0	5.5
FMGT	4310	Auditing 2	4.0	5.5
FMGT	4410	Taxation 2	4.0	5.5
FMGT	4510	Finance 2	4.0	5.5
FMGT	4620	Security Fundamentals*	4.0	2.5
FMGT	4710	Advanced Computer Applications 2	4.0	5.5
FMGT	4910	Projects in Industry*	4.0	2.5
OPMT	4300	Quantitative Analysis for Finance*	4.0	2.5

*denotes a half-term course

Program Content - Advanced Accounting

Level 3 (15 weeks)			hrs/wk	credits
BLAW	3100	Business Law	4.0	4.0
FMGT	3110	Financial Accounting 1	5.0	5.0
FMGT	3210	Cost & Managerial Accounting 1	4.0	4.0
FMGT	3310	Auditing 1	3.0	3.0
FMGT	3410	Taxation 1	4.0	4.0
FMGT	3510	Finance 1	4.0	4.0
FMGT	3720	Advanced Computer Applications 1	4.0	4.0

Level 4 (20 weeks)			hrs/wk	credits
FMGT	4110	Financial Accounting 2	5.0	7.0
FMGT	7120	Advanced Accounting	4.0	5.5
FMGT	4210	Cost and Managerial Accounting 2	4.0	5.5
FMGT	4310	Auditing 2	4.0	5.5
FMGT	4410	Taxation 2	4.0	5.5
FMGT	4510	Finance 2	4.0	5.5
FMGT	4710	Advanced Computer Applications 2	4.0	5.5

Program Content - Taxation

Level 3 (15 weeks)			hrs/wk	credits
BLAW	3100	Business Law	4.0	4.0
FMGT	3110	Financial Accounting 1	5.0	5.0
FMGT	3210	Cost & Managerial Accounting 1	4.0	4.0
FMGT	3310	Auditing 1	3.0	3.0
FMGT	3410	Taxation 1	4.0	4.0
FMGT	3510	Finance 1	4.0	4.0
FMGT	3720	Advanced Computer Applications 1	4.0	4.0

Level 4 (20 weeks)			hrs/wk	credits
FMGT	4110	Financial Accounting 2	5.0	7.0
FMGT	4210	Cost and Managerial Accounting 2	4.0	5.5
FMGT	4310	Auditing 2	4.0	5.5
FMGT	4410	Taxation 2	4.0	5.5
FMGT	4430	Selected Topics in Tax*	4.0	2.5
FMGT	4510	Finance 2	4.0	5.5
FMGT	4620	Security Fundamentals*	4.0	2.5
FMGT	4710	Advanced Computer Applications 2	4.0	5.5

*denotes a half-term course

Program Content - Microfinancial Systems

Level 3 (15 weeks)			hrs/wk	credits
BLAW	3100	Business Law	4.0	4.0
FMGT	3110	Financial Accounting	5.0	5.0
FMGT	3210	Cost and Managerial Accounting	4.0	4.0
FMGT	3310	Auditing 1	3.0	3.0
FMGT	3410	Taxation 1	4.0	4.0
FMGT	3510	Finance 1	4.0	4.0
FMGT	3720	Advanced Computer Applications 1	4.0	4.0

Level 4 (20 weeks)			hrs/wk	credits
FMGT	4110	Financial Accounting 2	5.0	7.0
FMGT	4210	Cost & Managerial Accounting 2	4.0	5.5
FMGT	4310	Auditing 2	4.0	5.5
FMGT	4410	Taxation 2	4.0	5.5
FMGT	4510	Finance 2	4.0	5.5
FMGT	4620	Security Fundamentals*	4.0	2.5
FMGT	4710	Advanced Computer Applications 2	4.0	5.5
FMGT	4750	Financial Information Systems *	4.0	2.5

*denotes a half-term course

Program Content - Corporate Finance

Level 3 (15 weeks)			hrs/wk	credits
BLAW	3100	Business Law	4.0	4.0
FMGT	3110	Financial Accounting 1	5.0	5.0
FMGT	3210	Cost and Managerial Accounting 1	4.0	4.0
FMGT	3410	Taxation 1	4.0	4.0
FMGT	3510	Finance 1	4.0	4.0
FMGT	3610	Security Analysis 1	4.0	4.0
FMGT	3720	Advanced Computer Applications 1	4.0	4.0

Level 4 (20 weeks)			hrs/wk	credits
FMGT	4110	Financial Accounting 2	5.0	7.0
FMGT	4210	Cost and Managerial Accounting 2	4.0	5.5
FMGT	4410	Taxation 2	4.0	5.5
FMGT	4510	Finance 2	4.0	5.5
FMGT	4520	Enterprise Finance*	4.0	2.5
FMGT	4570	Money and Banking	4.0	5.5
FMGT	4610	Security Analysis 2*	4.0	2.5
FMGT	4710	Advanced Computer Applications 2	4.0	5.5

*denotes a half-term course

Program Content - Financial Planning

Level 3 (15 weeks)			hrs/wk	credits
BLAW	3100	Business Law	4.0	4.0
FMGT	3110	Financial Accounting 1	5.0	5.0
FMGT	3210	Cost and Managerial Accounting 1	4.0	4.0
FMGT	3410	Taxation 1	4.0	4.0
FMGT	3510	Finance 1	4.0	4.0
FMGT	3610	Security Analysis 1	4.0	4.0
FMGT	3720	Advanced Computer Applications 1	4.0	4.0

Level 4 (20 weeks)			hrs/wk	credits
FMGT	4110	Financial Accounting 2	5.0	7.0
FMGT	4410	Taxation 2	4.0	5.5
FMGT	4510	Finance 2	4.0	5.5
FMGT	4525	Financial Planning	4.0	5.5
FMGT	4610	Security Analysis 2*	4.0	2.5
FMGT	4535	Financial Services*	4.0	2.5
FMGT	4570	Money and Banking	4.0	5.5
FMGT	4710	Advanced Computer Applications 2	4.0	5.5

*denotes a half-term course

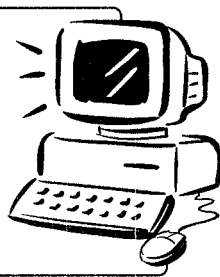
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It's easy to apply
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registration



Human Resource Management

Two-Year Diploma Program (Full-time)

Provides specialized knowledge, skills and abilities about organizational systems and processes that focus upon enhancing human behaviour in the workplace. The career track of graduates is aimed at entrance, at a professional/technical level, into either a generalist or specialist human resource management position. Some graduates also find employment in operational units with a heavy emphasis on team management and project development activities. More experienced graduates also have an opportunity to pursue human resource consulting activities.

Students are exposed to current developments in a constantly changing human resource management field. They learn about the legal and labour relations management issues impacting B.C., Canadian, and international business operations.

The program develops skills and abilities focusing on effective time and stress management, teamwork, making effective presentations, building a variety of interpersonal skills experiences, problem analysis and decision-making.

The program also gives participants exposure to the major computer and non computer-based systems and processes used in human resource management programs: human resource information, performance management, planning, pay and employment equity systems.

The Program

Applicants apply for the Human Resource Management program. The courses in first year (Level 1 and 2) are primarily those of the Management Systems first year program. For students to progress to second year (level 3 and 4) they must achieve an overall average of 75 per cent in their first year courses, with no failures in any courses.

Students who enter the Human Resource Management program will generally follow the course of studies shown as Levels 1 through 4, with some changes in the offerings and order of courses as the department revises and updates the program to reflect changes in business and industry.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,400

Second year: \$1,500

(general estimated cost and subject to change).

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Shaping the Future

The Certified Management Accountant path is the one to move you ahead with lots of career options. With the highly respected CMA designation, you can become a successful strategic business leader.

As of September 1, 2001 students will require a degree to write the CMA National Entrance Exam. Become a CMA Student member prior to that deadline, and you will have until 2006 to write the Entrance Exam without requiring a degree. Find out how.

Certified Management Accountants of British Columbia

For more information, call (604) 687-5891
or visit: www.cmabc.com

Entrance Requirements

High school graduation. English 12(C+). Math 11(C+). Enrolment is limited. Applicants should apply early, stating full details of work experience, outlining extracurricular activities, reasons for selecting this program, and reasons for pursuing a career as a Human Resources Professional. Appropriate business experience and/or other successful post-secondary education will greatly strengthen applications. Applicants should be good communicators and people-oriented with a willingness to work effectively with fellow workers and the public. An interview may be required.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Progression into Second Year

In order to be eligible to progress into the second year of the Human Resource Management program students must achieve the following in their first year of studies:

1. Achieve an overall average of 75 per cent or better in all first year courses. No failures are permitted.
2. Where Transfer Credit is requested or has previously been granted, the Department will verify the grade the students obtained in the course and use that grade when determining the overall first year GPA.
3. Space is limited. Where more eligible students apply than there is space available, BCIT reserves the right to select those students considered to have the best chance for success in the program.

Direct Entry for College, Institute or University Graduates

Direct entry into the second year of the Human Resource Management program is possible for those who have previously attended a university, college, or institute business program. To be considered eligible as a direct entry applicant, individuals must demonstrate (through transcripts and course outlines) that they have previously completed equivalency to all first year courses. As part of the selection process for direct entry, an interview may be required to review the applicant's academic record, work experience, communication skills, teamwork skills, and organizational skills. This review may identify courses to be completed prior to admission into the program. See also Human Resource Management, post diploma.

Degree Completion

Continuation of studies to degree completion is strongly recommended for graduates of this program.

Program Content -

Human Resource Management

Level 1 (15 weeks)			hrs/wk	credits
BUSA	1600	Computer Applications 1	3.0	3.0
COMM	1100	Business Communications 1	3.0	4.0
ECON	2100	Microeconomics	3.0	3.0
FMGT	1100	Accounting 1	3.0	3.0
MKTG	1102	Essentials of Marketing	3.0	3.0
OPMT	1110	Business Mathematics	3.0	3.0
ORGB	1100	Organizational Behaviour	3.0	3.0
Level 2				
BUSA	2100	Principles of Management*	3.0	2.0
BUSA	2650	Computer Applications 2*	3.0	2.0
BUSA	2660	Computer Applications 3*	3.0	2.0
COMM	2200	Business Communication 2	3.0	4.0
ECON	2200	Macroeconomics	3.0	4.0
FMGT	2100	Accounting 2	4.0	5.5
HRMG	3100	Human Resource Management*	4.0	3.0
OPMT	1100	Operations Management*	4.0	2.5
OPMT	1130	Business Statistics	4.0	5.5
OPMT	1170	Project Management*	4.0	2.5
Level 3				
BLAW	3800	Human Resource Management Law	3.0	3.0
BUSA	3500	Management Science	3.0	3.0
HRMG	3130	Competency Design & Analysis	3.0	3.0
FMGT	3560	Finance 1	4.0	4.0
HRMG	3150	Human Resource Management Systems 1	3.0	3.0
HRMG	3170	Human Resource Dynamics Workshop	3.0	3.0
HRMG	3205	Labour Relations	3.0	3.0
HRMG	4401	Compensation Management*	4.0	2.5
Level 4				
BUSA	4800	Management Policy	3.0	4.0
FMGT	4560	Finance 2	4.0	6.0
HRMG	3300	Recruitment and Selection*	4.0	2.5
HRMG	3401	Benefits Administrations	3.0	3.0
HRMG	3500	Training and Development*	4.0	2.5
HRMG	4150	Performance Management Systems 2*	4.0	2.5
HRMG	4200	Collective Bargaining	3.0	4.0
HRMG	4600	Human Resource Planning*	4.0	2.5
HRMG	4900	Directed Studies	6.0	8.0
OCHS	1433	Introduction to Safety for Human Resources*	4.0	2.5

*denotes a half-term course

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John Hatchett, Consultant
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Management Association
Gail Sexsmith, Principal, Kerrison Consulting
Warren Wong, ORION Technologies

Human Resource Management

One-Year Post-diploma Program (Full-time)

Provides specialized knowledge, skills and abilities about organizational systems and processes that focus upon enhancing human behaviour in the workplace. The career track of graduates is aimed at entrance, at a professional/technical level, into either a generalist or specialist human resource management position. Some graduates also find employment in operational units with a heavy emphasis on team management and project development activities. More experienced graduates also have an opportunity to pursue human resource consulting activities. Students are exposed to current developments in a constantly changing human resource management field. They learn about the legal and labour relations management issues impacting B.C., Canadian, and International business operations.

The program develops skills and abilities focusing on effective time and stress management, teamwork, making effective presentations, building a variety of interpersonal skills, problem analyses and decision-making.

The program also gives participants exposure to the major computer and non computer-based systems and processes used in human resource management programs: human resource information, performance management, planning, pay and employment equity systems.

University or college graduates, or people with equivalent qualifications who are interested in a human resource management career should consider this program. Institute graduates may also consider this program as part of a degree completion track.

The Program

The program consists of nine months of full-time study. Depending on previous courses taken, a student may be asked to substitute other courses for some of those shown below. Lectures are supplemented with case studies, group projects and discussions throughout the program.

Program Length

Nine months, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$2,343.30 for the nine-month program.

Books and Supplies 2001/2002

\$1,500 (general estimated cost and subject to change).

Entrance Requirements

English 12. College or University Degree or Diploma of Technology. FMGT 1152 "Accounting for the Manager" with 65 per cent or better. ECON 2200 "Macroeconomics" with 65 per cent or better. HRMG 3100 (or HRMG3105) "Human Resource Management", ORGB 2100 (or ORGB 2205) "Organizational Behaviour" and BUSA 1100 (or BUSA 2005) "Principles of Management". Strong proficiency in microcomputer applications is required. Please provide a written explanation detailing experience in microcomputer applications including word processing and statistical analysis utilizing spreadsheet programs.

Enrolment is limited. Applicants should apply early, stating full details of work experience, outlining extracurricular activities, reasons for selecting the program, and reasons for pursuing a career as a Human Resources Professional. Appropriate business experience will greatly strengthen the application. Applicants should be good communicators and people-oriented with a willingness to work effectively with fellow workers and the public. An interview may be required.

Credential

Students who successfully complete this post-diploma program will graduate with a Diploma of Technology.

Program Content -

Human Resource Management

Level 1 (15 weeks)		hrs/wk	credits
BLAW 3800	Human Resource Management Law	3.0	3.0
FMGT 3560	Finance 1	4.0	4.0
HRMG 3130	Competency Design & Analysis	3.0	3.0
HRMG 3150	Human Resource Management Systems 1	3.0	3.0
HRMG 3170	Human Resource Dynamics Workshop	3.0	3.0
HRMG 3205	Labour Relations 1	3.0	3.0
HRMG 4401	Compensation Management*	4.0	2.5
OPMT 1510	Business Mathematics	4.0	4.0
Level 2 (20 weeks)			
BUSA 4800	Management Policy	3.0	4.0
FMGT 4560	Finance 2	4.0	6.0
HRMG 3300	Recruitment and Selection*	4.0	2.5
HRMG 3401	Benefits Administration	3.0	3.0
HRMG 3500	Training and Development*	4.0	2.5
HRMG 4150	Performance Management Systems	4.0	2.5
HRMG 4200	Collective Bargaining	3.0	4.0
HRMG 4600	Human Resource Planning*	4.0	2.5
HRMG 4900	Directed Studies	6.0	8.0
OCHS 1433	Introduction to Safety or Human Resources*	4.0	2.5

*denotes a half-term course

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International Trade and Transportation

Two-Year Diploma Program (Full-time)

International trade is vital to the survival of Canada as one of the six most important trading nations in the world. Canada needs trained people to ensure continued growth and prosperity. Graduates of the International Trade and Transportation program receive a broad training in the fundamentals of business and their application to trade and transport. International business depends upon successful market analysis and effective entry strategies, knowledge of transportation alternatives and logistics planning.

Job Opportunities

With the versatility of the International Trade and Transportation program, graduates find employment in a wide range of industries and careers. The International Trade and Transportation program graduate may be employed in any economic sector in which international markets play a role in the firm's success. Career opportunities occur in marketing, finance and management with firms such as trading houses, importers and exporters, customs brokers, freight forwarders and transportation providers.

Program Length

Two years, full-time in September each year.

Entrance Requirements

High school graduation. English 12(C+). Math 11(C+). An interview with the program area may be required to assess oral communications skills. This interview is waived for those applicants who score 60 per cent or higher on the BC English 12 Provincial Examination.

Applicants should apply early, stating full details of work experience and outlining extracurricular activities. Appropriate business experience will strengthen application. Applicants should be good communicators and people-oriented, with a willingness to work effectively with fellow workers and the public.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Direct Entry to Second Year

Applicants who already possess a Degree, Associate Degree or Diploma of Technology may be eligible for direct entry to the second year of the program. Applicants are required to have English 12 with a C+ or better; working knowledge of Windows, Word, and Excel; FMGT 1152 with 70 per cent or better; COMM 1103, COMM 2202, COMM 2203 and TDMT 1200. All applicants are encouraged to contact the department at (604) 451-6714. In all cases, applicants are encouraged to apply as early as possible.

Accreditation

A number of industry certifications are available upon completion of the program. These include CITT (Canadian Institute of Traffic and Transport), CIT (Chartered Institute of Transport), and Revenue Canada – Canada Customs, Level 1. In addition, other industry associations give credit for various subjects which allow for the achievement of additional professional designations shortly after receiving their International Trade and Transportation diploma.

Advanced Training/Degree Transfer and Completion

Universities will give credit for subjects taken in the program where students wish to continue their training and qualify for a university degree. Currently, block credit transfer is available from Lakehead University, Open Learning and Royal Roads University.

Program Content - International Trade and Transportation

Level 1 (15 weeks)			hrs/wk	credits
BUSA	1100	Management	3.0	3.0
COMM	1100	Business Communications	3.0	3.0
ECON	2100	Microeconomics	3.0	3.0
FMGT	1100	Accounting 1	4.0	4.0
MKTG	1102	Essentials of Marketing	3.0	3.0
OPMT	1110	Business Mathematics	4.0	4.0
OPMT	1600	Computer Applications 1	3.0	3.0
TDMT	1100	Learning Skills	1.0	1.0
TDMT	1101	Geography of Trade	3.0	3.0
TDMT	1150	Distribution 1 (CITT)	3.0	3.0
Level 2 (20 weeks)				
BLAW	3410	Business and International Law	4.0	4.0
COMM	2200	Business Communications	3.0	3.0
ECON	2200	Macroeconomics	3.0	3.0
FMGT	2100	Accounting 2	4.0	4.0
OPMT	1121	Business Statistics	4.0	4.0
OPMT	2209	Spreadsheet Applications	2.0	2.0
OPMT	1148	Industrial Engineering	2.0	2.5
TDMT	2100	Team and Learning Skills 2	1.0	1.5
TDMT	2203	Transportation Economics	3.0	3.0
TDMT	2250	Distribution II (CITT)	3.0	3.0

Level 3 (15 weeks)			
FMGT	3550	Business Finance	3.0 3.0
MKTG	2309	Market Research 1	4.0 4.0
OPMT	3301	Quantitative Methods for Business	4.0 4.0
OPMT	3353	Microcomputer Applications: Database	3.0 3.0
TDMT	2310	Introduction to Political Science	2.0 2.0
TDMT	3301	Logistics 1	3.0 3.0
TDMT	3305	International Trade	3.0 3.0
TDMT	3315	Intermodal Transportation	3.0 3.0
TDM	3402	Introduction to Projects	3.0 3.0
Level 4 (20 weeks)			
FMGT	4550	Management Accounting	3.0 3.0
HRMG	3050	Management Workshop*	5.0 3.5
MKTG	4405	International Market Planning*	4.0 2.5
OPMT	1404	Warehouse and Purchasing Management	3.0 4.0
OPMT	1445	Quality Assurance Services*	3.0 2.0
OPMT	4469	Online Business Applications	2.0 2.5
TDMT	1409	Canada Customs and NAFTA	3.0 4.0
TDMT	4401	Logistics 2*	3.0 2.0
TDMT	4411	Industry Projects*	18.0 18.0

* denotes a half-term course

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Catherine Ward, Daishowa Sales Ltd.
Yvonne Gell Winder, Tree Island Industries Ltd.

Management

Bachelor of Technology (Part-time)

BCIT is proud to offer Canada's first competency based management degree at the baccalaureate level. The Bachelor of Technology in Management is a self-paced and self-directed program. The program applies degree level skills and knowledge directly to the workplace. The learner builds management capabilities by focusing strategically on areas needing development, while refining areas of strength. This method is efficient, effective and most importantly – results oriented.

Note: This program is delivered in a "distance education" format, using e-mail, telephone and online chats to communicate with degree coach and student groups. Students do not attend BCIT campus for lecture style classes.

Prospective Students

The program is designed for individuals who are currently working and would like to build their generic management knowledge and skills. The learner will focus directly on knowledge, skills and behaviours vital to managerial success. All of the readings, assignments and major projects are designed to improve the student's on-the-job performance. Information gathering, analytical, problem solving, strategic thinking and decision-making are applied and developed in the learner's current work situation. The application of skills and knowledge will be greatly enhanced by the in-depth knowledge of their organization and industry.

The program combines the academic (reading, report writing, student discussions etc.) with practical behavioural skills (taking responsibility for mistakes, running effective meetings etc.) This combination of learning - then applying the skill is deemed most effective for the mature, adult learner. The term "competency" (used throughout the degree description) refers to the level of skill (or competence) displayed by the individual.

Program Structure

The program's learning goals are accomplished by creating a close partnership between the learner, the BCIT coach and the student's chosen workplace advisor.

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Prior to application, each student will be asked to identify a workplace advisor. This individual should be in a position to "empower" the student to complete the program (possibly by allowing the student to take on additional duties to complete the required assignments). The workplace advisor should be willing to support and encourage the student throughout the degree process.

Each student begins the program in the Self-Assessment and Self-Management module (MGMT 8010). The student will assess themselves and be assessed by employers, peers, and direct reports. The result of this assessment is a clear snapshot of the individual's current level of competency in each key area. A unique roadmap for future development emerges for each student. Some students may move more quickly through modules where clear ability is already demonstrated, but proof of competency is required for all modules.

This takes the form of a final assessment for each module of work and will incorporate the learned behaviour as well as demonstrate the learned skills and knowledge by completion of a major project.

Using Technology and the Internet

The program uses a proven electronic mentoring and management development software system, which will keep the student on-track, focused and paced towards gaining the degree. This software will also provide the student with important information of "how to" make the behaviour changes required. Web-based research is required in many modules of work. Suggested Internet sites to visit are provided. Many resources are available through the program's Web site.

System Requirements

The system requirements are:

- 486 PC with 8 megabytes of RAM
- Microsoft Windows 3.1 (or better)
- Internet connection (Netscape 3.0 or later – NOTE: we do not recommend Internet Explorer).

Entrance Requirements

The Entrance requirements for the Bachelor of Technology in Management are listed below. Please submit the entire package of information with the **Application fee** to the Registrar's office:

- Diploma or equivalent.
- current employment in a management or supervisory position (title is not as important as duties performed on the job).
- two years of relevant, full-time work experience (preference will be given to those in supervisory/managerial roles)
- English 12 or equivalent.
- computer literacy: working knowledge of MS Word, MS Excel, e-mail and Internet.
- strong communication skills: assessed through written letters and interview.
- completion of diploma level accounting: FMGT 1100 or FMGT 1152 or equivalent.

- A letter explaining the relationship between the degree program and the candidate's personal goals (please describe current position).
- A letter of support from the employer stating a willingness of the organization to facilitate the employee taking the degree and also identifying workplace advisor for the student.
- Two letters of support from colleagues, supervisors, educators, clients or customers commenting on the applicant's ability to complete the degree.
- Resume stressing skills developed, training and projects undertaken.
- An interview with the program head. The interview will not be granted until all other entrance requirements have been met.

Registration Procedures

Individuals interested in applying for entry into the Bachelor of Technology in Management or Management-Health Care Specialty should first contact program advising at (604) 434-1610 for general information.

Individuals will register for courses by following BCIT's standard procedures for registering in a distance education course. This can be accomplished in five ways: mail, fax, phone, in-person, Web. For more information please see the registration procedures listed under "Services" in your calendar.

Program Length

The Bachelor of Technology in Management must be completed within six years from acceptance into the program. The program is self-paced therefore completion time is determined by the learner. The program is designed to be completed in two and a half years.

Note: Employment is required to complete the program. Any breaks in employment will result in a break in the program delivery, as proof of competency occurs on-the-job.

Course Transfer Credit

The program is competency-based and therefore no transfer credits are accepted for the Bachelor of Technology in Management. For possible transfer credit in the Bachelor of Technology in Management – Health Care Specialty, please contact the program administrator. Six credits of the elective portion of the Liberal Education Component may be transferred in from another institution.

Grading

Upon completion of each module, students will be assigned a grade of 80 per cent. BCIT degree coaches will work with each learner to develop their competence in each area until it reflects a superior level of performance. All final project packages are evaluated by an area expert (an academic specialist in the competency area) to ensure that it meets this academic standard.

Program Content -

The Bachelor of Technology in Management is comprised of two key components:

1) Advanced Technical Specialty	48.0
2) Liberal Education	12.0
Total	60.0

1. Advanced Technical Component - Management Competency (48 credits)

- a) Required – all students begin the program by taking:
MGMT 8010 Self Awareness and Self Management 3.0
- b) Students must complete all of the following 45 credits. The order in which courses undertaken will be determined by the student and their assigned degree coach:

Management Option	Credits
MGMT 8110 Communicate Effectively	3.0
MGMT 8120 Build Effective Working Relationships	4.0
MGMT 8210 Develop Leadership Roles	1.0
MGMT 8220 Foster Teamwork	2.0
MGMT 8230 Lead Effectively	2.0
MGMT 8310 Prepare for Change	1.0
MGMT 8320 Plan Quality Change	2.0
MGMT 8330 Manage Change	2.0
MGMT 8410 Manage a Work Unit's Human Resources	4.0
MGMT 8420 Manage Financial Resources	6.0
MGMT 8430 Manage Operational Performance	7.0
MGMT 8510 Know the Global Issues Affecting your Industry	1.0
MGMT 8520 Determine Implications of Law and Organizational Regulations	3.0
MGMT 8530 Organizational and Personal Ethics	2.0
MGMT 8610 Think Strategically	1.0
MGMT 8620 Formulate Strategies	2.0
MGMT 8630 Implement Strategies	2.0
Management - Health Care Specialty	
MGMT 8110 Communicate Effectively	3.0
MGMT 8120 Build Effective Working Relationships	4.0
MGMT 8130 Information Systems in Health Care	2.0
MGMT 8160 Health Labour Relations	2.0
MGMT 8170 Health Care Law	3.0
MGMT 8180 Health Care Systems	2.0
MGMT 8210 Develop Leadership Roles	1.0
MGMT 8220 Foster Teamwork	2.0
MGMT 8230 Lead Effectively	2.0
MGMT 8310 Prepare for Change	1.0
MGMT 8320 Plan Quality Change	2.0
MGMT 8330 Manage Change	2.0
MGMT 8410 Manage a Work Unit's Human Resources	4.0
MGMT 8420 Manage Financial Resources	6.0
MGMT 8430 Manage Operational Performance	7.0
MGMT 8530 Organizational and Personal Ethics	2.0

2. Liberal Education Component (12 credits)

Mandatory courses	Credits
LIBS 7001 Critical Reading and Writing	3.0
LIBS 7002 Applied Ethics	3.0

Elective courses

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

For Further Information Please Contact:

Marnie Wright, B.A., mgmtdegr@bcit.ca
Program Administrator
Business Programs - Management Degree
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Burnaby, B.C. V5G 3H2
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Management Systems

Two-Year Diploma Program (Full-time)

Develops the comprehensive business knowledge and skills necessary to deal with the continually changing needs of business. The student is provided with a solid core of instruction in management, finance, marketing and business problem solving, together with courses that develop managers who can implement and use microcomputer-based information and decision systems. Graduates of the program will be effective in small and large organizations that require an entrepreneurial attitude.

Job Opportunities

Graduates are ready to apply skills they have learned from accounting, operations management, marketing, mathematics, communications, business law, economics, organizational behaviour, human resource management and computer applications directly in supervisory and management positions.

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Graduates pursue a variety of career paths and job opportunities. Typically those in the Management Option will be interested in entry level management positions, marketing and sales, banking and insurance, or small business development while those in the Microcomputer option are targeting computer systems support, business analysis and consulting or management opportunities. Since both options emphasize a wide range of generic skills, many graduates continue on to degree completion or professional accounting programs.

Note: This program is currently under review and is subject to change.

The Program

The first year of the program includes a "common core" that covers the basic business skills taught in all programs plus one or two program specific courses. The second year continues the development of general business skills including several courses aimed at professional body certification or preparation for degree programs. In addition, second year students elect either Management Systems or Microcomputers in Business as an area of specialization.

Note: students may apply to the Human Resources option or transfer to other business programs.

Management Systems Option

The Management Systems Option focuses on developing the skills required to manage change more effectively. Students will be exposed to a variety of organizational change and development topics including: interpersonal skills, leadership, teamwork, negotiation and conflict resolution, and various aspects of information technology.

Microcomputers in Business Option

The Microcomputers in Business Option focuses on the skills students need to become "expert" users of computer technology. Students will be exposed to a variety of information technology topics including database development, the Internet, Electronic Commerce, network management and future technologies.

After the first year of core business courses, students will continue in the Management Systems program or may apply for the Human Resource Systems program. The optional courses within the second year of Management Systems are shown under the headings: Option A-Management Systems and Option B-Microcomputers in Business

Students will generally follow the course of studies shown as Levels 1 through 4, with some changes in the offerings and order of courses as the program is revised and updated to reflect changes in business and industry.

Students in courses such as BUSA 1600 and BUSA 3600 will find it beneficial to have access to a microcomputer outside the Institute. Those who have outside access to microcomputers should so advise their instructors.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$918

Second year: \$1,270

(general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12(C+). Math 11(C+). Applicants should apply early, stating full details of work experience and outlining extracurricular activities. Appropriate business experience will strengthen application. Applicants should be good communicators and people-oriented, with a willingness to work effectively with fellow workers and the public.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Direct Entry

Entry into Level 2 (January) is possible when space is available, provided students have: English 12 (C+) and all level one courses or acceptable equivalents.

Entry into Level 3 (September/Second Year) is possible when space is available, provided students have: English 12 (C+) and all of level one and two courses or acceptable equivalents.

Degree Completion/Advanced Studies

The Advanced Studies in Business program provides degree completion opportunities and an advanced diploma track.

Professional Certification

Graduates may earn advanced credit toward designation as a Chartered Accountant, a Certified General Accountant, or a Certified Management Accountant. Advanced credit is also given by the Institute of Chartered Secretaries and Administrators.

Program Content - Management Systems

Level 1 (15 weeks)				hrs/wk	credits
BUSA	1600	Computer Applications 1		3.0	3.0
COMM	1100	Business Communication 1		3.0	3.0
ECON	2100	Microeconomics		3.0	3.0
FMGT	1100	Accounting 1		4.0	4.0
MKTG	1102	Essentials of Marketing		4.0	3.0
OPMT	1110	Business Mathematics		4.0	4.0
ORGB	1100	Organizational Behaviour		3.0	3.0
Level 2 (20 weeks)				hrs/wk	credits
BUSA	2100	Principles of Management*		3.0	2.0
BUSA	2650	Computer Applications 2*		3.0	2.0
BUSA	2660	Computer Applications 3*		3.0	2.0
COMM	2200	Business Communication 2		3.0	4.0
ECON	2200	Macroeconomics		3.0	4.0
FMGT	2100	Accounting 2		4.0	5.5
HRMG	3100	Human Resource Management*		4.0	3.0
OPMT	1100	Operations Management*		4.0	2.5
OPMT	1130	Business Statistics		4.0	5.5
OPMT	1170	Project Management*		4.0	2.5

* denotes a half-term course

Second-year Options

Students will be asked their preference between Options A and B toward the end of Level 2. If resources or scheduling limit the space in Option B, student selection will be based on performance in previous microcomputer courses.

A: Management Systems Option

Level 3				hrs/wk	credits
BLAW	3100	Business Law		4.0	4.0
BUSA	3500	Management Science		3.0	3.0
BUSA	3600	Introduction to Database Management		3.0	3.0
BUSA	3800	Business & Entrepreneurship		4.0	4.0
FMGT	3221	Management Accounting		4.0	4.0
FMGT	3560	Finance 1		4.0	4.0
ORGB	3600	Leadership and Change		3.0	3.0
MKTG	2334	Applied Marketing and Selling		3.0	3.0
Level 4				hrs/wk	credits
BCST	4600	Introduction to Media Relations*		3.0	2.0
BUSA	4620	Internet Applications*		3.0	2.0
BUSA	4800	Management Policy		3.0	4.0
BUSA	4900	Directed Studies		6.0	8.0
COMP	3110	Networks and Current Developments*		3.0	4.0
FMGT	4560	Finance 2		4.0	6.0
FMGT	4730	Computerized Accounting For Managers*		4.0	2.5
HRMG	3205	Labour Relations*		4.0	4.0
OPMT	2171	Management Engineering		3.0	4.0

*denotes a half-term course

B: Microcomputers in Business Option

Level 3 (15 weeks)				hrs/wk	credits
BLAW	3100	Business Law		4.0	4.0
BUSA	3500	Management Science		3.0	3.0
BUSA	3650	Information Technology 1		4.0	4.0
BUSA	3670	Introduction to E-Commerce		4.0	4.0
FMGT	3221	Management Accounting		4.0	4.0
FMGT	3560	Finance 1		4.0	4.0
MKTG	2334	Applied Marketing and Selling		3.0	3.0
OPMT	2172	Applied Management Engineering		3.0	3.0
Level 4 (20 weeks)				hrs/wk	credits
BUSA	4650	Information Technology 2		4.0	5.5
BUSA	4800	Management Policy		3.0	4.0
BUSA	4850	Consulting Skills and Problem Solving*		4.0	5.5
BUSA	4900	Directed Studies		6.0	8.0
COMP	3110	Networks and Current Developments*		3.0	4.0
FMGT	4560	Finance 2		4.0	6.0
FMGT	4730	Computerized Accounting For Managers*		3.0	2.5

*denotes a half-term course

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Marketing Management

Two-Year Diploma Program (Full-time)

As the world of business changes rapidly to meet the demands of the 21st century, so does the process of marketing. The goal of marketing today is to satisfy and manage the changing needs of the new millennium customer. The two year marketing diploma graduate will be equipped with the skills needed to manage this new environment in the product and service industries for both the consumer and industrial markets. The first year of the program concentrates on developing an understanding of core concepts in marketing such as Integrated Marketing and Communication for global and local markets, computer skills and Internet marketing basics, business communication, technical sales, economics and accounting practices.

In the second year of the program the student focuses on their specific field of marketing expertise, such as Communications, Direct Response Marketing, Entrepreneurship, Tourism and Commercial Real Estate. Combined with additional core competencies such as business law, computer systems, data-based management, marketing research, and negotiations skills, these grads are well equipped to take positions in industry in the management of these fields of interest.

Special emphasis is being placed on how e-business is effecting these industries as well, by integrating the Internet and e-commerce within the broader discipline of marketing. Grads will be able to seek employment in areas such as manufacturing, sales, high-tech industries, retail, advertising, professional services and non-profit institutions, to name a few. Global opportunities are also growing in this field of management.

Job Opportunities

The Marketing Communications program - graduates are employed in business communications positions and within advertising and public relations firms, broadcasting and publishing firms, in-house marketing and promotion operations and production companies.

The Commercial Real Estate program prepares the graduate for sales, agent, mortgage brokerage, appraisal, property management and investment analyst positions. Graduates may choose to pursue either licensed or non-licensed positions within the real estate industry.

The Direct Response Marketing program graduates are sought by industry sectors focusing on Internet marketing, direct marketing and database marketing. Positions in conventional marketing communications are also targets for these graduates.

The Entrepreneurship program is ideally suited for students seeking a toolkit of skills that they will carry with them in careers ranging from marketing managers in high growth companies to self employment as an entrepreneur. This program features a core curriculum that follows the development of a business from idea generation stage through start-up, to growth. Students acquire skills that include analysis of new business opportunities, composition of business plans and creation of financing packages.

The Professional Sales program prepares individuals for positions in distribution companies that sell their products and services to other businesses, such as industrial buyers, retailers or merchandise buyers.

The Tourism Management program prepares graduates for private sector jobs in firms or organizations engaged in developing new tourism products and services or expanding the existing demand for these services; in destination management organizations where product/market planning and research is essential; and in conference and event planning and associations.

Beginning Salaries

Beginning salaries for Marketing Management entry positions vary from \$28,000 to \$40,000/annum for the majority of graduates. Those with extensive experience or additional educational qualifications command higher salaries. Profit sharing or performance bonus options are common.

The Program

In the first year, all Marketing Management students complete the same course of studies covering general business and economic principles. The second year offers specialization. Marketing Communications courses develop creative communication skills and campaign planning. Direct Response Marketing highlights Internet marketing, E-Commerce, Web and Database Marketing, blended with a Communications specialization. Commercial Real Estate Studies addresses commercial property sales and investment analysis skills. Tourism Management focuses on the operational and marketing aspects of a variety of tourism facilities and services. Professional Sales emphasizes sales skills, and explores aspects of sales management. Entrepreneurship teaches the practical skills required to build or work in an entrepreneurial company.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,000

Second year: \$1,425

(general estimated cost and subject to change).

Expenses

Students in some programs, e.g.: Tourism Management, incur additional expenses for field trips.

Direct Entry to Second Year

Direct entry into the second year of the program is possible when space is available. Applicants are encouraged to apply early. Resume recommended.

There are two methods of entry:

1. Applicants who have achieved a Degree, Associate Degree or Diploma of Technology are eligible for entry if they have also achieved equivalency to these first year courses: COMM 1100, COMM 2200, FMGT 1100, FMGT 2100, MKTG 1102, MKTG 2202, MKTG 2243, OPMT 1110, OPMT 1130, COMP2104, TOUR 1260 (Tourism option only), and ECON 2100, ECON 2200 (Commercial Real Estate option only). Plus English 12 with a C+ or better.
2. Applicants who have not achieved a Degree, Associate Degree or Diploma of Technology are eligible for entry if they have achieved equivalency to all of the first year courses. Plus English 12 with a C+ or better.
3. Space is limited. The department selects, from the pool of eligible applicants, those applicants considered to have the greatest chance of success in the program and industry.

Advanced Training/Degree Transfer and Completion

Marketing Management graduates can obtain transfer credit toward Business degree programs at a number of universities both within and outside the province. As well, graduates may pursue degree completion through the Open University Bachelor of Administrative Studies program.

Accreditation

The Commercial Real Estate option of the Marketing Management program affords the opportunity to obtain professional accreditation with both the British Columbia and Canadian Professional Real Estate bodies upon completion of their licensing and industry experience requirements.

Upon completion of the Professional Sales program and industry experience requirements, graduates are eligible to apply to the Canadian Professional Sales Association (CPSA) Sales Institute to obtain the Canadian Professional Sales Representative (CPSR) designation.

Entrance Requirements

High school graduation. English 12(C+) or better. Math 11(C+) or better. A personal interview with the program faculty may be required to obtain final acceptance. Tourism applicants are very strongly urged to attend one of their option specific information meetings (see below).

Applications must be accompanied by a resume and a letter explaining your reason for taking the program. Candidates must state program preference: Marketing Communications, Direct Response Marketing, Commercial Real Estate, Tourism, Professional Sales, or Entrepreneurship when applying for admission to the first year of the Marketing Management Technology.

Applicants to the **Marketing Communications Program** and the **Direct Response Marketing Program** must also submit two letters of reference. Business experience and/or other successful post-secondary education is an asset. Admission may be granted to mature students provided they have completed high school at least two years prior to date of entry, are willing to complete pre-entry preparatory programs, and have acquired prerequisite work experience. Upon completion of the first year, candidates will be screened for appropriate second-year option placement.

Applicants to the various Marketing programs are urged to attend an information session offered throughout the year. These are free of charge and are scheduled as follows. Registration is requested, but not required. To register, or for further information, please contact Registration and Information at (604) 451-6735, or info@bcit.ca.

Commercial Real Estate Program

Tuesday, November 28, 2000	1830-2030
Tuesday, March 6, 2001	1830-2030
Tuesday, April 10, 2001	1830-2030

Where: Town Square D (IBM Technology Building), SE6.

continued next page

Tourism Management Program

Friday, October 27, 2000	1900-2100
Saturday, November 18, 2000	1000-1200
Saturday, February 17, 2001	1000-1200
Friday, March 23, 2001	1900-2100
Saturday, April 21, 2001	1000-1200
Friday, May 25, 2001	1900-2100

Where: IBM (SE6) Building, Room 207

Professional Sales and Marketing Program

Friday, October 20, 2000	1900-2100
Saturday, November 18, 2000	1000-1200
Friday, February 16, 2001	1900-2100
Saturday, March 17, 2001	1000-1200
Friday, April 20, 2001	1900-2100
Saturday, May 12, 2001	1000-1200

Where: Town Square D (IBM Technology Building), SE6.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Content - Marketing Management

Level 1 (All students, 15 weeks)			hrs/wk	credits
BUSA	1600	Computer Applications 1	3.0	3.0
COMM	1100	Business Communication	3.0	3.0
ECON	2100	Microeconomics	3.0	3.0
FMGT	1100	Accounting 1	4.0	4.0
MKTG	1102	Essentials of Marketing	3.0	3.0
OPMT	1110	Business Mathematics	4.0	4.0
ORGB	1100	Organizational Behaviour	3.0	3.0
Level 2 (All students, 20 weeks)				
BUSA	2100	Principles of Management*	3.0	2.0
BUSA	2650	Computer Applications 2*	3.0	2.0
COMM	2200	Business Communication	3.0	4.0
ECON	2200	Macroeconomics	3.0	4.0
FMGT	2100	Accounting 2	4.0	5.5
MKTG	2202	Introduction to Marketing Communications	3.0	4.0
MKTG	2243	Sales Skills	3.0	4.0
OPMT	1130	Business Statistics	4.0	5.5
TOUR	1260	Issues in Tourism (Tourism Program only)	3.0	4.0

*denotes a half-term course

Commercial Real Estate Program

Level 3 (15 weeks)			hrs/wk	credits
MKTG	2309	Marketing Research 1	4.0	4.0
MKTG	3311	Real Estate Principles 1	4.0	4.0
MKTG	3312	Economics of Real Estate Markets	4.0	4.0
MKTG	3313	Introduction to Real Estate Finance	4.0	4.0
MKTG	3333	Real Estate Marketing and Management	4.0	4.0
MKTG	3334	Advanced Sales and Negotiating	4.0	4.0
Level 4 (20 weeks)				
BLAW	3500	Law for Real Estate Marketing	4.0	5.5
MKTG	3409	Marketing Research 2*	3.0	2.0
MKTG	4330	Real Estate Practice	2.0	2.5
MKTG	4411	Real Estate Principles 2	4.0	5.5
MKTG	4412	Introduction to Real Estate Appraisal & Investment Analysis	4.0	5.5
MKTG	4413	Mortgage Finance	4.0	5.5
MKTG	4414	Introduction to ICI Sales and Management*	4.0	2.5
MKTG	4418	Directed Studies	4.0	5.5

*denotes a half-term course

Direct Response Marketing Program

Level 3 (15 weeks)				
BLAW	3100	Business Law	4.0	4.0
MKTG	2309	Marketing Research 1	4.0	4.0
MKTG	3317	Sales Promotion Management	3.0	3.0
MKTG	3320	Direct Response Fundamentals	3.0	3.0
MKTG	3339	Public Relations & Event Marketing	4.0	4.0
MKTG	3340	Database Strategies & Applications	3.0	3.0
MKTG	3417	Design Production	4.0	4.0
Level 4 (20 weeks)				
MKTG	3409	Marketing Research 2*	3.0	2.0
MKTG	4318	Media Planning*	6.0	4.0
MKTG	4401	Marketing Planning	3.0	4.0
MKTG	4415	Promotion Strategy & Planning*	6.0	4.0
MKTG	4417	Direct Response Marketing Internship	18.0	12.0
MKTG	4422	Website Design & Maintenance*	3.0	1.5
MKTG	4423	Internet Marketing*	3.0	1.0
MKTG	4424	Electronic Commerce*	3.0	1.5

*denotes a half-term course

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Business

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www.bcit.ca and
click on the
Prospective Students
heading, then the
Full-time link.



Entrepreneurship Program

Level 3 (15 weeks)		hrs/wk	credits
FMGT	3222 Management Accounting Marketing	4.0	4.0
MKTG	2309 Market Research 1	4.0	4.0
MKTG	3301 Computer Applications in Marketing	3.0	3.0
MKTG	3306 Entrepreneurial Skills	4.0	4.0
MKTG	3334 Advanced Sales and Negotiation	4.0	4.0
MKTG	3343 Sales Management	4.0	4.0

Level 4 (20 weeks)		hrs/wk	credits
BLAW	3100 Business Law	4.0	4.0
MKTG	3304 International Marketing*	4.0	2.5
MKTG	3338 New Product Development*	4.0	2.5
MKTG	3409 Market Research 2*	3.0	2.0
MKTG	4401 Marketing Planning	3.0	4.0
MKTG	4407 Venture Development & Growth*	4.0	2.5
MKTG	4409 Entrepreneurial Skills Practicum*	6.0	4.0
MKTG	4418 Directed Studies	4.0	5.5
MKTG	4420 Direct Marketing Dynamics	3.0	4.0
MKTG	4432 Customer Service Strategies*	3.0	2.0

*denotes a half term course

Marketing Communications Program

Level 3 (15 weeks)		hrs/wk	credits
BLAW	3100 Business Law	4.0	4.0
MKTG	3320 Direct Response Fundamentals	3.0	3.0
MKTG	2309 Marketing Research 1	4.0	4.0
MKTG	3301 Computer Applications in Marketing	3.0	3.0
MKTG	3317 Sales Promotion Management	3.0	3.0
MKTG	3339 Public Relations & Event Marketing	4.0	4.0
MKTG	3417 Design Production	4.0	4.0
Level 4 (20 weeks)		hrs/wk	credits
MKTG	3409 Marketing Research 2*	3.0	2.0
MKTG	4318 Media Planning*	6.0	4.0
MKTG	4401 Marketing Planning	3.0	4.0
MKTG	4415 Promotion Strategy & Planning*	6.0	4.0
MKTG	4416 Marketing Communications Internship*	18.0	12.0
MKTG	4422 Website Design & Maintenance*	3.0	1.5
MKTG	4423 Internet Marketing*	3.0	1.0
MKTG	4424 Electronic Commerce*	3.0	1.5

*denotes a half term course

Professional Sales Program

Level 3 (15 weeks)		hrs/wk	credits
FMGT	3222 Management Accounting Marketing	4.0	4.0
MKTG	2309 Marketing Research 1	4.0	4.0
MKTG	3301 Computer Applications in Marketing	4.0	4.0
MKTG	3306 Entrepreneurial Skills	4.0	4.0
MKTG	3334 Advanced Sales and Negotiating	4.0	4.0
MKTG	3343 Sales Management	4.0	4.0

Level 4 (20 weeks)		hrs/wk	credits
BLAW	3100 Business Law	4.0	4.0
MKTG	3304 International Marketing	4.0	2.5
MKTG	3338 New Product Development*	4.0	2.5
MKTG	3409 Marketing Research 2*	3.0	2.0
MKTG	4401 Marketing Planning	3.0	4.0
MKTG	4402 Relationship Selling*	4.0	2.5
MKTG	4404 Industry Sales Practicum*	6.0	4.0
MKTG	4418 Directed Studies	4.0	5.5
MKTG	4420 Direct Marketing Dynamics	3.0	4.0
MKTG	4432 Customer Service Strategies*	3.0	2.0

*denotes a half-term course

Note: The Tourism Marketing Management program is completing a curriculum assessment. Some courses may be revised, added or deleted during the 2001/2002 academic year.

Tourism Management Program

Level 3 (15 weeks)		hrs/wk	credits
FMGT	3222 Management Accounting Marketing	4.0	4.0
MKTG	2309 Marketing Research 1	4.0	4.0
MKTG	3306 Entrepreneurial Skills	4.0	4.0
TOUR	2301 Group Travel, Charters & Tours	3.0	3.0
TOUR	2900 Regional Tourism Field Study (Practicum)	1.0	1.0
TOUR	3320 Convention, Trade Show Marketing	4.0	4.0
TOUR	3324 Tourism Mktg Planning	4.0	4.0
TOUR	3410 Special Events and Promotion	3.0	3.0

Level 4 (20 weeks)		hrs/wk	credits
BLAW	3100 Business Law	3.0	4.0
HRMG	3100 Human Resource Management*	3.0	2.0
MKTG	3409 Marketing Research 2*	3.0	2.0
MKTG	4407 Venture Development & Growth	4.0	2.5
TOUR	3411 Passenger Transportation Marketing*	3.0	2.0
TOUR	3415 Resort/ Hotel Marketing & Sales*	3.0	2.0
TOUR	3445 Cultural Tourism & Geography	4.0	5.5
TOUR	4400 Development of Community Tourism	4.0	5.5
TOUR	4418 Directed Studies	4.0	5.5

*denotes a half-term course

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Operations Management

Two-Year Diploma Program (Full-time)

Operations Managers are responsible for the production and distribution of goods and services in daily use. Their work involves them in the process of continuously improving methods and processes to increase productivity for the benefit of the organization and for society at large.)

Students in Operations Management develop strong analytic and team abilities that will enable them to become prime movers in organizational change. Graduates have the technical and managerial skills to assist organizations in minimizing new product development times, reducing inventories, responding quickly to customer needs, increasing productivity, improving the quality of goods and services, and enriching the work environment.

Operations Management emphasizes business process improvement through people and communication skills, creative problem solving, and innovation. These skills are developed by a mix of business and technical courses in industrial engineering, total quality management, materials management, accounting, economics, computer applications, systems analysis, business mathematics, statistics and industrial relations.

In the final 10 weeks of the two-year program, students work in teams to collect data, analyze and recommend solutions to an opportunity for improvement in a real life setting.

Organizations of all types producing the entire range of goods and services including government and not for profit firms participate in this. Typical projects are:

- Quality control improvements of process control methods for a wood fibre plant.
- Development of an effective inventory control system for a building supply outlet.
- Work measurement and layout improvement for a high quality custom office furniture firm.
- Improvements in work ordering cycle and vehicle usage for the plant operations of a large university.
- Ordering accuracy and inventory improvements for a movie catering company.
- Banquet pricing model development for a hotel chain.
- Substantial reduction of the annual multi million-dollar waste fill disposal bill for a gas utility.
- Work layout improvements for a manufacture of automobile deflector shields.
- Work measurement and methods improvement for a bakery employing 120 people.
- Flow process analysis and optimization for a manufacturer of fuel cells.
- Reduction of passenger waiting times for an airport operation.

Job Opportunities

Graduates have found careers in a variety of industries including manufacturing, service, distribution and government. Typical entry-level positions include material planner/scheduler, buyer, project coordinator, production supervisor, quality assurance technologist, shipping/receiving supervisor, systems analyst, inventory analyst, maintenance coordinator, management trainee, business analyst, warehouse supervisor, assistant plant manager, purchaser, industrial engineering technologist, product analyst, or systems troubleshooter.

With related experience, Operations Management graduates may achieve positions as director of operations, general manager, inventory manager, management information systems manager, materials manager, operations manager, owner/operator, plant manager, president/CEO, production manager, project manager, quality manager/or vice president operations.

Professional Membership

Operations Management students are excellent candidates to pursue professional membership in:

- APICS
- American Society for Quality Control
- Purchasing Management Association of Canada
- Canadian Material Handling and Distribution Society
- Project Management Institute
- International Facilities Management Association
- Data Processing Management Association.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,690

Second year: \$1,250

(general estimated cost and subject to change).

Degree Completion/Advanced Studies

The BCIT Advanced Studies in Business program provides degree completion opportunities and an advanced diploma track. It is possible for graduates to complete a Bachelor's degree in Administration offered by Lakehead University in one year, if they have the necessary prerequisites. The Open Learning Agency through its Open University also grants significant credit toward their Bachelor of Administrative Studies degree.

Entrance Requirements

High school graduation. English 12(C+). Math 11(C+). If your mathematical skills are in doubt, it is recommended that you take Preparatory Business Math OPMT 0199.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Direct Entry to Second-Year

Applicants who already possess a university Degree, Associate Degree, or a Diploma of Technology may be eligible for direct entry to the second year of the Operations Management program. The specific entrance requirements are: English 12 (C+); working knowledge of Windows, Word and Excel; FMGT 1152 with 70 per cent or better; OPMT 1200 (offered over three weeks in August); OPMT 1197, COMM 1103, COMM 2202, and COMM 2203.

Those interested in pursuing this option should attend an Operations Management Information Session (call (604) 434-1610 for dates) and identify themselves at the end of the session as an individual interested in the direct entry option. Applicants are encouraged to apply early.

All direct entry applicants are encouraged to contact the department directly to clarify their opportunities as early as possible, (604) 451-6714.

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As a BCIT student, you know the investment and dedication it takes to reach your goals. You've put in the long hours and made countless sacrifices in the pursuit of your education. Now you've earned the opportunity to pursue your career goals and make the most of your talent and skills. That's where we come in. Your motivation, enthusiasm and creativity will be crucial in our drive to redefine the boundaries of traditional retail.

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FUTURE SHOP

Business

Program Content - Operations Management

Level 1 (15 weeks)			hrs/wk	credits
COMM	1100	Business Communication	3.0	3.0
ECON	2100	Microeconomics	3.0	3.0
FMGT	1100	Accounting 1	4.0	4.0
OPMT	0341	Problems Lab for Operations Management	2.0	0.0
OPMT	1103	Introduction to Operations Management	4.0	4.0
OPMT	1108	Applied Mathematics for Business/Industry	4.0	4.0
OPMT	1600	Computer Applications 1	3.0	3.0
ORGB	1100	Organizational Behaviour	3.0	3.0

continued next page

Level 2 (20 weeks)

BUSA	2100	Principles of Management*	3.0	2.0
COMM	2200	Business Communication	3.0	4.0
ECON	2200	Macroeconomics	3.0	4.0
FMGT	2100	Accounting 2	4.0	5.5
MECH	1910	Manufacturing Processes	4.0	5.5
OPMT	1208	Applied Statistics for Business/Industry	4.0	5.5
OPMT	1250	Inventory Management	2.0	3.0
OPMT	2650	Computer Applications 2*	3.0	2.0
OPMT	2660	Computer Applications 3*	3.0	2.0
OPMT	2240	Quality Management	5.0	6.5
OPMT	2265	Business Process Management	3.0	4.0

Level 3 (15 weeks)

			hrs/wk	credits
FMGT	3224	Cost Accounting: Operations Management	4.0	4.0
OPMT	2360	Material/Capacity Requirements Planning	2.0	3.0
OPMT	3308	Quantitative Business Analysis	4.0	4.0
OPMT	3341	Process Improvement Project	6.0	6.0
OPMT	3344	Information Technologies	2.0	2.0
OPMT	3361	Microcomputer Applications: Database	4.0	4.0
OPMT	3445	Project Management	3.0	3.0
HRMG	3095	Coaching Skills	4.0	4.0

Level 4 (20 weeks)

OPMT	4651	Enterprise Systems*	3.0	2.0
HRMG	3200	Industrial Relations	3.0	3.0
MKTG	1115	Fundamentals of Marketing*	3.0	2.0
OCHS	1441	Introduction to Safety for Operations Management*	3.0	2.0
OPMT	3460	Just in Time Manufacturing*	5.0	3.5
OPMT	4408	Math Models for decision-making*	4.0	2.5
OPMT	4438	Entrepreneurial Business Plan Development*	3.0	2.0
OPMT	4440	Change Strategies*	6.0	4.0
OPMT	4449	Industry Project*	18.0	12.0
OPMT	4460	Purchasing*	3.0	2.0
OPMT	4560	Logistics	3.0	4.0

*denotes a half-term course

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School of Computing & Information Technologies



"I enrolled at BCIT to develop marketable skills to adapt to a rapidly changing business environment. BCIT gave me a practical understanding of technology issues in industry and prepared me in several areas of information technology."

*~ Jim Johnson
Vendtek
Multimedia Software Development, 1999*

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Information Technology Professional Program

Ride the wave of the future. BCIT's one-year Information Technology Professional (ITP) program combines business, interpersonal and technical training using a hands-on business simulation.

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e-mail: itp@bcit.ca

<http://itp.bcit.ca>



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BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

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BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

General Description

Computing and Information Technologies supplies graduates to the computer industry through a broad spectrum of programs and courses that includes a two-year diploma program, a Bachelor of Technology degree and an extensive selection of courses leading to certification through Part-time Studies.

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Sandra Ito, Administrative Assistant
Bill Howorth, B.Sc. (Comp. Sc.), Program Head,

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Tony Wong, B.A.Sc., M.Eng., P.Eng.,

Service Course Coordinator

Kent Yakei, B.Sc.(Hons.), M.Sc., Associate Dean, Academic Studies
Benjamin Yu, B.Sc., M.Sc., Ph.D., Program Head, Bachelor of Technology Program

Computer Systems Technology

Two-Year Diploma Program (Full-time)

Note: This program constantly undergoes curriculum review to keep current with industry practice. As a result, changes to the program content may occur after printing of this document. Please check the BCIT Web site at www.bcit.ca for updated information.

Program Aim

Prepares graduates broadly for entry-level computing positions in all sectors of industry including (but not limited to) business, engineering, manufacturing, health and education. The CST Diploma program offers a diverse and flexible curriculum that emphasizes applied skills coupled with a strong work ethic to meet end-user needs.

Graduates achieve the necessary knowledge, skills and experience in programming, systems analysis and business to be successful in their chosen careers, and to become future managers, entrepreneurs and leaders in the computing field. A strong combined practical and academic foundation encourages continued lifelong learning. Graduates from the CST Diploma program are eligible to enter the BCIT Bachelor of Technology in Computer Systems program.

Job Opportunities

Many graduates pursue their careers as programmers and, after some experience are promoted to systems analysts, knowledge engineers, programmer/analysts or operating systems programmers. Others seek entrepreneurial roles in the computer world as independent business owners, software authors, consultants or suppliers of systems and equipment.

Career opportunities exist in management, software and hardware sales, technical writing, training and technical support. Some typical job titles include: Telecommunications Software Engineer, Database Administrator, Systems Integration Technologist, LAN/WAN Administrator, Software Developer, MIS Administrator, Systems Analysts and Multimedia Programmer.

The Diploma Program

In the first year, the program offers a mix of computer-related and general business courses. A variety of computers are used to introduce standard programming techniques, systems analysis and design, and standard software application packages. Accounting, mathematics, marketing, economics, statistics and business communication round out the first year.

In the second year, specialized options are offered, such as Applied Artificial Intelligence, Client Server, Database Management, Data Communications and Internetworking, Digital Processing, Information Systems, Multimedia Software Development, Small Systems Architectures, and Technical Programming. A combined option, based on a selection of courses from across the specialized options, is offered periodically. Option selection is competitive and is done at the end of the first year of study.

Second-year Options

Not all options listed will necessarily be offered in any given year. New course and option information may be obtained from the Computer Systems Technology office or from BCIT Registration and Information.

Applied Artificial Intelligence (AAI) Option

The AAI Option specializes in structures and strategies for the solution of complex problems. Many real-world problems, such as scheduling and fleet routing, feature search spaces much too large to be explored exhaustively. AAI students typically use a variety of tools such as: Common LISP; CLOS; PROLOG; knowledge-system shells; genetic algorithms; neural networks and VR to build proof-of-concept prototype applications that address such challenging problems. The concepts studied may be used to improve many computer systems – on applications as diverse as data mining, speech processing, computer gaming or scheduling.

Client/Server Computing Option (C/S)

Offers specialized courses in the areas of Client/Server Computing, Distributed Computing and Network Computing. Students develop client/server based systems or distributed applications using state-of-the-art tools and technology. Topics include architecture, modeling and structural issues, inter-process communications, performance, reliability, scalability, consistency and security in a distributed system. Functional requirements, design methodologies and implementation details of client/server based systems or distributed systems are also discussed. Students obtain working knowledge of TCP/IP, Unix, Windows NT, SUN RPC, X Window Systems, CORBA, RDBMS, Visual Basic, Oracle, Java, SQL Server, etc.

Database Option (DBase)

This program specializes in the design and implementation of database applications using modern database management systems. Students will work with a number of industry-standard DBM's such as Oracle, SQL/DS, DB2/2, Informix, Access and a variety of application development tools such as Delphi, Powerbuilder, Visual Basic and Visual C++. Client/server application development, data warehousing, online analytical processing, object-orientated databases and other advanced database topics will also be covered.

Data Communication & Internetworking Option (DComm)

Offers highly specialized courses in the dynamic Data Communications and Internetworking field. Emphasis is placed on Multimedia communications, Internet and Intranet design, and Netcentric Computing. Students design and develop Internetworking software using TCP/IP protocol suite in the Linux and Win32 environments. Multimedia communications software design and implementation includes applications that transfer video, audio and graphical information in a client-server environment. Topics include implementation issues, modularity and efficiency for protocol implementation. Netcentric computing applications on the WWW are implemented using Java and Java networking. Also addressed are wireless protocol implementation issues and serial communications programming. Network administration and security is taught using Linux and Win32 networks.

Digital Processing (DP)

Specializes in the development of digital image, video, and audio systems. Emphasis is placed on construction of the tools for new media applications. Topics include image processing, fundamentals of audio and video streams and real-time animation. Various techniques are studied for making filters (Gaussian, edge-detection, etc.), morphing and warping techniques, and compression (JPEG, Wavelets, and others). Advanced programming such as concurrent programming (synchronization techniques, threads) and networking (TCP/UDP using Winsock API) will also be studied. Development of media systems will be done using Win32, DirectX, OpenGL, MFC APIs, and Java's advanced API's using C, C++, and Java programming languages. Special topics based on class and individual choices may also be covered.

Information Systems Option (Info)

Provides a specialization involving system development in the information processing environment, with special emphasis on Business Systems and Software Engineering for medium and large computer systems.

Multimedia Software Development (MM)

This option is a "specialty" with significantly more program-specific content than other CST options. Students spend approximately 40 per cent of third level, and all of fourth level, on multimedia content design and production, with a significant practical and creative focus. The specialty courses will be offered at the Downtown campus.

Multimedia content is addressed in courses which address the principles and techniques used to develop digital media that delivers a specific message to the appropriate target audience. Multimedia production is addressed in courses dealing with the principles and techniques of instructional design, animation and multimedia authoring. A systematic technical approach, to "gluing" the multimedia content together, is used throughout.

A substantial portion of the multimedia curriculum uses Java as the software development tool. This provides cross-platform delivery of content, and is oriented to the worldwide Web style of delivery. The students practice these skills with a significant multimedia project and a major practicum.

Students graduating under the Multimedia option will receive a Diploma of Technology in Multimedia Software Development.

Small Systems Architectures Option (SS)

Offers highly specialized courses in non-traditional programming environments. Emphasis is placed on developing applications for small and/or embedded systems where a traditional operating system does not exist. Students will develop applications on multiple platforms and will be required to develop portions of their own realtime operating system. Emphasis will be placed on both high level and assembly language programming. Students who have an interest in this option should have a good knowledge of hardware as well as programming and should also have an interest in low level design.

Technical Programming Option (Tech)

Specializes in software development for microcomputers. Addresses the principles and techniques for the creation of modern computer applications. The principles include the design and implementation of user-friendly interfaces and online help systems. The techniques include improving performance through multi-threading, multi-tasking and inter-process communications. Many of the assignments and projects will be graphical in nature. Most of the assignments and projects involve C or C++ programming. Two of the three tech option courses allow students to select term projects that meet their own interests. Some of the many previous term projects have included: network administration, CASE (computer aided software engineering), grading diamonds, tablatore display-synchronized to a CD, human resources, inventory control and computer games.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$2,095; Second year: \$1,350 (general estimated cost and subject to change). In addition, it is strongly recommended that all students in the program should own a computer suitable to run software used in their courses. Costs for such a computer will vary depending on configuration chosen but will likely range from approximately \$2,000–\$4,000. Software purchases will increase this cost.

Entrance Requirements

Candidates are evaluated on an individual basis. We encourage applications from all interested persons. All applicants are required to attend a Computer Systems information session and then submit a portfolio which includes a resume, a covering letter describing their background and their expectations and official transcripts showing completion of the minimum requirements. The minimum requirements are: High School graduation. English 12 (C+ or better). Math 12 (C+ or better). Computer Science 12 (C+ or better), or Information Technology 12 (C+ or better). Since this program is heavily subscribed, only applicants considered to have the best chance of success in the program will be granted offers of admission.

Many courses offered by other post-secondary institutions will satisfy the admission requirement for either Computer Science 12 or Information Technology 12. Please submit a complete description of the courses that you have completed with your application for admission. They will be evaluated against our requirements for: strong programming skills (in a language such as Pascal, Visual Basic, C, C++, or Java), Program Logic Design techniques, and use of Microsoft Office products."

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12 and Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Applicants may be required to demonstrate programming skills or aptitudes before acceptance into the program.

For program information session dates contact BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Sciences programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to **page 61** of this calendar.

Second-Year Direct Entry

There are two methods of entry:

1. Applicants who have achieved a Degree, Associate Degree or Diploma from a recognized post-secondary institution are eligible for direct entry if they have also achieved equivalency to these first year courses: COMP1525, COMP2510, COMP2710, COMP2720, COMM1103, COMM2202, COMM2203, and English 12 with a C+ or better.
2. Applicants who have not achieved a Degree, Associate Degree or Diploma are eligible for entry if they have achieved course by course equivalency or Prior Learning Assessment (PLA) for all of the first year courses, and English 12 with a C+ or better.

Note: Direct entry into the second year of the program is possible only when space is available. Applicants are encouraged to apply early. Admission is limited and competitive. Resume is recommended. Please contact the Direct entry office at (604) 432-8230.

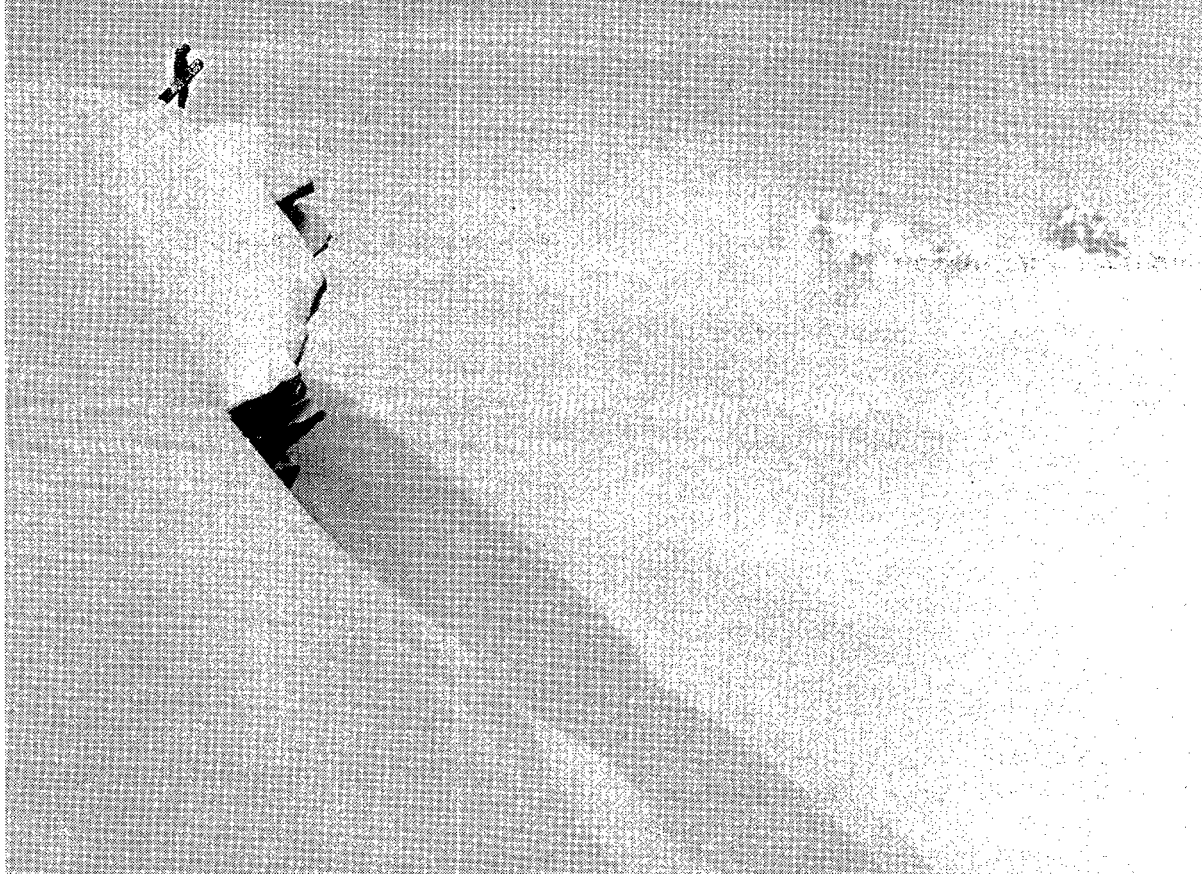
Prior Learning Assessment (PLAR)

Many individuals have acquired skills and knowledge that are relevant to their field of study but they are not acknowledged in formal academic credentials. Examples would include those who have extensive on-the-job learning or learning which does not qualify for transfer credit. BCIT provides the opportunity for these individuals to demonstrate their expertise and to receive credit where appropriate. For more information on this service contact either a program advisor or the PLA coordinator.

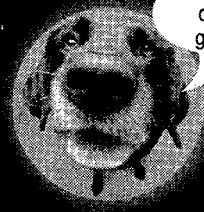
Accreditation

The Computer Systems Technology two-year diploma program has been accredited by the Canadian Information Processing Society (C.I.P.S.) and by the Data Processing Management Association (D.P.M.A.).

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Diploma Program Completion

In order to be eligible for graduation, students must complete the Diploma program requirements:

- within three years of the start of the program for students who enter the program in first year, or
- within three years of the start of second year for students who enter the program directly into second year.

Students who do not complete the diploma program requirements within the specified time period will be required to re-apply for permission to complete the diploma program. BCIT cannot guarantee that courses taken prior to this re-application will be credited towards the current diploma of technology.

Additional Information

Applicants should enjoy using a logical and systematic approach to solve problems. Because students spend many hours at computer terminal keyboards, we strongly recommend that they be able to touch-type. Ownership of a suitable personal computer is strongly recommended. Specifications are provided at the beginning of term one.

The Computer Systems curriculum is under continual review to ensure it remains current. Current courses may therefore vary from this calendar. New course information may be obtained from the Computer Systems Technology Web site, the departmental office or from BCIT Registration and Information.

Part-time Studies Computer Systems Technology offers an extensive range of courses and programs through Part-time Studies. For further information please refer to the Part-time flyer or contact the coordinator of Part-time Studies at (604) 412-7479.

Program Content - Computer Systems Technology

Level 1		hrs/wk	credits	option
COMP 1100	Enhanced Learning Skills	1.0	1.0	All
COMM 1114	Business Communication 1			
	for Computer Systems	3.0	3.0	All
COMP 1510	Programming Methods	5.0	5.0	All
COMP 1525	Intro to Object Oriented Prog Java	4.0	4.0	All
COMP 1710	Computer Applications Fundamentals	6.0	6.0	All
COMP 1150	Introduction to Enterprise Systems	3.0	3.0	All
FMGT 1100	Accounting 1	4.0	4.0	All
COMP 1113	Applied Mathematics	4.0	4.0	All
Level 2		hrs/wk	credits	option
COMM 2214	Business Communication 2			
	for Computer Systems	4.0	5.5	All
COMP 2510	Procedural Programming in C	4.0	5.5	All
COMP 2530	Visual Tools *(A Term)	4.0	2.5	All
COMP 2710	Systems Analysis & Design	5.0	6.5	All

Level 2		hrs/wk	credits	option
COMP 2720	Computer Organization/Architecture	4.0	5.5	All
FMGT 2120	Accounting 2 for CST *(Term A)	4.0	2.5	All
FMGT 2125	Computerized Accounting for CST* (Term B)	4.0	2.5	All
COMP 2114	Discrete Mathematics *(B Term)	4.0	2.5	All
COMP 1133	Statistics for Computer Systems Technology	4.0	5.5	All

* denotes a half term (10 week) course

Level 3 Common courses (except Multimedia)

COMP 2750	Introduction to Decisions Systems	3.0	3.0	All
COMP 3511	Object Oriented Programming in C++	6.0	6.0	All
COMP 3710	Relational Database Systems	4.0	4.0	All
COMP 3720	Introduction to Data Communications	3.0	3.0	All
COMP 3900	Computer Projects 1 Practicum	5.0	5.0	All

Students take one of the following courses, depending upon option.

ELEX 2865	Introduction to PC Hardware	4.0	4.0	AAI Tech, DCom, SS, Dig
ORGB 2110	Organizational Behaviour	3.0	3.0	Info Dbase, C/S

Students take one of the following courses, depending upon option. Combined program students select one course from the list.

COMP 3910	Information Technology Management	5.0	5.0	Info
COMP 3920	Database Systems 1	5.0	5.0	Dbase
COMP 3940	Client/Server Computing 1	5.0	5.0	C/S
COMP 3950	Technical Programming with Win32 API	5.0	5.0	Tech
COMP 3970	Applied Artificial Intelligence 1	5.0	5.0	AAI
COMP 3980	Data Communications/Internetworking 1	5.0	5.0	Dcomm
COMP 3931	Digital Image, Video/	5.0	5.0	Dig
COMP 3991	Applied Small Systems Architecture			
	Audio Fundamentals	5.0	5.0	SSA

continued next page

Level 4 Common courses (except Multimedia)			hrs	credits
BLAW	3600	Computers and the Law	3.0	4.0
COMP	3730	Operating Systems Concepts *(A Term)	5.0	3.5
COMP	4550	Advanced Programming Topics: OOPL *(A Term)	6.0	4.0
COMP	4560	Advanced Programming Topics *(A or B Term) depending on option)	6.0	4.0
COMP	4710	Software Engineering/CASE *(B Term)	4.0	2.5
COMP	4730	Topics in Operating Systems *(B Term)	5.0	3.5
COMP	4900	Computer Projects Practicum 2	5.0	6.5

*denotes a half term or ten-week course

Students take the following courses depending upon option (seats limited).

Applied Artificial Intelligence Option

COMP	4971	Applied Artificial Intelligence 2	4.0	5.5
COMP	4975	PROLOG and Logic Programming	4.0	5.5

Client/Server Option

COMP	4941	Client/Server Computing 2	4.0	5.5
COMP	4945	Special Topics in Client/Server	4.0	5.5

Database Option

COMP	4921	Database System 2	4.0	5.5
COMP	4925	Special Topics in Database	4.0	5.5

Data Communications Option

COMP	4981	Data Communications/ Internetworking 2	4.0	5.5
COMP	4985	Special Topics in Data Communications/ Internetworking	4.0	5.5

Digital Processing Option

COMP	4932	Media Systems	4.0	5.5
COMP	4995	Gaming Systems	4.0	5.5

Information Systems Option

(Students do not take COMP 4560 from the level 3 common courses list)

COMP	4570	Intranet Planning and Development(B Term)	6.0	4.0
COMP	4911	Selected MIS Topics	4.0	5.5
COMP	4915	Special Topics in MIS	4.0	5.5

Small Systems Architectures

COMP	4991	Embedded Systems	4.0	5.5
COMP	4995	Gaming Systems	4.0	5.5

Technical Programming Option

COMP	4951	Special Topics in Technical Programming	4.0	5.5
COMP	4955	Technical Programming with MFC	4.0	5.5

**Multimedia Software Development Diploma
Program Content**

Level Three			hrs	credits
MMSD	3110	Multimedia Content	6.0	6.0
MMSD	3210	Multimedia Communications	4.0	4.0
MMSD	3310	Multimedia Programming	6.0	6.0
MMSD	3410	Object Relational Databases	4.0	4.0
MMSD	3420	PC and Multimedia Hardware	4.0	4.0
MMSD	3430	Operating Systems	3.0	3.0
MMSD	3910	Multimedia Project	6.0	6.0

Level Four

MMSD	4110	3D Modelling *(A Term)	4.0	2.5
MMSD	4210	Instruction Design for Multimedia* (A Term)	6.0	4.0
MMSD	4310	Internetworking * (A Term)	6.0	4.0
MMSD	4320	Component Frameworks *(A Term)	8.0	5.5
MMSD	4330	Multimedia Offerings *(A Term)	6.0	4.0
MMSD	4120	3D Animation * (B Term)	4.0	2.5
MMSD	4220	Multimedia Paradigms *(B Term)	6.0	4.0
MMSD	4410	Multimedia Development *(B Term)	6.0	4.0
MMSD	4910	Multimedia Practicum	13.0	9.5

*denotes a half term or ten week course

Term (A) extends from January to mid-March, and Term (B) extends from mid-March to the end of May.

The Computer Systems curriculum is under continual review to ensure currency. Current courses may vary from this calendar. In addition, not all options listed will necessarily be offered in any given year. New course and option information may be obtained from the Computer Systems Technology office or from BCIT Registration and Information.

Faculty and Staff

Ken Takagaki, B.A., Ph.D., C.M.A., C.D.P., Dean
Benjamin Yu, B.Sc., M.Sc., Ph.D., Program Head, Bachelor
of Technology Program
Bill Howorth, B.Sc., Program Head, Diploma Program & Program
Leader, Prior Learning Assessment & Continuing Studies
Joanne Royle, Program Assistant
Aman Abdulla, Dipl.T., B.Sc. (EE), M.Eng., P.Eng., Option Head,
Data Communications & Internetworking Systems
Brian R. Anderson, C.C.P., C.D.P., C.Tech., Option Head,
Technical Programming
Elsie Au, B.A., B.Sc.(distnct), M.Sc.
Kevin Cudihée, Part Time Studies Operations Coordinator
Kim Dotto, B.Sc., B.A.Sc., M.A.Sc., P.Eng., Option Head,
Small Systems Architectures
Steve Fabiszewski, P.Eng.
Arron Ferguson, Dipl.T.
Gerhard Funk, Diplom Betriebswirt
Mirela Gutica, M.Sc.
Suzanna Heubsch, B. Comp.
George Kidd, B.Sc.

continued next page

Bruce Link, B.A.(Hons.), B.Sc. Elec. Engineering
 Rob Neilson, B.Sc., Option Head, Information Systems
 James Parry, B. Math., Program Head, Multimedia
 Tejinder Randhawa, B.Sc., M.Sc., Option Head,
 Client Server/Database
 Dennis Richards, B. Math, B. Ed. Option Head, Digital Processing
 Keith Tang, B.Sc, M.Sc., MBA, CGA, CMC
 Albert Wei, M.A.
 Anthony Wong, B.A.Sc., M.Eng., PEng., Option Head,
 Service courses

(Sessional)

Sam Cirka
 Eric Guevremont
 Dean Hajum
 Alan Ling
 Steven McClain
 Daniela Marinescu
 Nancy Marsh
 Hugh Poon
 Fred Shriever
 D'Arcy Smith
 Dion Walsh

Computer Systems Advisory Committee

B. Baker, WCB
 J. Bean, Inspire Consulting Services Inc.
 C. Fraser, Motorola
 B. Heng, Ncompass Labs
 B. Horner-Reich, SFU
 B. Moretto, Microsoft
 D. Stuckert (Chair), Burnt Sand Inc.
 K. Takagaki, BCIT
 B. Yu, BCIT

Computer Systems

Bachelor of Technology

Introduction

The Bachelor of Technology in Computer Systems is a practitioner-oriented career enhancement degree. It is designed to increase the breadth and depth of knowledge and practical skills for computer professionals, and facilitate graduates in widening their job opportunities or advancing in their career paths.

The program of study for the degree is composed of two components. The first is a Technical/Management component comprising of 48.0 credits. This component comprises of coursework in the Computer Systems areas including core coursework, a specialty section (depth in one specific computer area), technical electives, management electives and practicums (or graduating projects). The second is the Liberal Education component. This component is comprised of 12.0 credits of liberal education coursework.

The Bachelor of Technology in Computer Systems is offered in a flexible delivery format to serve the needs of working professionals. Candidates can take course loads ranging from a minimum of three courses per year to an equivalent of full-time program of studies. Most courses are offered in the evening or on weekends. Some are offered in the day (depending on demand). Applicants can apply to the program at anytime throughout the year.

Entrance Requirements

The entrance requirements for the Bachelor of Technology in Computer Systems are:

- BCIT Computer Systems Diploma of Technology or equivalent**
- English 12 or equivalent
- Two years of professional work experience.

(** Equivalent courses will be assigned by the program head during an interview. These courses can be taken through evening or fast-track programs offered through Part-time Studies).

Application Procedure

Before submitting an application, individuals interested in applying for entry into the Bachelor of Technology in Computer Systems should first complete the online self-evaluation form on the Web site at cstbtech.bcit.ca. The outcome of this evaluation may require applicants to complete several "upgrading" courses to achieve the equivalence of the BCIT CST Diploma. Once these courses (if any) are completed, applicants may formally apply into the Bachelor Degree program. To apply, please complete an Application for Bachelor of Technology and send it, along with official transcripts, resume and application fee to the BCIT Admissions department, 3700 Willingdon Ave, Burnaby, B.C., V5G 3H2. (To receive an application package, please call BCIT Registration and Information at (604) 434-1610.)

The Registrar's office, Bachelor of Technology office, issues notice of formal acceptance into the program. Once accepted, students may select and register for Bachelor level courses after reviewing each term's course offerings in the BCIT Part-time Flyer. Individuals should be aware that, prior to formal acceptance by the Registrars office, only 6.0 credits of Technical/Management Degree coursework may be completed for credit towards the Bachelor Degree program. Students are required to complete the Bachelor of Technology Degree program within six years of starting their first Technical/Management degree level coursework.

Structure of the Bachelor of Technology Program

	credits
Technical/Management Component	48.0
1. Core courses	9.0
2. Specialty courses	9.0
3. Technical Electives	6.0
4. Management Electives	6.0
5. Practicums	18.0
Liberal Education Component	12.0
Total	60.0

Computer Systems Degree Program Structure

1. Core Courses

Students must complete all core courses (9.0 credits):

	credits
COMP 7036 Applied Research Methods in Software Development	3.0
COMP 7081 Technical Issues in Software Development	3.0
COMP 8081 Management Issues in Software Engineering	3.0

2. Specialty Courses:

Students must complete one specialty area (9.0 credits).

Data Communications

COMP 7005 Data Communication Principles	3.0
COMP 8005 Data Communications Applications	3.0
COMP 8505 Selected Topics in Data Communications	3.0

Computer Graphics

COMP 7011 Computer Graphics Fundamentals	3.0
COMP 8011 Photo-realism in Computer Graphics	3.0
COMP 8511 Selected Topics in Computer Graphics	3.0

Database

COMP 7071 Database Design	3.0
COMP 8071 Advanced Database Modelling	3.0
COMP 8571 Selected Topics in Database	3.0

Distributed Systems

COMP 7061 Distributed Systems Principles	3.0
COMP 8061 Distributed Systems Applications	3.0
COMP 8561 Selected Topics in Distributed Systems	3.0

3. Technical Electives

Students must complete 6.0 credits of coursework in alternate areas from their specialty and/or select from the courses listed below:

COMP 7401 Advanced Topics in Programming Methods	3.0
COMP 7615 Selected Topics in Computer Systems	3.0
COMP 7881 Advanced Topics in Software Engineering	3.0

4. Management Electives

Students are required to complete 6.0 credits of management electives. Please note that courses used for entry into the Bachelor of Technology program (i.e. courses required as part of the BCIT CST Diploma program) may not be transferred into the degree program for the management elective courses.

5. Practicums

Students are required to complete two small projects, or one large project, or one small project and three additional technical courses to fulfil the practicum component of the Degree program. Proposals must be submitted to the program head for approval.

COMP 8045 Practicum 1	9.0
COMP 8046 Practicum 2	9.0

Liberal Education Component (12.0 credits)

Mandatory courses:

LIBS 7001 Critical Reading and Writing	3.0
LIBS 7002 Applied Ethics	3.0

Elective courses:

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

Passing Grade

The passing grade for all Core, Specialty, Technical and Management courses is 50 per cent. However, students are only allowed to take the next course in the sequence if they attain 60 per cent or higher.

Additional Information

For the most current information package on the Bachelor of Technology Degree in Computer Systems, please contact:

Benjamin Yu, BSc., MSc., Ph.D., Program Head,
Bachelor of Technology Program
Computing and Academic Studies
British Columbia Institute of Technology
3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2
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Robertta Pajunen, Program Assistant, Advanced Programs
Advisory Committee
B. Moretto, Microsoft
D. Stuckert (Chair), Burnt Sand
B. Yu, BCIT

To find out more
about BCIT go to
www.bcit.ca



School of Construction



"The knowledge and technical application I received from BCIT provided me with a freedom to enter industry with ease. If you're ready for a commitment of two to three years for a professional education, the Building Technology program can provide you with the tools to build a career for the rest of your life."

~ David Silva
Read Jones Christoffersen Ltd.
Building Engineering Technology, Grad 2000

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Administration

Office of the Dean

Tony Barren, B.Sc., Ph.D., P.Eng., Dean, tbarren@bcit.ca
 Shirley Conder, Administrative Assistant, sconder@bcit.ca
 Monica McCormick, Operations Manager, mmccormi@bcit.ca

Program responsibilities:

Architectural & Building Engineering Technology
 Civil and Structural Engineering Technology

Bachelor of Technology Degrees

Phil Cunningham, Director (Acting), pcunning@bcit.ca

Program responsibilities:

Master of Science in Construction Management (by Distance Learning) in partnership with the University of Bath, U.K.
 Bachelor of Technology in Construction Management
 Bachelor of Technology in Environmental Engineering Technology

Construction and Metal Industries Training

Rod MacNeill, Ed.D., M.B.A., Associate Dean, rmacneil@bcit.ca
 Joyce Glover, Secretary, jglover@bcit.ca

Program responsibilities:

Joinery (Cabinetmaker)
 Sheet Metal Working

Wayne Hand, B.Sc. (Civil Engineering), M.B.A., P.Eng. Associate Dean (Acting), whand@bcit.ca
 Joyce Glover, Secretary, jglover@bcit.ca

Program responsibilities:

Boilermaking
 Carpentry
 Drafting
 Ironworking
 Painting and Decorating
 Plumbing
 Steamfitting
 Steel Fabrication
 Welding

Construction Programs

Architectural & Building Engineering Technology

Two-Year Diploma Program (Full-time)

Program is presently under curriculum review and is subject to change.

Rapid advances in technology have increased public expectations of their communities and the buildings constructed in them. Buildings are expected to be designed and constructed to rigorous standards of workmanship and safety while at the same time incorporating all the features that contribute to speed of erection, financial efficiency and user satisfaction. High public expectations and the dynamic nature of the industry present both a challenge and an opportunity, attractive criteria for any career.

Job Opportunities

Graduates of Architectural & Building Engineering Technology perform many tasks of a technological nature as part of the interdisciplinary team of professionals and tradespersons involved in the building design, construction and management process. Graduates have the advantage of understanding buildings from several perspectives: the architectural and structural elements; the mechanical, plumbing, and electrical systems; the feasibility implications and the contractual and managerial processes.

Graduates of Architectural & Building Engineering Technology become senior production personnel, job captains, specification writers, estimators, project coordinators and managers, building inspectors, quantity surveyors, developers, officials in property management departments, appraisers and assessors, technologists with builders/developers, technical representatives and sales staff for building suppliers and equipment manufacturers. Many graduates will become estimators with general and sub-trade contractors, preparing bids and checking job costs and progress. Some continue into architectural careers.

The growing field of Architectural & Building Engineering Technology presents opportunities:

In consulting offices:

- Assisting in design
- Specification writing and construction inspecting.

With contractors:

- Estimating, making shop drawings and supervising.

With suppliers:

- Explaining the capabilities and applications of equipment and systems.

The Program

This diploma program is designed to give students a sound preparation for rewarding careers in many areas of the construction industry.

All students follow a common two-year program that includes lectures, computer applications, drafting room practice and field trips. In the second year (subject to departmental approval) students may choose from one of three areas of specialization electives:

Architectural - primarily intended for those students who plan to work in architectural offices, offer design services, achieve an architectural degree or pursue the "Architectural Technologist" program through the AIBC.

Building Science - primarily intended for those students who plan to embark on careers in durable building construction, building problem diagnosis, off-site assemblies, new materials manufacture and environmental challenges in creating the built environment.

Economics - Construction Operations - primarily intended for those students who plan to follow careers in construction, quantity surveying, development and project management. Students are often able to further their education through summer jobs with architects, engineers, developers and contractors or by doing inspection work for public and private agencies.

Students participate in an industry-sponsored project (practicum or directed studies) in the second year of the program in each elective.

The industry project is an integral program component that is required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

In an Open House year (even years) both first-year and second-year students have a term project related to the Open House in order to experience a mini-construction project from start to finish. It is primarily student organized and directed, with input from staff.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

Year 1: \$1,800

Year 2: \$1,900

(general estimated cost and subject to change).

Post-graduation

Application for Bachelor of Technology in Construction Management: prerequisite is two years of relevant experience after graduation from Architectural & Building Engineering Technology (BCIT) or approved alternative diploma program. Please see page 120 of this calendar.

Accreditation

1. The Architectural & Building Engineering Technology diploma program is accredited by the Applied Science Technologists and Technicians of British Columbia as a Technologist (ASTTBC) program. Full-time students may apply for student membership in ASTTBC. Graduates are eligible for Graduate Technologist membership and may apply for registration as an Applied Science Technologist after completing a minimum of two years of relevant experience.
2. The Architectural & Building Engineering Technology diploma program is accredited by the Architectural Institute of British Columbia (AIBC). Full-time students may apply for Student Associate status with AIBC. Graduates are eligible for membership and may apply for registration as an Architectural Technologist after completing two years of relevant experience and the registration examination.
3. The Canadian Institute of Quantity Surveyors will accept graduates as probationary members and gives credit in a similar manner. Information on this professional development possibility is available from the program head.

Entrance Requirements

High school graduation. English 12(C). Math 12(C). Physics 11(C). Resume. Letter of Intent. Preference will be given to applicants who have: a grade (B) or better in the entrance requirements, post-secondary academic experience and/or construction industry experience.

The letter of intent must be a minimum 500-word description of your interest/background in the building industry, your motivation/purposes in pursuing the two-year diploma program and your career goals/aspirations. You may also include your own perspective/observations/opinions concerning the building industry in B.C.

The letter **MUST** be hand written or hand lettered.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE)

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Sciences programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Diploma Program Continuation

A student who fails or withdraws from one to three courses, in a specific term, may be required to move from "set" registration to course-by-course registration. In these cases the student will be notified by mail at the end of term where the failures or withdrawals occurred. Students will be required to meet with their program head during the first week of the following term to create an approved registration plan.

Students on "set" registration will be given first priority for course placement, students who are registering on a course-by-course basis and who are registering for at least 60 per cent of a standard term course load will be given second priority, and students registering course-by-course with less than 60 per cent of a standard term course load will be given third priority for course placement.

A student who fails or withdraws from four or more courses any one term will be required to withdraw from the program. Prior to applying for re-acceptance the student must complete the failed course(s) successfully through BCIT Part-time Studies, or on a program head approved alternate route (in writing). Completion of the missing course(s) does not guarantee re-acceptance into the program.

A student who fails to complete a first year course for a second time may be required to withdraw from the program for a period of one academic year. Prior to applying for re-acceptance the student must complete the failed course successfully through BCIT Part-time Studies, or on a program head approved alternate route. Completion of the missing course does not guarantee re-acceptance into the program.

A student who fails to complete a second-year course for a second time will be required to enter into a re-admission contract with the program head of the department. This contract may require the student to repeat pre-requisite courses (even if they had previously been completed successfully) prior to a third, and final, attempt to complete the second year course.

Diploma Program Re-Admission

Students who have been withdrawn from the program due to failures, or have left of their own accord, must apply for re-acceptance when they are ready to re-enter full-time study (at least a 60 per cent course load). BCIT recommends that you apply as early as possible. However, space is limited and where a program area receives more eligible applicants than there are seats available, then the department may select those applicants considered to have the strongest chance of success in the program.

Diploma Program Completion

In order to be eligible for graduation, students must complete the diploma program requirements:

1. within five years of the start of the program for students who enter the program in first year, or
2. within three years of the start of second year for students who enter the program directly into second year.

Students who do not complete the diploma program requirements within the specified time period will be required to re-apply to the BCIT Admissions department for permission to complete the diploma program. BCIT cannot guarantee that courses taken prior to this re-application will be credited towards the current Diploma of Technology.

Program Content - Architectural & Building Engineering Technology

Level 1 (15 weeks)			hrs/wk	credits
BLDG	1000	Building Drafting	3.0	3.0
BLDG	1050	Construction Materials and Processes 1	3.0	3.0
BLDG	1200	Building Construction 1	6.0	6.0
BLDG	1405	CADD for Building	3.0	3.0
CIVL	1200	Building Structures 1	3.0	3.0
COMM	1140	Technical Communication for Building	3.0	3.0
MATH	1401	Technical Mathematics for Building	5.0	5.0
PHYS	1140	Applied Physics for Building 1	4.0	4.0
Level 2 (Term 2A 10 weeks)				
BLDG	2000	Planning	3.0	4.0
BLDG	2050	Construction Materials and Processes 2*	2.0	1.5
BLDG	2200	Building Construction 2	6.0	8.0
BLDG	2250	Construction Contracts 1*	2.0	1.5
BLDG	2405	CADD Applications for Building*	3.0	2.0
CIVL	2201	Building Structures 2	3.0	4.0
COMM	2255	Technical Communication 2 for Building	3.0	3.5
MATH	2401	Analytic Geometry and Calculus	5.0	6.5
PHYS	2140	Applied Physics for Building 2	4.0	5.5
* denotes a half-term course				
Level 2 (Term 2B 10 weeks)				
BLDG	2000	Planning 2	3.0	4.0
BLDG	2200	Building Construction 2	6.0	8.0
BLDG	2300	Construction Estimating 1*	4.0	2.5
BLDG	2450	Computer Applications for Building*	3.0	2.0
CIVL	2201	Building Structures 2	3.0	4.0
COMM	2255	Technical Communication 2 for Building	2.0	3.5
MATH	2401	Calculus and Analytic Geometry for Building	5.0	6.5
PHYS	2140	Physics for Building	4.0	5.5
* denotes a half-term course				
Level 3 (15 weeks)				
BLDG	3200	Building Construction 3	6.0	6.0
BLDG	3250	Construction Contracts 2	2.0	2.0
BLDG	3300	Construction Estimating 2	4.0	4.0
BLDG	3350	Construction Specifications	2.0	2.0
CIVL	3202	Building Structures 3	3.0	3.0
ELEX	1810	Electrical Systems	3.0	3.0
MSYS	3880	Heating/Ventilating/Air Conditioning	4.0	4.0

Options			hrs/wk	credits
BLDG	3000	Architectural Option 1	6.0	6.0
BLDG	3050	Economics - Construction Operations Option 1	6.0	6.0
BLDG	3100	Building Science Option 1	6.0	6.0

* denotes a half-term course

Level 4 (Term 4A 10 weeks)

Core Courses

BLDG	4200	Building Construction 4	6.0	8.0
BLDG	4303	Construction Estimating 3	4.0	3.0
BLDG	4400	Construction Management *	3.0	2.0
BLDG	4500	Codes and Regulations *	3.0	2.0
CIVL	4203	Building Structures 4*	3.0	2.0
ELEX	2805	Illumination*	2.0	1.5
MSYS	3980	Plumbing Systems*	2.0	1.5

* denotes a half-term course

Options

BLDG	4000	Architectural Option 2	6.0	10.5
BLDG	4050	Economics - Construction Operations Option 2	6.0	10.5
BLDG	4100	Building Science Option 2	6.0	10.5

Level 4 (Term 4B 10 weeks)

Core Courses

BLDG	4200	Building Construction 4	6.0	8.0
BLDG	4304	Construction Estimating 4	3.0	2.0
BLDG	4505	Building Acoustics*	2.0	1.5
OPMT	1260	Management Engineering 1 for Building*	3.0	2.0
SURV	1120	Survey for Building*	3.0	2.0

* denotes a half-term course

Options

BLDG	4000	Architectural Option 2	10.0	10.5
BLDG	4050	Economics - Construction Operations Option 2	10.0	10.5
BLDG	4100	Building Science Option 2	10.0	10.5

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Civil and Structural Engineering Technology

Two-Year Diploma Program (Full-time)

Program is presently under curriculum review and is subject to change.

Civil and Structural technologists are involved in the design and construction of municipal works, residential development, industrial and commercial buildings, highways, bridges, railways, dams, power developments, canals, docks, harbours, and environmental protection and remediation works. A career in this field allows the technologist to fully develop his or her creative potential, providing the opportunity for involvement in all phases of construction, from design to inspection of the finished job.

Job Opportunities

Graduates are employed throughout the broad spectrum of Civil Engineering related industries. More than 85 per cent of graduates find employment related to their training within four months of graduation. Starting positions include consulting design technologists, municipal plan checkers, construction inspectors and supervisors, detailers, technical sales representatives, material testing technicians, surveyors, and CADD operators. There are numerous career paths in consulting engineering, construction, government, and the technical sales sectors. Many graduates have attained senior positions in organizations or started their own enterprises.

The Program

This rigorous and demanding program presents a broad foundation of engineering knowledge, providing students with many opportunities to develop their critical thinking and creative abilities. Hands-on testing, communication, problem-solving, and organizational skills are all emphasized. Many of the courses, particularly in the second year, utilize industry-based projects to reinforce theoretical and analytical concepts in an applied setting.

continued next page

In second year, students must choose an option, which provides additional exposure to one of four principal areas in civil and structural engineering technology. These include Geotechnical, Water Resources, Construction, and Structures. As part of their second year of studies, students are also required to participate in an industry-sponsored project (practicum) course. Successful completion of this course is required in order to graduate. The industry sponsor is determined by the student and may include work experience activities at the industry sponsor's regular place of business.

Program Length

Two years, full-time beginning in September each year. Part-time day Studies are available at all levels above Level 1.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

Year 1: \$2,100

Year 2: \$1,600

(general estimated cost and subject to change).

Degree Transfer/Completion

Graduates of the Civil and Structural program with sufficiently high standing are granted full credit into either Lakehead University (Ontario), or UBC. Students intending to go to Lakehead will have to pick up one or two additional courses while at Lakehead; those going to UBC will have to complete a bridging program. Graduates are also given significant credits and acceptance into the Co-op program at Waterloo University (Ontario). Other Canadian and U.S. universities have granted full or partial credits to graduates, depending on their academic standing and work experience.

Alternatively, graduates may consider entering Bachelor of Technology programs in Environmental Engineering Technology or Construction Management. Minimum entrance requirements are the completion of a two-year diploma program.

Accreditation

The Civil and Structural Engineering Technology program is accredited by the Applied Science Technologists and Technicians of British Columbia as a Technologist program. Full-time students may apply for membership in ASTTBC. Graduates are eligible for Graduate Technologist (ASTTBC) membership and may apply for registration as an Applied Science Technologist after completing a minimum of two years of relevant experience.

Entrance Requirements

High school graduation. English 12(C). Math 12(C). Physics 11(C).

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE)

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Sciences programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Content - Civil and Structural Engineering Technology

Core Courses

Level 1	(15 weeks)	hrs/wk	credits
CIVL 1000	Statics	6.0	6.0
CIVL 1001	Graphical Communication 1	2.0	2.0
CIVL 1040	Hydrology	3.0	3.0
CIVL 1080	Construction Materials 1	3.0	3.0
COMM 1135	Technical Communication 1	3.0	3.0
MATH 1421	Technical Mathematics for Civil and Structural	5.0	5.0
PHYS 1142	Physics for Civil and Structural 1	5.0	5.0
SURV 1130	Surveying for Civil and Structural 1	3.0	3.0
Level 2A (10 weeks)			
CIVL 2002	Mechanics of Materials*	6.0	4.0
CIVL 2005	Civil Computer Applications 1	3.0	2.0
CIVL 2041	Hydraulics 1	3.0	4.0
CIVL 2081	Construction Materials 2*	3.0	2.0
COMM 2242	Technical Comm for Civil and Structural	3.0	4.0
MATH 2421	Calculus for Civil and Structural	5.0	6.5
PHYS 2142	Physics for Civil and Structural 2	4.0	5.5
SURV 2230	Surveying for Civil and Structural 2	3.0	4.0

* denotes a half-term course

Level 2B (10 weeks)

CIVL 2006	Civil Computer Applications 2	3.0	2.0
CIVL 2007	Computer Aided Design 1*	3.0	2.0
CIVL 2041	Hydraulics 1	3.0	4.0
CIVL 2162	Intro to Timber Design*	7.0	4.5
COMM 2242	Technical Communication 2	3.0	4.0
MATH 2421	Calculus for Civil and Structural	5.0	6.5
PHYS 2142	Physics for Civil and Structural 2	4.0	5.5
SURV 2230	Surveying for Civil and Structural 2	3.0	4.0

* denotes a half-term course

Second-year Program Options

Set A - Geotechnical Highways

Level 3 (15 weeks)			hrs/wk	credits
CIVL	3007	Computer Aided Design 2	3.0	3.0
CIVL	3042	Hydraulics 2	3.0	3.0
CIVL	3082	Soil Mechanics 1	6.0	6.0
CIVL	3090	Project Proposal	1.0	1.0
CIVL	3162	Structural Steel and Concrete Design	4.0	4.0
CIVL	3165	Structural Analysis 1	2.0	2.0
COMM	3342	Technical Communication 3 for Civil and Structural	2.0	2.0
MATH	3421	Applied Linear Algebra and Calculus	4.0	4.0
OPMT	1180	Engineering Economics	2.0	2.0
SURV	3330	Surveying for Civil and Structural 3	3.0	3.0

Level 4 A (10 weeks)

CIVL	3122	Basic Subdivision Planning *	3.0	2.0
CIVL	4008	Civil Engineering Construction	3.0	4.0
CIVL	4009	Construction Contract Law	1.0	1.5
CIVL	4020	Projects	3.0	4.0
CIVL	4083	Soil Mechanics 2*	6.0	4.0
CIVL	4085	Geotechnics	3.0	6.0
CIVL	4122	Municipal Services	3.0	4.0
COMM	4442	Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421	Statistics for Civil and Structural	3.0	4.0
SURV	4430	Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Level 4 B (10 weeks)

CIVL	3005	Highway Design Basic *	3.0	2.0
CIVL	3123	Urban Street Design *	3.0	2.0
CIVL	4008	Civil Engineering Construction	3.0	4.0
CIVL	4009	Construction Contract Law	1.0	1.5
CIVL	4020	Projects	3.0	4.0
CIVL	4085	Geotechnics	6.0	6.0
CIVL	4122	Municipal Services	3.0	4.0
COMM	4442	Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421	Statistics for Civil and Structural	3.0	4.0
SURV	4430	Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Set B - Water Resources

Level 3 (15 weeks)

CIVL	3007	Computer Aided Design 2	3.0	3.0
CIVL	3042	Hydraulics 2	3.0	3.0
CIVL	3082	Soil Mechanics 1	6.0	6.0
CIVL	3090	Project Proposal	1.0	1.0
CIVL	3162	Structural Steel and Concrete Design	4.0	4.0
CIVL	3165	Structural Analysis 1	2.0	2.0
COMM	3342	Technical Communication 3 for Civil and Structural	2.0	2.0
MATH	3421	Applied Linear Algebra and Calculus	4.0	4.0
OPMT	1180	Engineering Economics	2.0	2.0
SURV	3330	Surveying for Civil and Structural 3	3.0	3.0

Level 4 A (10 weeks)

CIVL	3122	Basic Subdivision Planning *	3.0	2.0
CIVL	4008	Civil Engineering Construction	3.0	4.0
CIVL	4009	Construction Contract Law	1.0	1.5
CIVL	4020	Projects	3.0	4.0
CIVL	4044	Water Resources	3.0	6.0
CIVL	4083	Soil Mechanics 2*	6.0	4.0
CIVL	4122	Municipal Services	3.0	4.0
COMM	4442	Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421	Statistics for Civil and Structural	3.0	4.0
SURV	4430	Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Level 4 B (10 weeks)

CIVL	3005	Highway Design Basic *	3.0	2.0
CIVL	3123	Urban Street Design *	3.0	2.0
CIVL	4008	Civil Engineering Construction	3.0	4.0
CIVL	4009	Construction Contract Law	1.0	1.5
CIVL	4020	Projects	3.0	4.0
CIVL	4044	Water Resources	6.0	6.0
CIVL	4122	Municipal Services	3.0	4.0
COMM	4442	Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421	Statistics for Civil and Structural	3.0	4.0
SURV	4430	Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Set C - Construction

Level 3 (15 weeks)

CIVL	3007	Computer Aided Design 2	3.0	3.0
CIVL	3015	Construction 1	3.0	3.0
CIVL	3042	Hydraulics 2	3.0	3.0
CIVL	3090	Project Proposal	1.0	1.0
CIVL	3120	Subdivision Planning	3.0	3.0
CIVL	3163	Structural Steel Design	4.0	4.0
CIVL	3165	Structural Analysis 1	2.0	2.0
COMM	3342	Technical Communication 3 for Civil and Structural	2.0	2.0
MATH	3421	Applied Linear Algebra and Calculus	4.0	4.0
OPMT	1180	Engineering Economics	2.0	2.0
SURV	3330	Surveying for Civil and Structural 3	3.0	3.0

Level 4 A (10 weeks)

CIVL	3081	Soil Mechanics 1 Basic *	6.0	4.0
CIVL	3123	Urban Street Design	3.0	2.0
CIVL	4009	Construction Contract Law	1.0	1.5
CIVL	4016	Construction 2 *	3.0	2.0
CIVL	4020	Projects	3.0	4.0
CIVL	4122	Municipal Services	3.0	4.0
CIVL	4167	Reinforced Concrete Design	3.0	4.0
COMM	4442	Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421	Statistics for Civil and Structural	3.0	4.0
SURV	4430	Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Level 4 B (10 weeks)		hrs/wk	credits
CIVL	3005 Highway Design Basic *	3.0	2.0
CIVL	4009 Construction Contract Law	1.0	1.5
CIVL	4020 Projects	3.0	4.0
CIVL	4083 Soil Mechanics 2*	6.0	4.0
CIVL	4122 Municipal Services	3.0	4.0
CIVL	4167 Reinforced Concrete Design	3.0	4.0
CIVL	4166 Structural Detailing*	3.0	2.0
COMM	4442 Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421 Statistics for Civil and Structural	3.0	4.0
SURV	4430 Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Set D - Structures

Level 3 (15 weeks)

CIVL	3007 Computer Aided Design 2	3.0	3.0
CIVL	3015 Construction 1	3.0	3.0
CIVL	3042 Hydraulics 2	3.0	3.0
CIVL	3090 Project Proposal	1.0	1.0
CIVL	3120 Subdivision Planning	3.0	3.0
CIVL	3163 Structural Steel Design	4.0	4.0
CIVL	3165 Structural Analysis 1	2.0	2.0
COMM	3342 Technical Communication 3 for Civil and Structural	2.0	2.0
MATH	3421 Applied Linear Algebra and Calculus	4.0	4.0
OPMT	1180 Engineering Economics	2.0	2.0
SURV	3330 Surveying for Civil and Structural 3	3.0	3.0

* denotes a half-term course

Level 4 A (10 weeks)

CIVL	3081 Soil Mechanics 1 Basic *	6.0	4.0
CIVL	3123 Urban Street Design	3.0	2.0
CIVL	4009 Construction Contract Law	1.0	1.5
CIVL	4016 Construction 2 *	3.0	2.0
CIVL	4020 Projects	3.0	4.0
CIVL	4165 Structural Analysis 2	3.0	4.0
CIVL	4167 Reinforced Concrete Design	3.0	4.0
COMM	4442 Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421 Statistics for Civil and Structural	3.0	4.0
SURV	4430 Surveying for Civil and Structural 4	3.0	4.0

* denotes a half-term course

Level 4 B (10 weeks)

CIVL	3005 Highway Design Basic *	3.0	2.0
CIVL	4009 Construction Contract Law	1.0	1.5
CIVL	4020 Projects	3.0	4.0
CIVL	4083 Soil Mechanics 2*	6.0	4.0
CIVL	4165 Structural Analysis 2	3.0	4.0
CIVL	4167 Reinforced Concrete Design	3.0	4.0
CIVL	4166 Structural Detailing*	3.0	2.0
COMM	4442 Technical Communication 4 for Civil and Structural	2.0	2.5
MATH	4421 Statistics for Civil and Structural	3.0	4.0
SURV	4430 Surveying for Civil and Structural 4	3.0	4.0

*denotes a half-term course

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 C. Sinclair, P.Eng., City of Burnaby

Construction Management

Bachelor of Technology Degree (Part-time)

The construction sector increasingly requires individuals who can participate at the professional level as part of a construction management team. This Construction Management degree completion program will provide participants with structured management and leadership techniques that will provide the basis for broader management decisions as well as on-site leadership in construction operations. The flexible delivery format and the direct relevance of the course materials make this program distinctive for those aspiring to be part of the management team. Existing team members may wish to broaden their knowledge and skills and participate on the basis of continuing professional development.

Job Opportunities

Individuals completing this program of studies will be well prepared to function as one of the key members of the construction management team. The advanced knowledge presented in such topics as Project Controls, Legislation, Finance, Leadership, Industrial Relations and Management of Project Stakeholders reflects the scope of knowledge necessary to make the correct decisions associated with national and international construction projects. In this capacity, you will be able to help direct and manage a multi-disciplined construction project to a satisfactory conclusion. While most career opportunities will likely be directly involved with construction companies, other opportunities will occur in both the development and consulting areas.

The Program

Developed with the guidance of senior industry representatives, the curriculum has been divided into the following sections; Construction Controls and Techniques, Construction Management, Stakeholder Management, an Industry based Project and Liberal Education courses. Presented by some of industry's leading specialists, the topics will be both challenging and practical. Graduates of the program will be able to methodically and rationally select or develop suitable construction procedures, schedule, manage, utilize human resources and equipment within the complex environment of labour relations and business decision-making.

Program Length

Presented in a six-week modular format, most participants will typically register in evening courses offered at the Burnaby campus. This will allow individuals to maintain full-time employment while working towards completing their degree. The rate of progress through the program will be dependent on the aggressiveness of each participant. Most individuals will likely take three to four years to complete their studies, but have up to six years to complete all the program requirements. The scheduling of courses will be increased as the program matures so as to allow individuals to start some of the courses at almost any point in time throughout the academic year.

Accreditation

Recognition of this Bachelor of Technology degree as a qualification for advanced technical and management positions is anticipated from related professional groups and industry associations. Negotiations are also ongoing with such groups as the Canadian Construction Association as well as universities for entrance in Master's programs in related disciplines.

Entrance Requirements

The minimum entrance requirements are:

- a recognized Diploma of Technology in a related engineering or science discipline, or a degree in Engineering, Architecture, Applied Science or related field
- Two years relevant work experience
- English 12 or equivalent.

It is recommended that students be competent in the use of Windows-based software applications (e.g. MS Office)

All participants will be required to meet with the program head to review the initial application for acceptance. Supplemental courses may be required in order to fulfil the educational background required for practice in the engineering and construction industry.

Program Structure

	credits
1. Technical Component	49.0
Construction Controls and Techniques	15.0
Management in Construction	11.0
Stakeholder Management	8.0
Electives	3.0
Industry Project	12.0
2. Liberal Education Component	12.0
Total	61.0

Program Content -

Construction Controls and Techniques (15.0 credits required)

Part I		credits
CMGT 7100	Construction Project Controls 1	1.0
CMGT 7110	Construction Project Controls 2	1.0
CMGT 7120	Construction Project Controls 3	1.0
CMGT 7145	Statistics for Construction Mgmt 1	1.5
CMGT 7155	Statistics for Construction Mgmt 2	1.5
CMGT 7200	Construction Mgt. of Equip & Plant 1	1.0
CMGT 7210	Construction Mgt. of Equip & Plant 2	1.0
CMGT 7220	Health and Safety in Construction	1.0
CMGT 7230	Quality Assurance and Control 1	1.0
CMGT 7240	Quality Assurance and Control 2	1.0
CMGT 7250	Quality Assurance and Control 3	1.0

Part II

CMGT 8200	Special Techniques in Large Construction Projects 1	1.0
CMGT 8210	Special Techniques in Large Construction Projects 2	1.0
CMGT 8220	Special Techniques in Large Construction Projects 3	1.0

Management in Construction (11.0 credits required)

Part I

CMGT 7300	Construction Finance 1	1.0
CMGT 7310	Construction Finance 2	1.0
CMGT 7320	Construction Finance 3	1.0
BUSA 7250	Management Skills and Applications	3.0
CMGT 7420	Construction Law and Ethics 1	1.0
CMGT 7430	Construction Law and Ethics 2	1.0

Part II

CMGT 8430	Management of a Construction Enterprise 1	1.0
CMGT 8440	Management of a Construction Enterprise 2	1.0
CMGT 8450	International Construction Management	1.0

Stakeholder Management (8.0 credits required)

Part I		credits
CMGT 7530	Leadership and Interpersonal Skills	2.0
CMGT 7600	Industrial Relations in Construction 1	1.0
CMGT 7610	Industrial Relations in Construction 2	1.0
CMGT 7640	Environmental Issues in Construction 1	1.0
CMGT 7650	Environmental Issues in Construction 2	1.0
Part II		
CMGT 8600	Management of Project Stakeholders	2.0

Electives (3.0 credits)

Students may select three additional management credits from any combination of other Bachelor of Technology or Advanced Diploma program courses in Technology Management at BCIT, including the following electives. Pre-approval of course selection is required from your program head.

CMGT 8020	Project Delivery Methods	1.0
CMGT 8030	Project Initiation & Definition	1.0

Industry Project (12.0 credits required)

All students seeking to graduate from the program must successfully complete an industry-sponsored project. The objective of the project is to allow students to apply specialty knowledge in a real-life situation, study or applied research activity in conjunction with an industry sponsor and an academic mentor. The project assignment should contain elements that are considered innovative, experimental or exploratory in nature. The participant will be responsible for securing an industry sponsor with expertise in the project area.

CMGT 7800	Project Reports	1.0
CMGT 7820	Project Proposal	1.0
CMGT 7840	Technical Presentations	2.0
CMGT 8800	Applied Research Project	8.0

Liberal Education Component (12.0 credits)

Mandatory courses:

LIBS 7001	Critical Reading and Writing	3.0
LIBS 7002	Applied Ethics	3.0

Elective courses:

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

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 Mary Sadowski, Program Assistant (Acting)

Sessional Instructors

Ron Coleman, B.Comm, FCAA, CMC
 Andrew Collins, PQS.
 David Ferguson, P.Eng.
 Darwin Fraser, B.Com.
 Diane Grady, Ph.D.
 Stuart Johnston, MCSSE
 Pam Khurana, Ph.D.
 Fred Mandl, B.Sc. MBA
 Al Morgan, P.Eng.
 Jack Sekhon, P.Eng.
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Advisory Committee Members

Construction Management Degree

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 P. Hochstein, Independent Contractors and
 Businesses Association
 K. Kompauer, KDR Engineering Consultants Ltd.
 C. Makela, Accuron Construction Ltd.
 S. Matheson, The Dominion Company
 H. McLeod, Flatiron/KWH Constructors
 V. Muir, H.A. Simons Ltd.
 K. Sashaw, Electrical Contractors Association
 S. Sulpher, Vancouver Regional Construction Association
 N. Thomson, Whelan Mechanical Installations
 D. Walker, RPA Group
 R. Woodhead, Woodhead Consultants Inc.
 Y. Yogendran, Powertech Labs Inc.
 E. Zuccolin, Fraser River Pile and Dredging

Environmental Engineering Technology

Bachelor of Technology Degree (Compressed and Part-time)

(604) 451-6906/432-8344

The Environmental Engineering Technology program is intended to provide the additional skills and knowledge that engineering and science graduates require to successfully work on environmental assignments such as site remediation, site audits, waste treatment facilities, wastewater management, hydrogeology, residuals management, solid waste management, industrial air pollution and recycling projects.

Job Opportunities

Graduates are well prepared to function as a member of a multi-disciplinary team addressing the environmental challenges faced by the industry. Working as a member of an environmental team comprised of engineers, chemists, hydrogeologists, biologists and toxicologists, graduates of the environmental engineering technology program will be uniquely positioned to operate across disciplinary boundaries.

The Program

Recognizing the wide range of science and engineering backgrounds associated with the industry, this program is structured to accommodate the requirements from a diverse range of applicants. The blend of common core topics, major elective studies, management courses, the industry sponsored project and liberal education courses will provide a unique balance of skill sets that will prepare candidates for a broader range of career opportunities. While many of the participants are pursuing this degree credential, others are upgrading their skills as professional development to complement other professional and university credentials.

Program Length

Presented in a modular six-week format, students can choose to participate in either the compressed time-frame program (an accelerated mode of study) or the more traditional night school mode of study. Students in the compressed time-frame mode can expect to complete their technical courses after a one-year period of intense study. The industry-sponsored project and Liberal Education courses (if required), will likely be completed during employment after completion of the technical courses. For those who choose to maintain their full-time employment while continuing their studies, they may register in just evening classes as well as the occasional afternoon class as circumstances permit. Students may proceed at a pace of their choice, but must complete the program within six years.

Accreditation

Bachelor of Technology degree studies will be recognized as a qualification for advanced technical positions by employers and for advanced certification by professional associations. Recognition and accreditation of this program with related environmental industry associations and professions continues.

Entrance Requirements

The minimum entry requirements are:

- A recognized Diploma of Technology in an engineering or science discipline or a related degree in engineering or science
- Two years of relevant work experience, subject to departmental approval
- English 12 or equivalent.

Students are required to meet with the program head to review the initial course requirements to supplement the student's educational background in engineering and/or science. It is recommended that students be proficient in common computer software and that they have access to a personal computer capable of running the current version of MS Office, plus a Web browser and an account with an ISP of their choice.

For more information about Bachelor of Technology degree studies at BCIT please refer to page 61 of this calendar.

Program Structure

	credits
1. Technical Component	54.0
Common Core	14.0
Management Electives	9.0
Major Electives (from 4 topic areas)	19.0
Graduating Project	12.0
2. Liberal Education Component	12.0
Total	66.0

1. Common Core Courses

EENG	7700	Environmental Case Studies	1.0
EENG	7710	Chemistry 1 for EET	1.0
EENG	7711	Chemistry 2 for EET	1.0
EENG	7712	Organic Chemistry for EET	1.0
EENG	7713	Environmental Analytical Chemistry	1.0
EENG	7714	Methods of Wastewater Analysis	2.0
EENG	7715	Hydraulics 1 for EET	1.0
EENG	7716	Soils and Groundwater for EET	1.0
EENG	7717	Hydrology for EET	1.0
EENG	7718	Hydraulics 2 for EET	1.0
EENG	7719	Survey Techniques for EET	1.0
EENG	7720	Applied Microbiology	1.0
EENG	7721	Applied Toxicology	1.0

Students will be required to complete all the required common core courses prior to entering into their choice of major elective studies. Some exemptions may be possible, based on transfer credits from prior studies, and will require departmental approval.

2. Management (9 credits required)

Required (7 credits)

BUSA	7250	Management Skills Applications	3.0
EENG	8780	Environmental Law 1	1.0
EENG	8781	Risk Assessment	1.0
EENG	8782	Value Analysis and Environmental Mgmt	1.0
EENG	8783	Risk Management	1.0

Plus two additional credits from selected Technology Management (TMGT) courses or those listed below:

EENG	8760	Solid Waste Management	1.0
EENG	8761	Recycling and Reduction Techniques	1.0
EENG	8768	Advanced Residuals Management	2.0
EENG	8784	Environmental Law 2	1.0
EENG	8785	Decision-Making in Environmental Management	2.0

3. Major Elective Studies (19 credits minimum from four topic areas)

Ground Water (5 credits)

EENG	7740	Physical Hydrogeology	1.0
EENG	7741	Contaminant Hydrogeology	2.0
EENG	7742	Groundwater Modelling: Numerical Methods	2.0

continued next page

Water Treatment (6 credits)			credits
EENG	8750	Municipal Wastewater Treatment 1	1.0
EENG	8751	Municipal Wastewater Treatment 2	1.0
EENG	8752	Municipal Wastewater Treatment 3	1.0
EENG	8753	Industrial Wastewater Treatment 1	1.0
EENG	8754	Industrial Wastewater Treatment 2	1.0
EENG	8755	Drinking Water Treatment	1.0

Solid Waste (4 credits)			
EENG	8760	Solid Waste Management	1.0
EENG	8761	Recycling and Reduction Techniques	1.0
EENG	8762	Landfill Design and Operation	1.0
EENG	8763	Environmental Controls for Landfills	1.0

Residuals Management (4 credits)			
EENG	8768	Advanced Residuals Management	2.0
EENG	8769	Advanced Residuals Treatment	2.0

Contaminated Sites (5 credits)			
EENG	8770	Environmental Site Assessment	1.0
EENG	8771	Contaminated Site Investigation Process	1.0
EENG	8772	Site Remediation and Risk Assessment Process	1.0
EENG	8773	Sampling Methods for Contaminated Sites	1.0
EENG	8774	Site Remediation Technologies	1.0

Air Quality Management (6 credits)			
EENG	8790	Air Quality Management	2.0
EENG	8791	Industrial Air Pollution Control Techniques	2.0
EENG	8792	Air Quality Monitoring and Testing	2.0

Integrated Resource Management (5 credits)			
EENG	8801	Terrain Map/Erosion Processes	1.0
EENG	8802	Forest Road Design and Construction	1.0
EENG	8803	Forest Road Rehabilitation	1.0
EENG	8804	Hydrological Map and Hydrometrics	1.0
EENG	8805	Stream Channel Assessment	1.0

Advanced Process Technologies (6 credits)			
EENG	8810	Pulp and Paper Industry for EET	2.0
EENG	8811	Mining and Extractive Metal Industry	2.0
EENG	8812	Petroleum Industry	2.0

Advanced Chemical Analysis (6 credits)			
EENG	8820	Separation and Identification Techniques	2.0
EENG	8822	Analytical Atomic Spectroscopy 1	1.0
EENG	8823	Analytical Atomic Spectroscopy 2	1.0
EENG	8824	Gas Chromatography and Mass Spectrometry	2.0

4. Graduating Project (12 credits)

All students seeking to graduate from the program must successfully complete the project. The objective of the project is to allow students to apply specialty knowledge in a real-life situation in conjunction with an industry sponsor. The project assignment should contain some elements which are deemed to be innovative, experimental or exploratory in nature. The student will be responsible for securing an industry sponsor with expertise in the project area.

EENG	8900	Project Reports	1.0
EENG	8901	Project Proposal	1.0
EENG	8902	Technical Presentations	2.0
EENG	8903	Applied Research Project	8.0

5. Liberal Education Component (12 credits)

Mandatory courses:			credits
LIBS	7001	Critical Reading and Writing	3.0
LIBS	7002	Applied Ethics	3.0

Elective courses:

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

Faculty and Staff

Tony Barren, B.Sc., Ph.D., P.Eng., Dean, tbarren@bcit.ca
 Phil Cunningham, P.Eng., Director (Acting)
 Lorne Sampson, B.Sc., CPHI (C), Program Head, lsampson@bcit.ca
 Ray Koenig, B.Sc., B.B.A., P.Geo, rkoenig@bcit.ca
 Cathie Aspden, Program Assistant, caspden@bcit.ca

Sessional Instructors

Rob Abbott, B.A., M.A.
 Paul Beauchemin, P.Eng.
 Frank Baumann, P.Eng.
 Joffre Berry, Ph.D., jberry@bcit.bc.ca
 Deb Bisson, M.B.A., LL.B.
 Brenda Boyle, B.A.Sc.
 Mike Cherneff, B.A., M.A.
 Don Chorley, M.Sc., P.Geo.
 Jennifer Clarke, B.E.S. (Honours), M.Sc.
 Allan Dakin, M.Sc., P.Eng.
 Mark Ferguson, M.Eng., P.Eng.
 Dave Forgie, Ph.D., P.Eng.
 J.F. Kim Froats, B.Sc., M.Eng.
 Al Gibb, Ph.D., P.Eng.
 Diane Grady, B.A.Sc., Ph.D.
 Bruce Granstrom, M.Eng.
 Paul Henderson, M.Sc., P.Eng.
 Ian Hers, M.A.Sc., P.Eng.
 Patricia Houlihan, B.A., LL.B.
 Kevin Hoy, Ph.D.
 Dennis Johnston, B.Ed.
 Ron Macdonald, M.A.Sc., P.Eng.
 Tim Mah, B.Sc.
 Rosta Namdari, Ph.D.
 Peter Nix, M.Sc.
 Ed Paski, Ph.D.
 Guy Patrick, M.Sc.
 Ed Reid, M.I.C.E., C.Eng., P.Eng.
 Lee Ringham, M.Sc., P.Geo.
 Brian Samson, M.A.Sc., M.B.A., P.Eng.
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 Sid Tsang, B.Sc., G.I.T.
 Rahmat Vefghi, Ph.D.
 Tim Whalen, M.A.Sc.
 Ross Wilson, M.Sc.
 Andrew Wood, B.A.Sc., P.Eng.
 Reidar Zapf-Gilje, Ph.D., P.Eng.

Advisory Committee Members

A. Dakin, M.Sc., P.Eng., Piteau Associates Engineering Ltd.
 W. Hyslop, Ph.D. Banyan Services
 B. Lightowlers, B.Sc., MBA, Beak Consultants
 E. McDonald, CIH, ROH, M.Sc., Analytical Service Laboratories Ltd.
 G. Pichler, Association of Professional Engineers
 and Geoscientists of B.C.
 D. Riley, B.Sc., M.R.M., B.C. Hydro
 J. Robertson, B.A.Sc., M.Eng., P.Eng., Placer Dome Inc.
 B. Shepherd, P.Eng., Environment Canada
 K. Stubbs, B.Sc., MA., QEP. (Chair)
 Greater Vancouver Regional District
 W. Yang, B.C. Environment
 R. Zapf-Gilje, Ph.D., P.Eng., Golder Associates Ltd.

Construction Trades Programs

Boilermaking

Certificate Program (Full-time)

Boilermakers possess the full range of knowledge and skills required to fit, install, assemble, erect, repair and maintain a wide variety of vessels, tanks, towers, hoists and other structures, as well as ancillary equipment and fixtures made of metal and fibreglass materials. Possible work sites include pulp mills, refineries and hydro-electric projects.

Job Opportunities

Training prepares students as boilermakers (erectors). Upon successful completion of the program, students may seek employment as apprentices.

The Program

Basic theory and related information along with hands-on shop practice enable students to become competent in basic vessel construction tasks.

Boilermakers must be able to work at heights.

Grading

A minimum of 70 per cent grade point average in each of the Total Theory and Practical Projects is required to successfully complete the program.

Program Length

Full-time, 23 weeks.

Normal Course Hours

0700-1330, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$840.95 for the 23-week program.

Books and Supplies 2001/2002

\$367 (general estimated cost and subject to change).

Entrance Requirements

Successful completion of grade 11. English 11 or acceptable equivalent. Academic Math 11. BCIT pretest is acceptable for high school requirements. Departmental interview is required. Contact the Boilermaker instructor, Richard MacIntosh at (604) 412-7435, for an appointment. Good physical condition is required for success in the Boilermaking trade, as well as good hearing and no colour blindness.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Content - Boilermaking

Courses	Hours	Credits
BMKR 1100 Safe/Acceptable Work Practices	30	2.0
BMKR 1101 Mathematics	30	2.0
BMKR 1102 Sketch and Read Drawings	60	4.0
BMKR 1103 Basic Measuring/Layout/Tools	15	1.0
BMKR 1104 Metal Fab Power Equipment	30	2.0
BMKR 1105 Patterns/Templates-Shop Applications	15	1.0
BMKR 1106 Use Oxyacetylene	60	4.0
BMKR 1107 Arc Welding	120	8.0
BMKR 1108 Use Fibre Rope	30	2.0
BMKR 1109 Use Wire Rope	30	2.0
BMKR 1110 Safe Rigging Practices Procedures	60	4.0
BMKR 1111 Erect Tanks	90	6.0
BMKR 1112 Boiler Construction Processes	60	4.0
BMKR 1113 Fabricate/Erect Penstock	30	2.0
BMKR 1114 Assemble/Dismantle Refin Comps	30	2.0
Total	690	46.0

Instructors

Joe Kiwior
 Richard MacIntosh, rmacintosh@bcit.ca
 Kevin Neustaedter, Chief Instructor, kneustae@bcit.ca

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Carpentry

Certificate Program (Full-time)

Carpentry is divided into four sections: occupational skills, formwork, framing, and interior/exterior finishing. It is a multi-demansional, physically, and intellectually demanding trade using the latest technology. The framing carpenter builds the basic structure (foundations, floors, walls and roof). The concrete forming carpenter builds the formwork necessary for the placement of concrete. The finish carpenter applies wall panelling and trim, exterior siding and trim, builds cabinets and stairs. Most carpenters are skilled in all areas of construction, but tend to specialize in one area.

Today, with so many new products and techniques, some carpenters specialize in one particular field of the trade. Among the specialties are:

- Wood framing
- Concrete forming
- Interior and Exterior finishing
- Blueprint reading
- Installing cabinets and hanging doors
- Building stairs and railings
- Site preparation and layout.

Job Opportunities

The steady upturn in the construction industry has resulted in increased employment opportunities for carpenters. Most jobs are in the residential building, although employment is available in commercial and industrial projects.

The Program

Training prepares students for entry-level employment in the carpentry trade. Basic theory and related information along with hands-on shop practice enable students to become competent in basic carpentry tasks. Upon successful completion of the program, students can seek employment as apprentices.

Carpenters must be able to work at heights and in adverse weather. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

A minimum of 70 per cent grade point average in each of the total theory and practical projects is required to graduate.

Program Length

Full-time, 28 weeks, with five to six classes starting each year.

Normal Course Hours

0730-1415, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,016.70 for the 28-week program.

Books and Supplies 2001/2002

\$665 (general estimated cost and subject to change).

Entrance Requirement

Note that the Math prerequisite is under review. Please contact Program Advising or check out the BCIT Web site www.bcit.ca for updated information. High school graduation. English 12. Or Communications 12. Any Math course at the Grade 11 level (Accounting 11 is NOT acceptable); or Applied Academics. BCIT pretest is acceptable for high school requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Carpentry

Courses			Hours	Credits
CARP 1300	Describe Carpentry Trade		7.5	0.5
CARP 1305	Use Safe Work Practices		7.5	0.5
CARP 1310	Interpret Drawings and Specs		15.0	1.0
CARP 1315	Identify Materials		15.0	1.0
CARP 1320	Use Hand Tools		15.0	1.0
CARP 1325	Use Portable Power Tools		7.5	0.5
CARP 1330	Use Shop Equipment		15.0	1.0
CARP 1335	Use Survey Instruments		7.5	0.5
CARP 1340	Use Rigging and Hoisting Equip		15.0	1.0

Courses	Hours	Credits
CARP 1345 Use Site Layout	7.5	0.5
CARP 1350 Build Concrete Formwork	22.5	1.5
CARP 1355 Frame Residential Housing	75.0	5.0
CARP 1360 Use Special Construction	7.5	0.5
CARP 1365 Apply Finishing Materials	22.5	1.5
CARP 1370 Describe Insulation and Energy	7.5	0.5
CARP 1375 Solve Mathematical Problems	15.0	1.0
CARP 1380 Prepare for Employment	7.5	0.5
Theory Total	270.0	18.0
CARP 1390 Practical Projects	570.0	38.0
Program Total	840.0	56.0

Instructors

Rick Dohl, B.Ed., T.Q., I.P., Carpentry, rdohl@bcit.ca
 John-Allan Eliassen, T.Q., I.P., Carpentry/Joinery I.D.,
 jeliasen@bcit.ca
 Luigi Fontana, T.Q., Carpentry I.D.
 Poul Jakobsen, T.Q., I.P., Carpentry I.D.
 Stefan Johrden, T.Q., I.P., Carpentry sjohrden@bcit.ca
 Kal Klasen, T.Q., I.P., Carpentry I.D., DIP, Adult Ed., kklasen@bcit.ca
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 Registered Housing Professional, wstevens@bcit.ca
 Bill Veerkamp, T.Q., I.P., I.D., bveerkam@bcit.ca
 John Martan, T.Q., I.P., Jmartan@bcit.ca

Drafting

Certificate in Technical Studies (Full-time)

The Drafting program offers four areas of specialization: Civil, Mechanical, Architectural and Structural. Applicants must indicate area of specialization on their application.

Drafting at BCIT offers training for a variety of applications in architecture, building construction, mechanical, industrial and piping applications, civil and municipal construction and highway design. CAD (Computer Aided Design) is an integral part of all our drafting programs.

All students begin in September and must complete a drafting core (20 weeks) before proceeding to their drafting specialty (20 weeks). Total program length: 40 weeks.

Grading for All Specialties

A minimum grade of 50 per cent is required to pass each course. All courses must be passed in order to successfully complete the program. Students require an overall GPA of 65 per cent in order to graduate.

Program Length

Full-time, 40 weeks, beginning September each year (20 weeks of the drafting core and 20 weeks of the drafting specialty).

Normal Course Hours

0700-1345, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,408.50 for the 40-week program.

Books and Supplies 2001/2002

Architectural: \$560
 Civil: \$615
 Mechanical: \$575
 Structural: \$560

(general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11 or Introduction to Math 11 or Math 11A. BCIT pretest is acceptable for high school requirements. Good hand/eye coordination and technical aptitude. All students will enter and complete the Drafting Core. Students will then be channelled into their chosen drafting specialty (Civil, Mechanical, Architectural or Structural Drafting). Applicants must state which drafting specialty they prefer when applying.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Civil Drafting

The specialty prepares students to combine the necessary understanding of building construction with the requirements of municipal regulations.

Job Opportunities

Students may be potential drafters and surveying assistants working for engineering firms, surveyors and municipalities.

Program Content - Civil Drafting

Basics of civil drafting as combined with architectural building construction and highway design, municipal services, surveying, plus a continuation of CAD training.

Courses	Hours	Credits
DRFT 1010 Introductory Drafting	45	3.0
DRFT 1015 Advanced Drafting	75	5.0
DRFT 1101 Building Construction	180	12.0
DRFT 1102 Civil Drafting Specialty	540	36.0
DRFT 1110 CAD 1	45	3.0
DRFT 1114 Civil Drafting CAD	315	21.0
Total	1200	80.0

Mechanical Drafting

The specialty prepares students to combine the understanding of process piping and manufacturing shop processes.

Job Opportunities

Employment may be found in engineering and consultant firms and in the drafting departments of manufacturing shops.

Program Content - Mechanical Drafting

Process piping; machine, production and fabrication shop processes; CAD/CAM.

Courses	Hours	Credits
DRFT 1010 Introductory Drafting	45	3.0
DRFT 1020 Advanced Drafting 1	315	21.0
DRFT 1110 CAD 1	45	3.0
DRFT 1112 CAD 2	135	9.0
DRFT 1213 Mechanical CAD	360	24.0
DRFT 1117 Theory 1	60	4.0
DRFT 1218 Mechanical Drafting	180	12.0
DRFT 1120 Theory 2	60	4.0
Total	1200	80.0

Structural Drafting

The specialty provides specific detailed information on structural building components and the preparation of working drawings, using architectural and structural techniques and requirements as they apply to building construction.

Job Opportunities

Students may find employment in engineering offices that deal with reinforced concrete and structural steel, and steel fabrication companies.

Program Content - Structural Drafting

Combines building construction with the design of reinforced concrete and structural steel.

Courses	Hours	Credits
DRFT 1010 Introductory Drafting	45	3.0
DRFT 1025 Advanced Drafting	315	21.0
DRFT 1035 Structural Steel/Concrete	360	24.0
DRFT 1110 CAD 1	45	3.0
DRFT 1112 CAD 2	135	9.0
DRFT 1141 Theory 1	60	4.0
DRFT 1144 Theory 2	60	4.0
DRFT 1215 Structural CAD	180	12.0
Total	1200	80.0

Architectural Drafting

This specialty applies; Drafting, Computer applications, and Graphic presentation with Architectural and design skills used in the preparation of Architectural projects, and construction of buildings.

Job Opportunities

Graduates may find entry-level drafting positions in architectural firms, residential construction companies, or other firms requiring a mix of design and drafting skills.

Program Content - Architectural Drafting

Combines architectural design theory, and practice with the skills required to produce working drawings.

Courses	Hours	Credits
DRFT 1010 Introductory Drafting	45	3.0
DRFT 1030 Architectural Graphics 1	195	13.0
DRFT 1110 CAD 1	45	3.0
DRFT 1121 Architectural CAD 1	75	5.0
DRFT 1162 Codes & Regulations 1	30	2.0
DRFT 1163 Theory & History 1	30	2.0
DRFT 1165 Architectural Graphics 2	390	26.0
DRFT 1166 Codes & Regulations 2	75	5.0
DRFT 1167 Theory & History 2	75	5.0
DRFT 1168 Architectural CAD 2	240	16.0
Total	1200	80.0

Instructors

G. Cullen, B.A., B. Theol, I.D., Chief Instructor, gcullen@bcit.bc.ca
 B. Hilliard, I.D., bhiliard@bcit.ca
 R. Kinnell, I.D., rkinnell@bcit.ca
 D. Yen, Dipl. Tech, B.Arch. MAIBC, dyen@bcit.ca

Ironworking

Certificate Program (Full-time)

Structural ironworkers erect structural steel girders, plates and columns, and join them permanently to form a framework or a completed structure. Work is usually broken down into various phases with separate crews, such as the raising gang or the high tensile bolt gang. The workers are usually interchangeable on all phases of work except welding, an activity that requires additional training. Workers with the crew are usually designated according to the work they do: bolter-up, connector, hooker-on or rigger, rod man, welder, sheeter and curtain wall.

Job Opportunities

Training prepares students for entry-level employment in the ironworking trade. Upon successful completion of the program, students may seek employment as apprentices. With the present level of industrial and commercial construction, job opportunities exist in both the structural steel and reinforced concrete sectors of the construction industry.

The Program

Basic theory and related information along with hands-on shop and field practice enable students to become competent in basic ironworking activities.

Ironworkers must be able to work at heights and in adverse weather. Potential students should arrange an interview with the Ironworker instructor at (604) 451-6833.

Grading

A minimum grade of 70 per cent is required to pass each course. All courses must be passed in order to successfully complete the program.

Program Length

Full-time, 23 weeks.

Normal Course Hours

0700-1330, Monday through Friday.

Tuition Fees 2001/2002

(subject to change)

\$840.95 for the 23-week program.

Books and Supplies 2001/2002

\$277 (general estimated cost and subject to change).

Entrance Requirements

Successful completion of grade 10. English 10 and Math 10. BCIT pretest is acceptable for high school requirements. A department interview is a requirement for this program. Good physical condition is required for success in the Ironworker trade, as well as good hearing and no colour blindness.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Ironworking

Courses	Hours	Credits
IWKR 1100 Safe/Acceptable Work Practices	30	2.0
IWKR 1101 Mathematics	30	2.0
IWKR 1102 Sketch and Read Drawings	15	1.0
IWKR 1103 Measure Layout and Hand Power Tools	30	2.0
IWKR 1106 Use Oxyacetylene	60	4.0
IWKR 1107 Arc Welding	120	8.0
IWKR 1108 Use Fibre Rope	30	2.0
IWKR 1109 Use Wire Rope	30	2.0
IWKR 1116 Blueprint Reading	15	1.0
IWKR 1120 Rigging and Cranes	30	2.0
IWKR 1121 Structural Steel Erection	180	12.0
IWKR 1122 Layout	30	2.0
IWKR 1123 Reinforcing Steel	90	6.0
Total	690	46.0

Instructors

Kevin Neustaedter, Chief Instructor, kneustae@bcit.ca
 Ron Rollins, rrollins@bcit.ca
 Dennis Doran, ddoran@bcit.ca

Joinery (Cabinetmaker)

Certificate Program (Full-time)

A joiner can do more than build cabinets. A joiner may work in a wide variety of specialties such as cabinetmaking, furniture making, boat interiors, store fixture manufacturing, pattern making and millwork.

The type of work in each of the areas varies. In some shops the joiner will be required to read blueprints and visualize the item to be built, make detailed drawings and cutting lists for the item, machine all the components, assemble and then apply a finish. In other shops, the individual may specialize in one or more of these functions.

Training prepares students for entry-level employment in the joinery trade. Basic theory and related information, along with hands-on shop practice enable students to become competent in basic interior woodworking tasks. Upon successful completion of the program, many students choose to pursue a formal trades qualification by seeking employment as an apprentice.

Job Opportunities

Employment opportunities vary with the shop size, location and type of work produced. Shops range from small custom shops to large production shops, with the large shops generally located in areas of denser population. Type of work may include but is not limited to millwork, cabinet-making, furniture manufacturing, door and window construction, and stair building.

Grading

A minimum of 70 per cent grade point average in each of the total theory and total practical is required to graduate.

Program Length

Full-time, 25 weeks.

Normal Course Hours

0730-1415, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$911.25 for the 25-week program

Books and Supplies 2001/2002

\$497 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for high school requirements. Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Joinery

Courses	Hours	Credits
JOIN 1200 Use Safe Practices	15.0	1.0
JOIN 1205 Solve Mathematical Problems	30.0	2.0
JOIN 1210 Apply Layout Techniques	52.5	3.5
JOIN 1215 Care and Use of Hand Tools	22.5	1.5
JOIN 1220 Identify Woodworking Joints	15.0	1.0
JOIN 1226 Describe Portable Power Tools	15.0	1.0
JOIN 1230 Use Woodworking Machines	45.0	3.0
JOIN 1235 Identify Materials	30.0	2.0
JOIN 1240 Use Machining/ Assembly Technique	15.0	1.0
JOIN 1245 Apply a Finish	7.5	0.5
JOIN 1250 Install Millwork	7.5	0.5
JOIN 1260 Prepare for Employment	15.0	1.0
Theory Total	270.0	18.0
JOIN 1271 Create Shop Drawings	105.0	7.0
JOIN 1276 Practical Projects	375.0	25.0
Practical Total	480.0	32.0
Program Total	750.0	50.0

Instructors

Dave Stimson, T.Q., Chief Instructor, dstimson@bcit.ca
 Mike Bubersky, T.Q. mbubersky@bcit.ca
 Carl Catt, T.Q., ccatt@bcit.ca
 Dave Dunn, T.Q., ddunn@bcit.ca
 Ron Hill, T.Q., rhill@bcit.ca
 Rob Sawatzky, B.Ed., rsawatzk@bcit.ca
 Don Shortt, T.Q. dshortt@bcit.ca

Painting and Decorating

Certificate Program (Full-time)

Painters and decorators work in a wide range of specialties. Residential, commercial, industrial and production/manufacturing facilities provide a variety of employment opportunities.

Job Opportunities

In some shops, painters will work on residential and commercial housing; other shops will have a factory environment where the painter must have good mechanical aptitude and be able to run expensive and complex machinery. Some industrial shops need painters who can be trained for large painting projects, such as pulp and paper mills, ships, bridges and tanks. Cities and municipalities throughout B.C. and Canada employ painters.

Starting wages for first-year apprentices and production painters average \$10-\$12/hour. Once journeyed certification is achieved, wages average \$40,000+/annum in this trade.

The Program

Training prepares students for entry-level employment in the painting and decorating trade. The program provides basic theory and related information, together with a large amount of hands-on practical experience. Upon successful completion of the program, students can work towards journeyed status in the trade by seeking employment as an apprentice.

Good physical condition is desirable. You cannot be allergic to paints and thinners. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (by telephone if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

A minimum grade of 70 per cent is required to pass a course. An overall grade point average of 70 per cent is required to successfully complete the program.

Program Length

Full-time, 20 weeks.

Normal Course Hours

0730-1430, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$705.50 for the 20-week program.

Books and Supplies 2001/2002

\$140 (general estimated cost and subject to change).

Entrance Requirement

Successful completion of grade 10. English 10 and Math 10. BCIT pretest is acceptable for high school requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Painting and Decorating

Courses	Hours	Credits
PDEC 1100 Introduction to the Trade	10.0	1.0
PDEC 1105 Use of Safe Work Practices	25.0	1.5
PDEC 1110 Basic Tools and Equipment	30.0	2.0
PDEC 1115 Ladders and Scaffolding	45.0	3.0
PDEC 1120 Basic Paint Technology	40.0	2.5
PDEC 1125 Color Theory and Color Mixing	20.0	1.5
PDEC 1130 Surface Preparation	105.0	7.0
PDEC 1135 Procedures and Applications of Coatings	105.0	7.0
PDEC 1140 Paint Failures	10.0	1.0
PDEC 1145 Spray Finishing (Air Spray)	45.0	3.0
PDEC 1150 Spray Finishing (Airless)	45.0	3.0
PDEC 1155 Decorative Painting	45.0	3.0
PDEC 1160 Basic Trade Math and Estimating	15.0	1.0
Choose one of the following:		
PDEC 1165 Motion Picture Set Painting	60.0	4.0
PDEC 1170 Production & Industrial Finishing	60.0	4.0
Total	600.0	44.5

Note: The choice of either PDEC 1165 or PDEC 1170 is made by the student.

Instructor

David A. Lick, Chief Instructor, dlick@bcit.ca

Plumbing

Certificate Program (Full-time)

Plumbers work with domestic hot and cold water, drainage waste and vent systems, hot water heating systems, sewage disposal systems and septic tanks. Many plumbers hold gas tickets because of the widespread use of natural gas in B.C.

All plumbing work in Canada is closely regulated. Accordingly, plumbers must become familiar with the National Building Code, the B.C. Plumbing Code and municipal bylaws and amendments.

Job Opportunities

The employment outlook for graduates in the piping/plumbing trades is very good.

The Program

Students are prepared for entry-level employment in the plumbing trade. Basic theory and related information along with hands-on shop practice enable students to become competent in basic plumbing tasks. Upon successful completion of the program, students must seek employment as apprentices.

Plumbers must be able to work at heights and in enclosed spaces. Good physical condition is necessary. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

In order to successfully pass a course a minimum grade of 70 per cent is required.

Program Length

Full-time, 30 weeks.

Normal Course Hours

0730-1415, Monday through Friday.

Tuition Fees 2001/2002

(subject to change)

\$1,087 for the 30-week program.

Books and Supplies 2001/2002

\$537 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12. Or Communications 12, Any Math course at the grade 11 level (Accounting 11 is NOT acceptable); or Applied Academics. BCIT pretest is acceptable for high school requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Plumbing

Courses	Hours	Credits
PPGS 1100 Use Safe Work Practices	50	3.5
PPGS 1101 Solve Related Math Problems	56	4.0
PPGS 1102 Solve Related Science Problems	50	3.5
PPGS 1103 Use Piping Hand Tools	50	3.5
PPGS 1104 Use Specialized Power Tools	20	1.5
PPGS 1105 Use Piping Equipment	56	3.5
PPGS 1106 Use Fasteners and Fittings	5	0.5
PPGS 1107 Measuring Tools and Hand Tools	5	0.5
PPGS 1108 Describe the Piping Trades	5	0.5
PPGS 1109 Select Common Piping Materials	32	2.0
PPGS 1110 Install Valves Fittings Hanger	50	3.5
PPGS 1111 Rigging and Scaffolds	26	1.5
PPGS 1113 Read Sketch Basic Drawings	60	4.0
PPGS 1114 Construct Piping Systems Projects	70	4.5
PPGS 1115 Layout/Design Piping Drawings	20	1.0
PPGS 1116 Prepare for Employment	17	1.0
PPGS 1117 Select Common Plumbing Materials	20	1.0
PPGS 1118 Install Hot Water Heat Systems	68	4.5
PPGS 1119 Plumbing Systems	26	1.5
PPGS 1120 Install Drainage Waste Vent Systems	74	5.0
PPGS 1121 Install Potable Water Systems	44	3.0
PPGS 1122 Install Plumbing Fixtures	28	2.0
Total	900	60.0

Instructors

David Bowles, Chief Instructor, dbowles@bcit.ca
 Bill Bradbury, wbradbur@bcit.ca
 Gary Clifford, gclifford@bcit.ca
 Keith Colby, kcolby@bcit.ca
 William Evans, wevens@bcit.ca
 Bill Johnston, bjohnsto@bcit.ca
 Karl Lutsch, klutsch@bcit.ca
 Ron Marier, rmarier@bcit.ca
 John Masse, jmasse@bcit.ca
 Dale Pfaff, dpfaff@bcit.ca
 Nick Potis, npotis@bcit.ca
 Tota Ram, jram@bcit.ca
 Howard Rothenburg, hrothenburg@bcit.ca
 Bruce Whiting, bwhting@bcit.ca

Sheet Metal Working

Certificate Program (Full-time)

Sheet metal workers fabricate, assemble, alter and install a variety of sheet metal products. Typical jobs performed by a sheet metal worker include air conditioning system ductwork, hospital and kitchen equipment (stainless steel), industrial exhaust systems, industrial sheet metal work, skylight work, roofing and flashing (copper, aluminum, stainless steel and galvanized iron).

Job Opportunities

Students are prepared for entry-level employment in the sheet metal and precision metal forming industries. Upon successful completion of the program, students may seek employment as apprentices.

With the improvement in the construction industry in B.C., employment opportunities for sheet metal workers improve. New opportunities are opening up in the precision metal forming industry. Graduates are finding employment with both union and non-union employers. Apprenticeships are available. The employment picture in this trade is expected to be positive for the next few years.

The Program

Basic theory and related information, along with hands-on shop practice enable students to become competent in fabricating basic sheet metal products.

Sheet metal workers must be able to work at heights. Good physical condition is necessary. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

A minimum passing grade for each course is 70 per cent. An overall GPA of 70 per cent or better is required to pass the program.

Program Length

Full-time, 20 weeks.

Normal Course Hours

0730-1415, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$735.50 for the 20-week program.

Books and Supplies 2001/2002

\$459 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the Grade 11 level (Accounting 11 is NOT acceptable); or Applied Academics. BCIT pretest is acceptable for high school requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Sheet Metal Working

Courses	Hours	Credits
SMTL 1140 Introduction to Industry	12	1.0
SMTL 1141 Safety	36	2.5
SMTL 1142 Mathematics	36	2.5
SMTL 1143 Materials	30	2.0
SMTL 1144 Pattern Development	192	13.0
SMTL 1145 Shopwork Theory	96	6.5
Shopwork Practical	150	10.0
SMTL 1146 Field Installations	18	1.0
SMTL 1147 Welding Theory	6	0.5
Welding Practical	24	1.5
Total	600	40.5

Instructors

Ted Kondo, Chief Instructor, tkondo@bcit.ca
 Roger Hagan, rhagan@bcit.ca
 Jerry Cox, jcox@bcit.ca

Steamfitting

Certificate Program (Full-time)

Steamfitters/pipefitters install, alter, maintain and repair piping systems that convey low and high pressure steam, hot water, air, fuel gases, fuel and finely divided solids. Steamfitters/pipefitters are employed in thermal and hydro power plants, mines, chemical and industrial plants, petroleum refineries, pulp and paper mills, dairies, schools, apartment and office buildings, hospitals, shopping malls, laundries, ships, shipyards and oil drilling platforms.

Job Opportunities

Training prepares students for entry-level employment as steamfitters/pipefitters. Upon successful completion of the program, students may seek employment as apprentices. In this trade, opportunities are found in industrial plants, pulp and lumber mills and commercial areas.

The Program

Basic theory and related information along with hands-on shop practice enable students to become competent in basic steamfitting/pipefitting tasks.

Steamfitters/pipefitters must be able to work at heights and in enclosed spaces. Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's rehabilitation specialist, (604) 451-6963.

Grading

In order to successfully pass a course a minimum grade of 70 per cent is required.

Program Length

Full-time, 30 weeks.

Normal Course Hours

0730-1415, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,087 for the 30-week program.

Books and Supplies 2001/2002

\$486 (general estimated cost and subject to change)

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level; or Applied Academics. BCIT pretest is acceptable for high school requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12 (Accounting 11 is NOT acceptable), Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Steamfitting

Courses	Hours	Credits
STMG 1100 Use Safe Work Practices	58	4.0
STMG 1101 Solve Related Math Problems	58	4.0
STMG 1102 Solve Related Science Problems	58	4.0
STMG 1103 Use Piping Hand Tools	52	3.5
STMG 1104 Use Specialized Power Tools	22	1.5
STMG 1105 Use Piping Equipment	58	4.0
STMG 1106 Use Fasteners and Fittings	7	0.5
STMG 1107 Measuring Tools and Hand Tools	7	0.5
STMG 1108 Describe the Piping Trades	7	0.5
STMG 1109 Select Common Piping Materials	7	0.5
STMG 1110 Install Valves Fittings Hanger	52	3.5
STMG 1111 Rigging and Scaffolds	28	2.0
STMG 1112 Use Oxygen Acetylene Equipment	70	4.5
STMG 1113 Read Sketch Basic Drawings	58	4.0
STMG 1114 Construct Piping Systems Project	70	4.5
STMG 1115 Layout/Design Piping Drawings	16	1.0
STMG 1116 Prepare for Employment	18	1.0
STMG 1125 Install a Pump	16	1.0
STMG 1126 Install Low Temp Hot Water	82	5.5
STMG 1127 Basic Steam Heating System	58	4.0
STMG 1128 Install Manufacturing Fitting	34	2.0
STMG 1129 Fabricate Fittings	64	4.0
Total	900	60.0

Instructors

David Bowles, Chief Instructor, dbowles@bcit.ca
 Bill Bradbury, wbradbur@bcit.ca
 Ron Marier, rmarier@bcit.ca
 Bill Johnston, bjohnsto@bcit.ca

Steel Fabricating

Certificate Program (Full-time)

Steel fabricators deal with the selection, layout, shearing, cutting (with a torch), punching, drilling, forming, fitting and welding of steel plates and structural steel shapes into products for the forest, mining, construction, transportation and agricultural industries. Typical projects that involve steel fabricators include bridges, buildings, hoppers, conveyors, towers, cranes, heavy mining equipment, logging equipment, ship parts and equipment.

Job Opportunities

Training prepares students for entry-level employment as steel fabricators. Upon successful completion of the program, students may seek employment as apprentices.

The Program

Basic theory and related information along with hands-on shop practice enable students to become competent in basic steel fabrication methods for products such as steel buildings, tanks and equipment.

Good hand/eye coordination and good physical condition are desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's rehabilitation specialist, (604) 451-6963.

Grading

An overall GPA of 70 per cent is required to successfully complete the program.

Program Length

Full-time, 23 weeks.

Normal Course Hours

0700-1330, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$840.95 for the 23-week program.

Books and Supplies 2001/2002

\$274 (general estimated cost and subject to change).

Entrance Requirement

Successful completion of grade 10. English 10 and Math 10. BCIT pretest is acceptable for high school requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604)434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Steel Fabricating

Courses	Hours	Credits
STEL 1200 Apply Saf/Accep Work Practice	30	2.0
STEL 1205 Mathematics	65	4.5
STEL 1210 Sketch and Read Drawings	65	4.5
STEL 1215 Measu Layout Hand/Power Tools	25	1.5
STEL 1220 Metal Fabrication Power Equipment	45	3.0
STEL 1225 Patterns/Templates-Shop Appl	45	3.0
STEL 1230 Use Oxy-acetylene	50	3.5
STEL 1235 Arc Welding	55	3.5
STEL 1240 Blueprint Reading	65	4.5
STEL 1245 Plate Development	60	4.0
STEL 1250 Material Handling	20	1.5
STEL 1255 Cleaning and Painting	10	0.5
STEL 1260 Fabricate Projects	155	10.5
Total	690	23.0

Instructors

Gary Blidook, gblidook@bcit.ca
 Kevin Neustaeter, Chief Instructor, kneustae@bcit.ca
 Mohinder Soomel, msoomel@bcit.ca
 Terry Subtelny, tsubtelny@bcit.ca

Welding Provincial Welder

Certificate Program (Full-time and Part-time)

The Programs

The three welding programs, (Levels C, B and A) provide the training required for Provincial Welder certification.

Each of these qualification levels is followed by a job experience requirement to be completed before certification can be awarded through the Employment Training Branch of the B.C. Ministry of Advanced Education, Training and Technology. Welding programs are available in three shifts.

First shift: 0700-1330
Second shift: 1300-1930
Third shift: 1530-2200

Job Opportunities

Nearly every industry employs welders. Most of our graduates find work in such diverse work places as metal fabricating shops, general repair shops, new construction sites, mining, logging, ship building and oilfield camps.

Tuition Fees 2001/2002 (subject to change)

Level C: \$1,057.00 for the 30-week program.
Level B: \$564.90 for the program.
Level A: varies

Books and Supplies 2001/2002

Level C: \$438 Level B: \$347
(general estimated cost and subject to change).

Welding Level C Program

Certificate Program (Full-time)

This program is designed to develop the fundamental skills and knowledge required for initial employment in the welding industry.

P Practical Module
RK Related Knowledge Module

Level C Modules/Courses

P1 Safe work practices
P2 Oxyfuel gas cutting
P3 Gas welding and braze welding
P4 Shielded metal arc welding 1 (SMAW 1)
P5 Carbon arc gouging (AAC)
P6 Gas metal arc welding (GMAW 1)
Flux core arc welding (FCAW 1)
RK1 Material handling
RK2 Blueprint reading 1 (Math Supplement)
RK3 Welding metallurgy 1 Math

Program Length

Full-time, 30 weeks.

Normal Course Hours

0700-1330, 1300-1930, or 1530-2200, Monday - Friday.

Admissions Process

Individuals interested in this program should complete a full-time application form and submit it to the Admissions department.

Entrance Requirement

Successful completion of Grade 10 is recommended. English 10 and Math 10. BCIT pretest is acceptable for high school requirements. An appropriate combination of work experience and education will be considered.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Welding Level B Program

Certificate Program (Full-time)

The Program

This program develops more advanced welding skills and related theory than were taught in the Level C program: pipe welding, gas tungsten arc welding, etc., providing graduates with a broader base of skills and resulting employment opportunities. Registration is done by phone (604) 432-8203, or in person in the Welding office, Building NE12, second floor at the Burnaby campus.

Level B Modules/Courses

P7* Shielded metal arc welding 2 (SMAW 2)
P8 Gas metal arc welding 2 (GMAW 2)
P9 Flux cored arc welding 2 (FCAW 2)
P10 Gas tungsten arc welding (GTAW 1)
RK4 Welding quality control and inspection procedures
RK5 Welding code standards and specifications
RK6 Blueprint reading 2
RK7 Welding metallurgy 2

***Note:** P7 is mandatory. Students must do one of either P8, P9 or P10 to complete the practical parts of Level B.

Program Length

Up to 16 weeks depending on modules required.

Admissions Process

Interested individuals should contact the Welding department at (604) 432-8203

Entrance Requirements

Completion of the BCIT Level C program or other training equivalent to the Level C Institutional/College training component of the Provincial Registered Welder program.

They ask for our grads by name

Welding Level A Program

Certificate Program (Full-time)

The Program

This program develops more advanced welding skills and related theory than were taught in the level C and B programs: pipe welding with stainless steel electrodes, low alloy steel electrodes, more advanced blueprint reading and welding metallurgy, etc. Completion of this program along with the required work experience modules should provide the graduate with the broadest base of skills and employment opportunities in the diverse metal joining industries. Registration is done by phone (604) 432-8203, or in person in the Welding office, Building NE12, second floor at the Burnaby campus.

Level A Modules/Courses

- P11 Shielded metal arc welding 3 (SMAW 3)
- P12 Gas tungsten arc welding 2 (GTAW 2)
- RK8 Metallurgy 3
- RK9 Blueprint reading 3

Program Length

Approximately eight weeks depending on number of modules required.

Admissions Process

Interested individuals should contact the Welding department at (604) 432-8203.

Entrance Requirements

Completion of the BCIT Level B program or other training equivalent to the Level B Institutional/College Training component of the Provincial Registered Welder program. (Completion of the Level B job experience is desirable but is not mandatory as an entrance requirement).

Note: Completion of the Gas Tungsten Arc Welding 1 course in Level B program or its equivalent is a prerequisite to Gas Tungsten Arc Welding 2.

Short-term Part Programs and Upgrading Options (or C, B, A Options)

This program of training and testing options will advance welders who possess basic welding skills and who now want to achieve a higher level of competency and specialization in order to meet most of the certification requirements of industry and the welding code governing agencies.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Part Program, Self-Paced Programs & Short-term Welding Upgrade (for C, B, A Options)

Part programs vary according to individual requirements and upgrade option goals.

Program is offered on a continuous intake basis where spaces will be filled, as they become available. Applicants must be welders currently or recently employed in the field of welding. Registration is done by phone (604) 432-8203, or in person in the Welding office, Building NE12, second floor.

Content

Level C, B, and A performance challenge tests**
 Canadian Welding Bureau (CWB) procedural tests*
 A.S.M.E.-M.S.T.L. pre-qualified welding procedure tests*
 Company and/or manufacturers' performance tests*
 Welding process upgrading
 General brush-up of skills

Any individual module* from Levels C, B, or A (see the modules listed under the Level C, B and A Programs) of the B.C. Registered Welder Training programs. A letter of approval for welding test may be required for company/union welding tests.

** A letter of approval is also required from the Apprenticeship Training Branch for level C, B and A challenge performance tests.

Welding Applied Processes

Training in the following processes is available by request. All inquiries should be directed to the Welding office at (604) 432-8203 for course costs and dates.

- Submerged Arc Welding
- GTAW of titanium alloys
- Automated welding systems
- Downhill pipeline

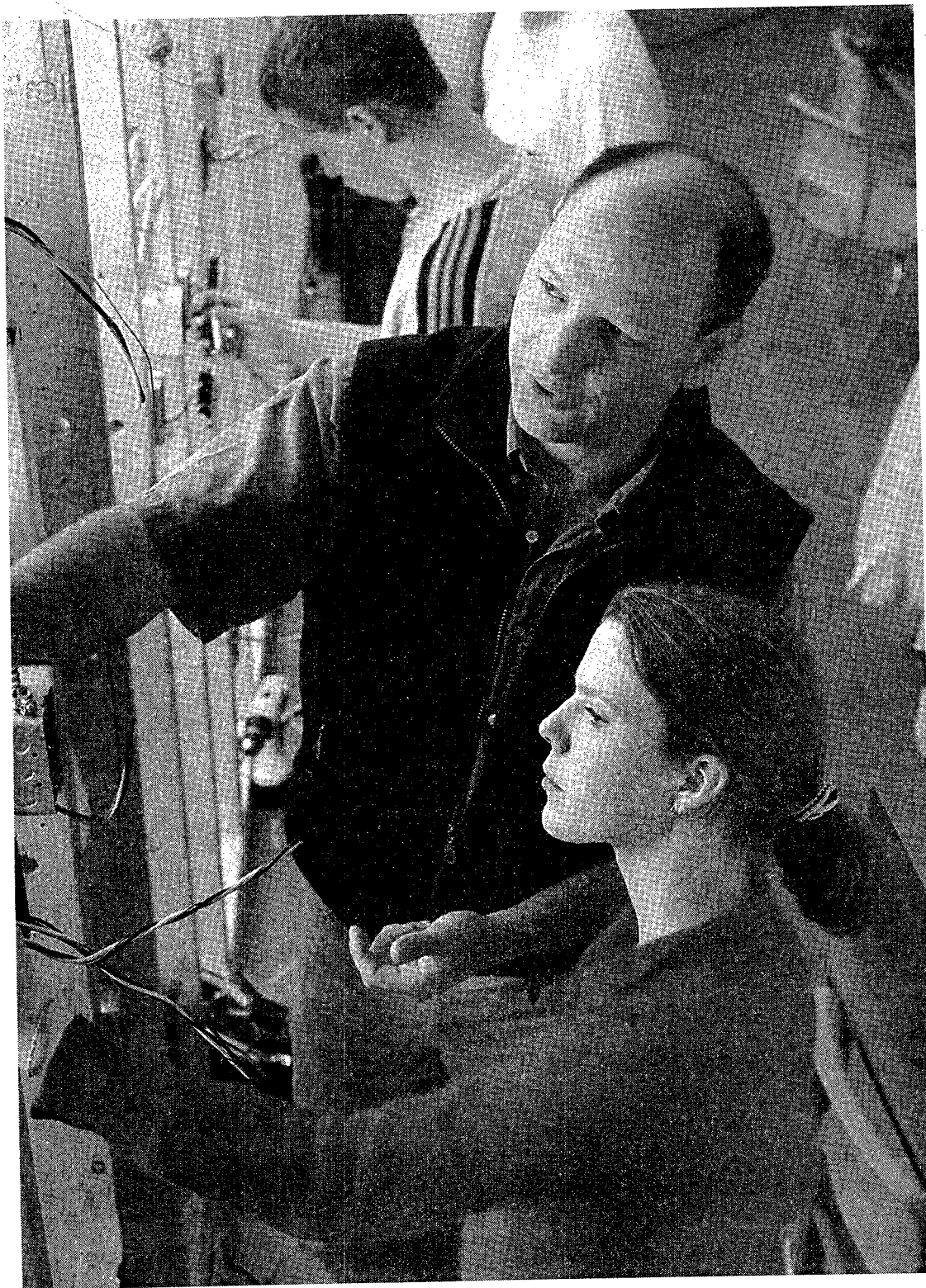
Part-time Courses

A number of introductory courses in welding are available through the Part-time Studies department. Credit transfer from these courses may be arranged when enrolling in Welding Upgrade Options.

Instructors

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 Brian Finnie, Coordinator, PTS/Industry Services, bfinnie@bcit.ca
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Electrical & Electronic Technology



School of Electrical & Electronic Technology



"Electronics Common Core seemed to have the brightest future that suited my skills. It has given me career direction with a large company that is known worldwide and a chance to travel to different locations."

*~ Melvin Guerin
Fisher Controls,*

Industrial Instrumentation Service Technician, 1998

Electrical & Electronic Technology

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Introduction

The electrical and electronic industry is one of the fastest growing and most exciting areas of economic development in British Columbia. BCIT has responded to the challenge of rapidly changing technology by forming a separate program area dedicated to this industry. This dedication assures the student of the very best training and education using a curriculum that has been developed in consultation with a variety of managers, technicians, technologists and engineers from industry.

Electrical and Electronic Technology provides an extensive and coordinated set of training and educational programs specifically designed for job entry and career advancement in the electrical and electronic fields. These programs include electrical entry-level and apprenticeship; electronics technician and related specialties; and the electronics program for engineering technologists.

Administration

Office of the Dean

Dennis C. Duffey, Dean
Holly Stanley, Operations Manager

Electronic Engineering Technology

Glenn Pellegrin, B.A.Sc., P.Eng., Associate Dean
Kelly Voros, Program Assistant
Craig Cowan, B.A.Sc., P.Eng., First Year
John Schoonover, Dipl.T, ASCT, Automation and Instrumentation Technology
Ron Jones, P.Eng., Computer Control Technology
Enrico Murru, B.A.Sc, P.Eng., Telecommunications Technology
Jack Daswani, B.Sc., P.Eng., Power Technology
Gino Carrese, P.Eng., Bachelor of Technology

Electrical/Electronic - Trades/Technical

Dennis C. Duffey, Associate Dean

Electrical Sector Training

Mike Wanstall, Electricity and Industrial Electronics
Mike Wanstall, Security Alarm Installer

Electronics Technical Training

Patrick Muldoon, Computer Systems Service Technician
Emile Gaudet, Electronics Technician Common Core

Specialities of Electronics Technician Common Core

Patrick Muldoon, Computer and Business Equipment Technician
Emile Gaudet, RF Communications Technician
Terry Knudson, Telecommunications Technician

Industrial Control and Instrumentation Training

Jim Armstrong, Advanced Industrial Computing
Jim Armstrong, Industrial Instrumentation Service Technician

Electrical/Electronic Technology Programs

Electronic Engineering Technology

Bachelor of Technology Degree (Part-time) (604-432-8484)

The Bachelor of Technology in Electronics is designed for electronics technologists (or equivalent) who wish to pursue a degree while working. The program provides the necessary skills and analytical background to function in an engineering level capacity in either the Automation or Telecommunication fields. The program has a strong industry focus while maintaining a high level of rigour and analysis.

This Part-time Studies program is scheduled to serve the needs of working professionals. Classes will be held in the evenings, weekends, in week-long formats, or in intensive six to eight week sessions. The program provides students with a strong background in fundamental engineering subjects – mathematics, physics, signal analysis, and control, as well as, specialized knowledge in telecommunication areas and process control and automation areas.

Entrance Requirements

1. English 12 or equivalent.
2. A BCIT diploma in an electronics, robotics or automation related technology with a minimum course average of 65 per cent or the equivalent level of formal training/education at the post-secondary level.
3. Two years of appropriate work experience.
4. Interview.

Registration Procedure

An interview with the program head is required to have the proposed Program of Study form for Technical Coursework approved. The applicant may alternatively request an informal interview with the program head prior to sending in the application. Contact the program administrative assistant at (604) 432-8369 or the program head at (604) 432-8484 for more information.

Candidates may select and register for courses after reviewing each term's course offerings in the BCIT Part-time Studies flyer. Candidates are expected to complete at least three courses per year.

A selection of courses will be provided for applicants who require some technical upgrading to allow them to bridge into this program. Courses prescribed for bridging will be based on an individual assessment. These courses will not be credited towards the degree.

Program Length

As a Part-time Studies program, a period of three to five years may be required to complete the program. However, the degree must be completed within six years from acceptance into the program. Prior to completion of two years of relevant work experience, candidates may complete:

- a maximum of 6 credits of Technical Studies/Management course work
- a maximum of 12 credits of Liberal Education Component course work
- a maximum of 6 credits of mathematics.

Program Structure

The general requirement for a Bachelor of Technology in Electronics degree program is a minimum of 67 credits from five components. Candidates will follow their individually approved educational plan.

Components	Credits
1. Degree Core	29.0
2. Specialization Electives	12.0
3. Management Component	9.0
4. Liberal Education Section	12.0
5. Industry Project	5.0
TOTAL	67.0

1. Degree Core

(29 credits/all courses must be completed)

ELEX 7010	Engineering Statistics	2.0
ELEX 7020	Multivariable Calculus and Dynamic Systems	3.0
ELEX 7030	Thermodynamics	3.0
ELEX 7040	Engineering Materials	3.0
ELEX 7110	Transform Methods in Engineering	3.0
ELEX 7120	Linear Algebra and Vector Calculus	3.0
COMP 7081	Technical Issues in Software Design	3.0
ELEX 7210	Physical Systems and Signals	3.0
ELEX 7220	Feedback Control	3.0
ELEX 7230	Electromagnetism	3.0

2. Specialization Electives (12 credits required)

ELEX 8010	Data Communications	3.0
ELEX 8020	Computer Architecture	3.0
ELEX 8110	Telecommunications System Design	3.0
ELEX 8120	Signal Theory and Processing	3.0
ELEX 8130	Computer Networks	3.0
ELEX 8140	Mobile Communications	3.0
ELEX 8150	Microwave and Fibre Optic Engineering	3.0
ELEX 8160	Electric Machines	3.0
ELEX 8170	Industrial System Electric Design	3.0
ELEX 8180	Advanced Process Control	3.0
ELEX 8190	Fluid Power Control	3.0
ELEX 8210	Motion Control Systems	3.0
ELEX 8220	Industrial Processes	3.0
ELEX 8260	Advanced Electric Machines	3.0
ELEX 8270	Power System Analysis	3.0
ELEX 8275	RF Design Engineering	3.0

3. Management Component	Credits
(9 credits required)	
BUSA 7250 Management Skills and Applications	3.0
	(required)
ELEX 8290 Entrepreneurship and Engineering Economics	3.0
	(required)

Please contact the BCIT Electronic Engineering Technology at (604) 432-8484 to select the remaining three business management credits.

4. Liberal Education Component (12 credits)

Mandatory courses:

LIBS 7001	Critical Reading and Writing	3.0
LIBS 7002	Applied Ethics	3.0

Elective courses:

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

5. Industry Project (5.0 credits)

After completing the prescribed course work, each degree program student is required to complete an industry-sponsored project in their selected area.

ELEX 8300	Industry Project	5.0
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Bachelor of Technology in Electronics Faculty and Staff

H. Ahmadi, Ph.D.
J. Ahmed, B. Sc., M.Sc., Ph.D., PEng., MBA
G. Carrese, B. Eng., M. Eng.
Z. Farhat, B.Sc., M.Sc., Ph.D.
E. Hiob, B.Sc., M.Sc., Ph.D.
M. Huzmezan, Ph.D.
K. Nikfetrat, Ph.D.
V. Sawadsky, B.A., B.Sc. (Hons)
G. Wang, B.Sc., M.Sc., Ph.D.

Go the distance.
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and click on
distance education.



Electronic Engineering Technology

Two-Year Diploma Program (Full-time) Three-Year Cooperative Diploma Program (Full-time)

Common First Year

The Automation and Instrumentation, Computer Control, Power, and Telecommunications programs share a common first year of a two-year program. Upon successful completion of the first year, students select one of the four options to complete the diploma requirements:

- Automation and Instrumentation Technology
- Computer Control Technology
- Power Technology
- Telecommunications Technology.

Option selection is competitive and done after successful completion of First Year.

Note: The Electronics industry is a fast moving, high technology field. All courses are constantly under review with industry and advisory committees, and are subject to change on short notice.

Program Structure

Two years, full-time, beginning in September and February each year. However, we provide the option of course by course registration allowing program completion over a longer period of time. It is strongly recommended that the students plan to complete the academic portion of the program (exclusive of co-op) within three years.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program. Additional fee for each co-op work term of \$419.50.

Books and Supplies 2001/2002 (subject to change)

Year 1: \$1,600

Year 2: \$1,570

Co-op: \$419.50

Ownership of a personal computer is strongly recommended.

Degree Transfer/Completion

A BCIT Bachelor of Technology in Electronics degree is available to graduates of the Electronic Engineering Technology program, or equivalent. This part-time degree program is specifically designed to address the needs of EET diploma graduates who are working full-time in the electrical, electronics, automation and telecommunications industries. Please see the degree section of the calendar for further information on this program, or visit the Electronic Engineering Technology Web page at www.bcit.ca/~ee.

For students wanting to continue their studies full-time, there are bridge programs from the Electronic Engineering Technology diploma program to the third year at the University of Victoria and Lakehead University engineering programs. Alternatively, transfer credit to UBC and SFU degree programs is available on an individual basis.

Accreditation

The programs of Electronic Engineering Technology are accredited to national standards by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

High school graduation. English 12(C) or better**. Math 12(C+). Assessment testing for math is available through the Math department. Physics 11(C+) or Physics 12(P). Assessment testing for physics is available through the Physics department. Chemistry 11(C) is desirable for Automation and Instrumentation. It is recommended that the entrance requirements be no more than three years old. Applicants with minimum entrance requirements older than five years will be required to upgrade in math and physics. Applicants who do not meet this requirement but have post-secondary education in math, physics and English will be evaluated on an individual basis. The Technology Entry program (TE) may be acceptable in lieu of entrance requirements. The prerequisites for entry into individual Electronics courses are listed with the course descriptions. For program information session dates contact BCIT Registration and Information at (604) 434-1610.

**To meet the minimum English 12 (C) or better requirement, any one of the following is acceptable:

- BCIT upgrading courses COMM 005 or COMM 008 with a mark of 70 per cent or better.
- TOEFL (Test of English as a Foreign Language) minimum score: 550+, and TWE 4.5+, and TSE 50+.
- VCC - English Language Assessment test. Minimum score: 145+.
- Assessment by the BCIT Communications department using their test of "English Language Usage Skills For Electronics."

The Electronic Engineering Technology program reserves the right to select those applicants deemed by the program to have the best chances for success.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11, and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Re-admission

Applicants who have failed three courses in the first term or have accumulated a total of five failures at any point in the program, will not be allowed to continue. Where course failures require the students to leave the program, there are conditions that must be met for re-admission. Please contact the Electronics department at (604) 451-6892 for more detailed information.

Technology Entry (TE)

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic, and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. This program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Direct Entry

Applicants with post-secondary academic achievement may apply for advanced standing in the program. Applicants are assessed individually. Applicants should have a solid academic background and good communication skills, be able to apply theory in practical situations, and be able to work effectively with people in a team situation. Applicants may be required to write Prior Learning Assessment Recognition (challenge exams) to assess their competence.

Cooperative Education

Cooperative Education, providing paid work experience, can be an integral part of the Electronic Engineering Technology programs. Students who successfully complete a minimum of two and a maximum of three work periods receive a Cooperative Education Endorsement on their Diploma of Technology. The paid work periods with an employer in the Electronics industry are of three to four months duration and are inserted between terms of academic study after Level 2. The industrial experience gained in the co-op component of the program gives an added advantage in securing a position after graduation. Check our Cooperative Education section on page 24 for more information.

Common First-year Courses

Level 1 (17 weeks)			*hrs/wk	credits
COMM	1143	Technical Writing 1 for Electronics	3.0	3.5
ELEX	1105	Circuit Analysis 1	5.0	5.5
ELEX	1110	Electronic Manufacturing Processes	5.0	5.5
ELEX	1115	Digital Techniques 1	4.0	4.5
MATH	1431	Technical Mathematics for Electronics	7.0	8.0
NTRY	0304	Learning Skills for Elex Tech	1.0	0.0
PHYS	1143	Physics for Electronics 1	5.0	5.5

Level 2 (17 weeks)			*hrs/wk	credits
ELEX	2105	Circuit Analysis 2	5.0	5.5
ELEX	2115	Digital Techniques 2	5.0	5.5
ELEX	2120	Electronic Circuits 1	6.0	7.0
ELEX	2125	C Programming	4.0	4.5
MATH	2431	Calculus for Electronics	6.0	7.0
PHYS	2143	Physics for Electronics 2	5.0	5.5
Co-op 1				
ELEX	2990	Co-op 1	15.0	

* denotes hours of classtime per week.

Automation and Instrumentation Technology

Option within Electronic Engineering Diploma Program

As B.C. industries expand into global markets, there is a continuous need to improve product quality, reduce energy consumption, eliminate pollution and make better use of available resources. These changes often require increased investment in automation systems and provide tremendous opportunities to skilled individuals willing to accept a challenge. Automation and Instrumentation, a key enabling technology for these improvements, is concerned with the measurement and control of processes, operations and systems. Automation systems range from simple domestic heating and cooling control systems to the sophisticated power management and guidance controls found on the space shuttle.

The Automation and Instrumentation Technology program provides students with the knowledge and practical skills needed to work in this dynamic field. Students learn how to design, build and use modern measurement and control systems. Emphasis is placed on developing the ability to analyse, troubleshoot and design the complex computer-based systems needed in sophisticated industrial and commercial systems. Well-equipped labs provide the student with practical, hands-on exposure to industrial equipment. Almost 50 per cent of the instructional hours are spent in the lab where concepts and ideas presented during lectures are reinforced.

Job Opportunities

Automation and Instrumentation offers challenging and fulfilling careers for engineering technologists in design, research and development, technical support and technical sales.

Graduates of this program work in industries such as: consulting engineering; automation equipment sales and support; resource industries such as petrochemical, pulp and paper, wood processing and mining; building automation (HVAC); food processing; materials handling and manufacturing. They are involved in the design, application and support of electronic and computer-based automation systems. These specialists use multi-disciplinary skills to interface and network

continued next page

computers and electronic equipment to pneumatic, hydraulic, mechanical and process systems. Companies that have hired graduates of our program include Allen-Bradley, H.A. Simons, Cominco, Pulp and Paper Research Institute of Canada, GE Canada, Norpac Controls, Alberta Wheat Pool, Chevron Canada, Louisiana Pacific, Newnes Automation, and Triumph to name a few. This field offers excellent employment opportunities. Accomplished graduates, with appropriate experience, often move into upper management positions.

Program Length

The program consists of two 17-week terms (Levels 3 and 4), that are both offered starting in September and February. Registration is on a course-by-course basis for flexibility in accommodating special situations.

Degree Transfer/Completion

A BCIT Bachelor of Technology in Electronics degree is available to graduates of the Electronic Engineering Technology program, or equivalent. This part-time degree program is specifically designed to address the needs of EET diploma graduates who are working full-time in the electrical, electronics, automation and telecommunications industries. Please see the degree section of the calendar for further information on this program, or visit the Electronic Engineering Technology Web page at www.bcit.ca/~ee.

For students wanting to continue their studies full-time, there are bridge programs from the Electronic Engineering Technology diploma program to the third year at the University of Victoria and Lakehead University engineering programs. Alternatively, transfer credit to UBC and SFU degree programs is available on an individual basis.

Accreditation

The Automation and Instrumentation program is accredited to national standards by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

Successful completion of Levels 1 and 2 of the Electronic Engineering Technology program, or equivalent. Students may be admitted to individual courses in the program if seats are available, provided they have the course prerequisites.

Re-admission

Applicants who have failed three courses in the first term or have accumulated a total of five failures at any point in the program, will not be allowed to continue. Where course failures require the students to leave the program, there are conditions that must be met for re-admission. Please contact the Electronics Department at (604) 451-6892 for more detailed information.

Direct Entry

Students may, on an individual basis, be admitted directly into Level 3 of the program if, in the opinion of BCIT, they have acquired elsewhere the knowledge and skills they would have gained in Levels 1 and 2 of the Electronic Engineering Technology program. Applicants may be required to write Prior Learning Assessment Recognition (challenge exams) to assess their competence.

Cooperative Education

Automation and Instrumentation Technology students are encouraged (but are not required) to participate in Cooperative Education. Check our Cooperative Education section on page 24 for more information.

Program Content

A comprehensive study of control strategies, measurement techniques and electronic and computer systems used in the automatic control of commercial and industrial operations is undertaken. A strong component of the program involves the student developing relevant, practical skills on industrial equipment used in modern, well-equipped labs. The student will graduate with a solid foundation in automatic measurement and control systems. The Automation and Instrumentation program follows the successful completion of the first year of study in Electronic Engineering Technology. We encourage students with an appropriate college or university background to apply for direct entry into the program.

Program Content - Automation and Instrumentation Technology

Second-year courses	3A (8 wks)	3B (9 wks)	
Level 3	hrs	hrs	credits
CHEM 3303			
Chemical Systems and Sensors		4.0	2.0
CHSC 3342			
Industrial Process Fundamentals	4.0	4.0	4.5
ELEX 3205			
Data Acquisition/Signal Conditioning	6.0	6.0	7.0
ELEX 3210			
Sensors for Measurement and Control	5.0	5.0	5.5
ELEX 3215			
Process Control Devices/Techniques	6.0	6.0	7.0
ELEX 3305			
Microcontroller Systems 1	6.0	6.0	7.0
MATH 3431			
Transform Calculus Electronics	4.0		2.0
Co-op 2 (Optional for all programs after completion of Level 3)			
ELEX 3990 Co-op 2	15.0		
Level 4			
COMM 2443			
Technical Writing 2 for Electronic	3.0	3.0	3.5
ELEX 4205			
Microprocessors for Measurement and Control	6.0	6.0	7.0
ELEX 4210			
Analysers for Process Automation	5.0	5.0	5.5
ELEX 4215			
Strategies for Industrial Process Control	6.0	6.0	7.0
ELEX 4220			
PLCs and Distributed Control Systems	6.0	6.0	7.0
ELEX 4225			
Industrial Control Projects and Computer Aided Design	4.0	4.0	4.5

Computer Control Technology

Option within Electronic Engineering Diploma Program

A broad based program that provides the necessary background for entry into a variety of areas in the Electronics industry. Students will learn how to write software (for a personal computer and microcontroller) and design electronic circuitry to sense and control events. In the Electronics industry, the combination of good programming and electronic circuit design skills is highly desirable, especially for the large number of companies involved in the design and development of control and data acquisition products.

Job Opportunities

Graduates from this program find employment as Engineering Technologists in design, manufacturing and technical support in areas such as sawmill automation equipment, operator control equipment for heavy machinery, data communication networks, computers and peripheral devices, marine autopilot and sonar systems, traffic control systems, building control systems, switching power supply equipment, airline booking and display systems, credit card access and point of transaction systems, satellite data analysis systems, ski lift control systems and theatre lighting control systems. Typical companies that employ graduates from this program are MDA, Dynapro Systems, Epic Data, Triunf, Prism Systems, VTech Engineering, Alpha Technologies, Honeywell, IBM, Creo Products Inc., Kita Engineering, Statpower, and Simrad Mesotech.

Program Length

The program consists of two 17-week terms (Levels 3 and 4), that are both offered starting in September and February. Registration is done on a course-by-course basis for flexibility in accommodating special situations.

Degree Transfer/Completion

A BCIT Bachelor of Technology in Electronics degree is available to graduates of the Electronic Engineering Technology program, or equivalent. This part-time degree program is specifically designed to address the needs of EET diploma graduates who are working full-time in the electrical, electronics, automation and telecommunications industries. Please see the degree section of the calendar for further information on this program, or visit the Electronic Engineering Technology Web page at www.bcit.ca/~ee.

For students wanting to continue their studies full-time, there are bridge programs from the Electronic Engineering Technology diploma program to the third year at the University of Victoria and Lakehead University engineering programs. Alternatively, transfer credit to UBC and SFU degree programs is available on an individual basis.

Accreditation

The Computer Control Technology program is accredited to national standards by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

Successful completion of Levels 1 and 2 of the Electronic Engineering Technology program, or equivalent. Students may be admitted to individual courses in the program, provided they have the course prerequisites, if seats are available. Applicants may be required to write Prior Learning Assessment Recognition (challenge exams) to assess their competence.

Re-admission

Applicants who have failed three courses in the first term or have accumulated a total of five failures at any point in the program, will not be allowed to continue. Where course failures require the students to leave the program, there are conditions that must be met for re-admission. Please contact the Electronics department at (604) 451-6892 for more detailed information.

Direct Entry

Students may, on an individual basis, be admitted directly into Level 3 of the program if, in the opinion of BCIT, they have acquired elsewhere the knowledge and skills they would have gained in Levels 1 and 2 of the Electronic Engineering Technology program. Applicants may be required to write Prior Learning Assessment Recognition (challenge exams) to assess their competence.

Cooperative Education

Computer Control Technology students are encouraged (but are not required) to participate in Cooperative Education. Check our Cooperative Education section on page 24 for more information.

Program Content

The main topics covered are hardware and software (assembly language and high level language) design for microcontroller and PC-based systems, digital and analog electronics, applications software (CAD, PC layout, logic simulation), electrical machines and devices, industrial electronics (e.g. switching power supply design), data communications, industrial video applications and programmable logic devices. All stages of product development (design, manufacture, fault finding and testing) are emphasised throughout the program. To be eligible for graduation, each student is required to complete a technical project. Some of these projects are performed in partnership with industry.

Access the latest
BCIT program
information at
www.bcit.ca



Program Content - Computer Control Technology

Second-year courses	3A (8 wks)	3B (9 wks)	
Level 3	hrs	hrs	credits
ELEX 3305			
Microcontroller Systems 1	6.0	6.0	7.0
ELEX 3310			
Pulse Techniques	4.0	5.0	5.0
ELEX 3314			
PC Hardware with C Programming	5.0		3.0
ELEX 3316			
Applications Software		4.0	2.0
ELEX 3320			
Electronic Circuits 2	6.0	6.0	7.0
ELEX 3325			
Electrical Equipment	5.0	5.0	6.0
ELEX 3330			
Programmable Logic Devices		4.0	2.0
MATH 3431			
Transform Calculus Electronics	4.0		2.0
Co-op (Optional for all programs after completion of Level 3)			
ELEX 3990 Co-op 2	15.0		
Level 4			
COMM 2443			
Technical Writing 2 for Electronics	3.0	3.0	3.5
ELEX 4315			
Applied Electronic Circuits	6.0	6.0	7.0
ELEX 4320			
Industrial Electronics and PLCs	6.0	6.0	7.0
ELEX 4325			
Microcontroller Systems 2	6.0	6.0	7.0
ELEX 4330			
Technical Project (Control)	2.0	4.0	6.0
ELEX 4340			
Data Communication	6.0	6.0	7.0
OPMT 1165			
Project Management			
Computer Control	2.0		1.0

Power Technology

Option within Electronic Engineering Diploma Program

Graduates will be able to calculate short circuit currents; coordinate fuses, circuit breakers and protective relays; measure power system harmonics and design power distribution systems to control their effect; design lighting systems; program Programmable Logic Controllers for motor and industrial control systems; design, construct, test and troubleshoot switching power supplies; construct, test, and troubleshoot Silicon Controlled Rectifier motor speed control systems; and synchronize generators to the power system.

Job Opportunities

Graduates of the program may work with electrical utility companies such as BC Hydro; with consulting engineering companies or resource industries as electrical power and control system designers or construction supervisors; with manufacturers as technical sales representatives or doing on-site commissioning; with inspection agencies such as CSA; and with other agencies such as BC Transit, GVRD or the Ministry of Transportation and Highways in design as well as maintenance.

Program Length

The program consists of one 17-week term (Level 4), which is offered every February. Registration is available on a course-by-course basis for flexibility in accommodating special situations.

Degree Transfer/Completion

A BCIT Bachelor of Technology in Electronics degree is available to graduates of the Electronic Engineering Technology program, or equivalent. This part-time degree program is specifically designed to address the needs of EET diploma graduates who are working full-time in the electrical, electronics, automation and telecommunications industries. Please see the degree section of the calendar for further information on this program, or visit the Electronic Engineering Technology Web page at www.bcit.ca/~ee.

For students wanting to continue their studies full-time, there are bridge programs from the Electronic Engineering Technology diploma program to the third year at the University of Victoria and Lakehead University engineering programs. Alternatively, transfer credit to UBC and SFU degree programs is available on an individual basis.

Accreditation

The Electrical Power Technology program is accredited to national standards by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

Completion of Level 3 Computer Control Technology or graduation from the Telecommunications or Automation and Instrumentation programs. For entry from other institutes, colleges, or universities, please contact the program head at (604) 432-8253.

Re-admission

Applicants who have failed three courses in the first term or have accumulated a total of five failures at any point in the program, will not be allowed to continue. Where course failures require the students to leave the program, there are conditions that must be met for re-admission. Please contact the Electronics department at (604) 451-6892 for more detailed information.

Direct Entry

Students may, on an individual basis, be admitted directly into Level 3 of the program if, in the opinion of BCIT, they have acquired elsewhere the knowledge and skills they would have gained in Levels 1 and 2 of the Electronic Engineering Technology program. Applicants may be required to write Prior Learning Assessment Recognition (challenge exams) to assess their competence.

Program Content

This program prepares students for careers at the engineering technologist level in the areas of electrical utility systems, consulting engineering, electrical manufacturing, electrical contracting, general, primary and secondary manufacturing and governmental agencies. The program provides graduates with the basic knowledge and skills necessary to enter these fields in the areas of design, installation, maintenance, production and technical sales.

This program builds confidence and broadens knowledge for the student who has previously specialized in microcomputers, telecommunications, or instrumentation. A combination of electrical power and the above specialties improves confidence and employability.

The Electrical Power Technology program gives Electronic Engineering Technology graduates a foundation in The Canadian Electrical Code, electrical power equipment, industrial electronics and the design of industrial power distribution systems.

Program Content - Power Technology

Second-year courses	3A (8 wks)	3B (9 wks)	
Level 3	hrs	hrs	credits
ELEX 3305			
Microcontroller Systems 1	6.0	6.0	7.0
ELEX 3310			
Pulse Techniques	4.0	5.0	5.0
ELEX 3314			
PC Hardware with C Programming	5.0		3.0
ELEX 3316			
Applications Software		4.0	2.0
ELEX 3320			
Electronic Circuits 2	6.0	6.0	7.0
ELEX 3325			
Electrical Equipment	5.0	5.0	6.0
ELEX 3330			
Programmable Logic Devices		4.0	2.0
MATH 3431			
Transform Calculus Electronics	4.0		2.0
Co-op 2 (Optional for all programs after completion of Level 3)			
ELEX 3990 Co-op 2	40		
Level 4			
COMM 2443			
Technical Writing 2 for Electronics	3.0	3.0	3.5
ELEX 4320			
Industrial Electronics	6.0	6.0	7.0
ELEX 4405			
Industrial Systems	7.0	7.0	8.0
ELEX 4410			
Power Systems Analysis	6.0	6.0	7.0
ELEX 4415			
Electrical Equipment and PLCs	6.0	6.0	8.0
ELEX 4430			
PLC Projects and AutoCAD	2.0	2.0	3.0

Telecommunications Technology

Option within Electronic Engineering Diploma Program

This program will prepare students for a career as an engineering technologist in the telecommunications industry. Building on the knowledge and skills gained in the first year of the Electronic Engineering Technology program, students will learn the principles of telecommunications, and from these principles develop complete telecommunications systems. These systems vary from marine, avionics and land mobile radio to digital data transmission networks. Also included in the program are cellular and PCS radio systems, fibre optic links, microwave links, satellite communication systems, local area and wide area networks (LANs and WANs), digital signal processing (DSP), and digital and computer control and testing of communications equipment and systems.

Job Opportunities

Telecommunications has been described as the industry of the future. Graduates of the program may expect to find employment in the areas of design, development, production, technical sales and support, installation and maintenance. With experience, many graduates move into supervisory and technical management positions. Employers include commercial companies, government agencies and educational institutions.

Program Length

The program consists of two 17-week terms (Levels 3 and 4), that are both offered starting in September and February. Registration is done on a course-by-course basis for flexibility in accommodating special situations.

Degree Transfer/Completion

A BCIT Bachelor of Technology in Electronics degree is available to graduates of the Electronic Engineering Technology program, or equivalent. This part-time degree program is specifically designed to address the needs of EET diploma graduates who are working full-time in the electrical, electronics, automation and telecommunications industries. Please see the degree section of the calendar for further information on this program, or visit the Electronic Engineering Technology Web page at www.bcit.ca/~ee.

For students wanting to continue their studies full-time, there are bridge programs from the Electronic Engineering Technology diploma program to the third year at the University of Victoria and Lakehead University engineering programs. Alternatively, transfer credit to UBC and SFU degree programs is available on an individual basis.

Accreditation

This technology program is accredited to national standards by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

Successful completion of Levels 1 and 2 of the Electronic Engineering Technology program, or equivalent. Students may be admitted to individual courses in the program, provided they have the course prerequisites, if seats are available.

Re-admission

Applicants who have failed three courses in the first term or have accumulated a total of five failures at any point in the program, will not be allowed to continue. Where course failures require the students to leave the program, there are conditions that must be met for re-admission. Please contact the Electronics department at (604) 451-6892 for more detailed information.

Direct Entry

Students may, on an individual basis, be admitted directly into Level 3 of the program if, in the opinion of BCIT, they have acquired elsewhere the knowledge and skills they would have gained in Levels 1 and 2 of the Electronic Engineering Technology program. Applicants may be required to write Prior Learning Assessment Recognition (challenge exams) to assess their competence.

Cooperative Education

Telecommunications Technology students are encouraged (but are not required) to participate in Cooperative Education. Check our Cooperative Education section on page 24 for more information.

Program Content

Levels 1 and 2 of the Electronic Engineering Technology program (common to all four specialized technology programs) provide a solid grounding in basic electrical and electronic knowledge and skills supported by a strengthening of the student's knowledge of physics, math and technical English. The following courses are taken in Levels 3 and 4 in the Telecommunications Technology program.

Program Content - Telecommunications Technology

Second-year courses

	3A (8 wks) hrs	3B (9 wks) hrs	credits
Level 3			
ELEX 3305			
Microcontroller Systems 1	6.0	6.0	7.0
ELEX 3314			
PC Hardware with C Programming	5.0		3.0
ELEX 3316			
Applications Software		4.0	2.0
ELEX 3520			
Electronics Circuits 2 (Telecom)	5.0	5.0	5.5
ELEX 3525			
Data Communications	5.0	5.0	5.5

	3A (8 wks) hrs	3B (9 wks) hrs	credits
Level 3			
ELEX 3530			
Telecommunications 1	5.0	5.0	5.5
ELEX 3535			
Digital Signal Processing		4.0	2.0
MATH 3431			
Transform Calculus Electronics	4.0		2.0
Co-op 2 (Optional for all programs after completion of Level 3)			
ELEX 3990 Co-op 2	15.0		
Level 4			
COMM2443			
Technical Writing 2 for Electronics	3.0	3.0	3.5
ELEX 4525			
RF Circuit Design	5.0	5.0	5.5
ELEX 4530			
Telecommunications 2	5.0	5.0	5.5
ELEX 4540			
Local Area Networks	6.0	6.0	7.0
ELEX 4545			
Transmission Devices	5.0	5.0	5.5
ELEX 4550			
Wide Area Networks	5.0	5.0	5.5

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K. Martin, Tantalus Systems Corp
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G. Soderling, Glenayre R & D Inc. (Chairman)
N. Stenvold, WESCO
G. Verrall, Allied Controls
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Advisory Committee Members

Automation and Instrumentation

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M. Cantor, Manager, Control Systems, Fransen Engineering
B. Hindmarch, Ballard Power Systems
F. Messmer, Energrated Systems
R. Speers, Molson Breweries
D. Wall, Vice-President, Norpac Controls Ltd., (Chairman)
K. Wall, Instrument Dept. Manager, Hipp Engineering Ltd.
H. Welch, Sandwell Inc.

Electrical/Electronics Trades/Technical Training Programs

Electrical Sector Training

Electricity and Industrial Electronics

Certificate Program (Full-time)

This program will provide graduates with the theory and practical skills necessary to enter the electrical trade. The electrical worker plans, assembles, installs, tests, repairs and maintains electrical equipment and systems in commercial, industrial and marine facilities.

Job Opportunities

Graduates may qualify for advanced standing as indentured candidates within the apprenticeship system.

Job opportunities exist in the construction, mining, forestry, food production, manufacturing, grain handling, transportation, utility and service industries. The nature of the electrical trade has changed with the impact of solid-state control and programmable logic controllers. Challenging career opportunities are available to the person who is prepared to acquire a broad range of technical skills.

The Program

The Electricity and Industrial Electronics program emphasizes a hands-on approach to training, where experience gained in the workshop is focused on industry practice. The necessary theoretical component is integrated into the program to complement and enhance the practical work. Industry tours will expose the student to a variety of work environments.

Applicants should possess good health and the physical condition necessary to meet the demands of the work: good hearing, eyesight and hand/eye coordination. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11 (C). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

This program supports the Fresh Start program. This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT. For information about the Fresh Start program, please refer to page 62 of this calendar.

This program supports the Trades Discovery for Women program, which is designed to prepare women to enter Trades programs. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Length

Full-time, 40 weeks, beginning several times a year.

Normal Course Hours

0800-1500, Monday through Friday.

Tuition Fees 2001/2002

(subject to change)

\$1,513.50 for the 40-week program (Burnaby Campus)

\$1,461.00 for the 40-week program (all other campuses)

Books and Supplies 2001/2002

\$516 (general estimated cost and subject to change).

Program Locations

This program is available at the BCIT Burnaby, Aerospace and Technology, Surrey, and Langley campuses. Applicants must specify location preference when applying.

Grading

The program is divided into two levels. A passing grade is required in each Level 1 course to progress into Level 2. A passing grade is required in each course for successful completion of the program. Evaluation is based on both classroom theory and shop performance.

Program Content - Electricity and Industrial Electronics

Level 1		Hours	Credits
TELX	1120 Electrical Math	90	6.0
TELX	1121 Trade Science	90	6.0
TELX	1122 Fundamentals of Electricity	120	8.0
TELX	1123 Wiring Methods	150	10.0
TELX	1124 Blueprints, Plans and Specifications	60	4.0
TELX	1125 Canadian Electrical Code	90	6.0
Total Level 1		600	40.0

Level 2		Hours	Credits
TELX	2220 Principles and Applications of Magnetism	60	4.0
TELX	2221 AC Circuit Analysis	180	12.0
TELX	2222 AC Applications	90	6.0
TELX	2223 Motor Control and Industrial Wiring	90	6.0
TELX	2224 Electronics	120	8.0
TELX	2225 Computer Skills and Job Preparation	60	4.0
Total Level 2		600	40.0
Program Total		1200	80.0

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 Patrick O'Connell, Western Joint Electrical Training Society
 Larry Orwier, Dura-Lite Electric Ltd.
 Clifford Pilkey, Electrical Contractors Assoc. of B.C.
 Nes Romaniuk, Elworthy Electrical Services
 Jim Ryan, Telus
 Keith Sashaw (Chair), Electrical Contractors Association of B.C.
 Bill Strain, Villa Electric (1980) Ltd.

Security Alarm Installer

Certificate Program (Full-time)

The need for security in our society is increasing and the demand for qualified security alarm installers is already at the critical stage. The Security Alarm Installer training program is the first full-time program of its kind in North America, and provides the training needed for graduates to excel in this growing industry.

Job Opportunities

Security is needed practically everywhere and at a growing rate in large industrial plants, office buildings, large and small businesses, apartment buildings and private homes.

Graduates will be able to:

- Design, install, and service alarm systems, central station monitoring equipment, access control systems and closed-circuit television systems.
- Apply professional standards to produce high-quality work.
- Use safe operating procedures in the workplace.
- Produce clear, concise and complete documentation.
- Apply effective problem-solving and decision-making skills.
- Appreciate the need to maintain expertise through continued education.

After you have completed the Security Alarm Installer program and have worked for 18 months with a licensed security alarm company, you will be eligible to take the Security Alarm Installers Trade Qualification exam

The Program

The program is divided into two levels. Level 1 deals with basic installation techniques and the theories and codes which govern the security industry. Level 2 involves installing and troubleshooting complete alarm systems, and advanced security equipment. This level includes a mandatory four-week work experience practicum with a licensed alarm company.

There are a total of seven courses, each with a passing grade of 70 per cent (except TELC 2220 Practicum 1, which is graded on a complete or incomplete basis). Students must pass all Level 1 courses to advance to Level 2, and must complete all courses to graduate from the program.

Applicants should possess good health and physical mobility in order to meet the demands of the work. Good hand/eye coordination and communication skills in both verbal and written English are recommended. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11(C). BCIT pretest is acceptable for English and Math. Prior to admission to the program, applicants will be required to initiate a criminal record search. Appropriate forms and details on how to initiate a criminal record search will be mailed to applicants at the time when their offer of acceptance to the program is being made. Please be aware that the outcome of the criminal record search may influence final acceptance into the program and/or eligibility for licensing upon completion of the BCIT Security Alarm Installer program.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

This program supports the Trades Discovery for Women program, which is designed to prepare women to enter Trades programs. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Length

Full-time, 28 weeks, proposed to begin in September, November, and April each year.

Normal Course Hours

0800-1500, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

Approx. \$1,061.70 for the 28-week program.

Books and Supplies 2001/2002

\$800 (general estimated cost and subject to change).

Grading

A passing grade of 70 per cent in each course and a "Satisfactory" grade in TELC 2220 (Practicum) is required for successful completion of the program. In order to move into level 2 all courses in level 1 must be successfully passed (70 per cent or better in each course).

Program Content - Security Alarm Installer

Level 1 (12 weeks)			Hours	Credits
TELC	1110	Fdmtns of Electricity/Electronics	150	10.0
TELC	1115	Intro to Security Alarm	90	6.0
TELC	1120	Alarm Wiring Methods	120	8.0
Total Level 1			360	24.0

Level 2 (16 weeks)			Hours	Credits
TELC	2210	Alarm Systems	180	12.0
TELC	2215	Alarm System Installation	120	8.0
TELC	2220	Practicum	120	8.0
TELC	2225	Advanced Security Systems	60	4.0
Total Level 2			480	32.0
Program Total			840	56.0

Faculty and Staff

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 Carl Foley, ITAC
 Peter Hodgson, Orion Security Systems
 Michael McCarvill, Kaban Enterprises Ltd.
 Brian McHugh, Electrical Safety - Municipal Affairs
 Peter Moore, Moore Security Ltd.
 Mike Morden, Nova Security Corporation
 Tim Neill, Atlas Alarms, Ltd.
 Patrick O'Connell, Western Joint Electrical Training Society
 Clifford Pilkey, Electrical Contractors Association of B.C.
 Robert Pitman, Kastle Alarms
 Mark White (Chair), Pacific Protective Systems Ltd.

Electronics Technical Training

Computer Systems Service Technician

Certificate of Technical Studies Program (Full-time)

This program will provide graduates with the technical and practical skills necessary to obtain entry-level positions in the expanding area of PC computer information technology: computer systems service technicians customize, install, troubleshoot and maintain the various components of information systems and computer networks, including needs analysis, as well as software and hardware requirements.

Job Opportunities

Career opportunities exist in every sector of business that processes, installs, configures, and troubleshoots both PC hardware and software components as part of its entrepreneurial activities and/or day-to-day operations.

The Program

The Computer Systems Service Technician program emphasizes a hands-on, technical approach to training, where experience gained in labs and classrooms can be applied directly to business and industry.

Students will learn the fundamentals of IBM PC microcomputer technology. Computer networking, system maintenance, software installation and customization, and computer programming are areas of emphasis.

Applicants should possess excellent communication and presentation skills along with the capability for analytical and logical thought.

Entrance Requirements

High school graduation. English 12(C). Math 12(C). Physics 11 is recommended. BCIT pretest is acceptable for English and Math. Additionally, applicants may satisfy the mathematics entrance requirement for this program by successfully completing a Math competency exam through the Academic Studies Mathematics department.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Length

Full-time, 40 weeks, beginning in September and November each year.

Normal Course Hours

0800-1500, Monday to Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,483.50 for the 40-week program.

Books and Supplies 2001/2002

\$1,000 (general estimated cost and subject to change).

Program Location

Burnaby campus.

Grading

A passing grade of 70 per cent is required in each course. All courses must be passed in order to successfully complete the program.

Program Content - Computer Systems Service Technician

Courses	Description	Hours	Credits
CWAS 1100	Computer Skills	30	2.0
CWAS 1102	Basic Electronics	120	8.0
CWAS 1105	Applied Logic and Critical Analysis	30	2.0
CWAS 1110	Applied Computer Science	60	4.0
CWAS 1115	Microcomputer Architecture	120	8.0
CWAS 1120	Operating Systems	120	8.0
CWAS 1125	Computer Networking and Communications	240	16.0
CWAS 1130	Database Design and Administration	120	8.0
CWAS 1135	Software Customization	60	4.0
CWAS 1140	Programming in the MS Windows Environment	60	4.0
CWAS 1145	Visual Basic Programming	120	8.0
CWAS 1160	Student Projects	120	8.0
Program Total		1200	80.0

Faculty and Staff

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Electronics Technician Common Core

Certificate of Technical Studies Program (Full-time)

Electronics training will provide graduates with the skills to install, maintain and repair electronic circuits and equipment. Through a series of experiments, students will learn the correct use of tools, test equipment, troubleshooting procedures and soldering techniques, as well as verifying the theoretical aspects of electronics.

Job Opportunities

Students who successfully complete this program have the option of either progressing into one of the specialty technician programs at BCIT, transferring to another college offering specialty options, or entering the Electronics industry at an entry-level position such as installer, assembler or quality control technician.

The Program

The Electronics Technician Common Core program emphasizes a practical approach to electronics where theory is substantiated with extensive lab work. Students taking the Common Core program are normally expected to take a specialty option in order to achieve a level of training sufficient for entry level employment. The program is divided into 3 levels. A minimum 70 per cent overall average MUST be obtained in each level before progressing to the next. Evaluation is based on a combination of theoretical and practical lab work. Applicants should possess good hand/eye coordination and good colour vision. This program is recognized internationally.

Program Length

Two versions of the program are offered:

Full-time, 30 weeks consisting of two 15-week terms beginning several times a year; and on a part-time evening basis, three nights a week, 3.5 hours per night over two years.

Entrance Requirements

High school graduation, English 12 or Communications 12, Academic Math 11(C), Math 12 recommended. BCIT pretest is acceptable for English only. Applicants may satisfy the mathematics entrance requirements for this program by successfully completing a Math competency exam through the Academic Studies Mathematics department.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

This program supports the Trades Discovery for Women program, which is designed to prepare women to enter Trades programs. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Technology Entry (TE)

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic, and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. This program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Transferability

This program comes under the guidelines of the Provincial Government's Common Core Electronics Technician program. As such, students who successfully complete the Common Core program will be able to transfer to other provincial institutions or colleges offering specialties not offered at BCIT.

Laddering: Specialty Programs Currently Offered at BCIT

The following diploma programs are available to students who have successfully completed the Electronics Technician Common Core program or equivalent.

- Aircraft Electronics (AME category E)
- Computer and Business Equipment Technician
- Industrial Instrumentation Service Technician
- Telecommunications Technician

For additional information see your high school counsellor, Technical Education teacher, or call BCIT Registration and Information at (604) 434-1610. For inquiries from outside the Greater Vancouver Area call us toll-free at 1-800-667-0676, or send an e-mail to services@bcit.ca.

Normal Course Hours

Full-time format:

0800-1500, Monday through Friday.

1130-1830, Monday through Friday.

Part-time format:

1830-2200, Tuesday, Wednesday, Thursday.

Tuition Fees 2001/2002

(subject to change)

\$1,132.00 for the full-time day program.

\$687.75 per year for the part-time evening program.

Books and Supplies 2001/2002

Full-time: \$641

Part-time: \$321

(general estimated cost and subject to change).

Program Locations

BCIT Burnaby, Aerospace and Technology, Langley, Maple Ridge, and Kelowna.

Grading

The student must maintain a minimum 70 per cent overall average in each level in order to proceed to the next level. Failure to do so could result in automatic withdrawal from the program.

Program Content -

Electronics Technician Common Core

Level 1		Hours	Credits
TELX	1101 Electronics Technical Skills 1	30	2.0
TELX	1102 DC Circuit Analysis	120	8.0
TELX	1103 AC Circuit Analysis	120	8.0
TELX	1104 Electronics Troubleshooting 1	30	2.0
Total Level 1		300	20.0

Level 2		Hours	Credits
TELX	1207 Solid State Devices - Discrete	150	10.0
TELX	1209 Solid State Devices - Integrated	90	6.0
TELX	1211 Electronics Troubleshooting 2	30	2.0
TELX	1213 Electronics Technical Skills 2	30	2.0
Total Level 2		300	20.0
Level 3		Hours	Credits
TELX	1309 Digital Principles	180	12.0
TELX	1311 Microprocessor Principles	90	6.0
TELX	1313 Electronics Troubleshooting 3	30	2.0
Total Level 3		300	20.0
Program Total		900	60.0

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Specialties of the Electronics Technician Common Core Program

Computer and Business Equipment Technician

(Formerly Automated Business Equipment Technician)

Diploma of Technical Studies Program (Full-time)

This program covers a variety of modern electronic and microprocessor-controlled business equipment including facsimile machines, photocopiers, many types of printers, word and information processing systems, computer networks, desktop publishing systems and other micro-processor-controlled office equipment.

Graduates will be able to install, maintain and repair business equipment as well as employ troubleshooting techniques and preventive maintenance procedures. They will be familiar with equipment operations from a technical and user point of view and will be able to deal with customers in a professional manner.

Job Opportunities

Graduates will be ready for entry into the dynamic market of electronic business equipment. In this rapidly expanding field of technology, there are challenging career opportunities with firms dealing with modern business equipment and systems throughout the country.

The Program

The program is conducted using up-to-date equipment and methods/procedures currently accepted as industry standard. The use of standard tools and test equipment for both field and depot activities will always be part of shop-practical exercises.

Customer relations, appropriate dress, office routines and courtesies are all stressed to prepare graduates for entry into this field of business.

Applicants should possess good health and the physical condition necessary to meet the demands of the work: good hearing, eyesight and hand/eye coordination.

This program has a dress code consistent with that found in industry.

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11(C). Math 12 recommended. BCIT pretest is acceptable for English only. Also required is graduation from a Provincially approved Electronics Common Core program.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Length of Program

Full-time, 40 weeks, beginning in September each year.

Normal Course Hours

0800-1500, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,483.50 for the 40-week program.

Books and Supplies 2001/2002

\$1,000 (general estimated cost and subject to change).

For Further Information

For more information or to give us your comments, please send an e-mail to lworley@bcit.ca or smccarna@bcit.ca.

Grading

The student must maintain a minimum of 70 per cent overall average in the theory portion and a minimum of 70 per cent overall average in the laboratory portion of each level in order to proceed to the next level.

Program Content - Computer & Business Equipment Technician

		Hours	Credits
Level 1			
TELX	2226 Customer Relations	30	2.0
TELX	2228 Basic Mechanical and Safety	60	4.0
TELX	2232 Computer Operating Systems	90	6.0
TELX	3316 Basic Xerography	90	6.0
TELX	3318 Software Applications	60	4.0
Total Level 1		330	22.0
Level 2			
TELX	2230 Copier Operations	30	2.0
TELX	3320 Printer Operations and Interfacing	30	2.0
TELX	3322 Customer Operations	30	2.0
TELX	3324 Shop Skills	60	4.0
TELX	4424 Electronic Control Systems	90	6.0
TELX	4432 Microcomputer Repair	90	6.0
Total Level 2		330	22.0
Level 3			
TELX	4422 Work Experience	60	4.0
TELX	4426 Digital Copiers/Printers	90	6.0
TELX	4428 Colour Copiers/Printers	90	6.0
TELX	4430 Data Communications	210	14.0
TELX	4434 Career Strategies	90	6.0
Total Level 3		540	36.0
Program Total		1200	80.0

Faculty and Staff

Patrick Muldoon, Chief Instructor, pmulldoo@bcit.ca
Sherry McCarnan, M.Ed., smccarna@bcit.ca
Len Worley, M.Ed., CNE, lworley@bcit.ca

Advisory Committee

Rick Bennett, Able Copy Pro
Richard Brown, IKON Office Solutions
Joseph Chan, Minolta Business Equipment
Craig Cole, Bell and Howell
Robert Custus, Panasonic Canada Inc.
Wes Firesen, Danka Canada
John Gallagher, Logic Computer Services
Tim Hall, Logic Computer Service
Greg Heit, Docusystems
Jamie Hennessy, IKON Office Solutions
Naz Hirji, XEROX
Klaus Hoefner, Bell and Howell
Steve Ilott, (Co-Chair), Canon Imaging Solutions
Marno Jonasson, Pitney Bowes
Cliff Leduc, Danka Canada
Stuart Reed, (Co-Chair), Konica Business Machines
Rob Singer, Automation One
Brad Weidenhammer, Rider Computer Services
Brian White, IBM Canada

RF Communications Technician

Diploma of Technical Studies Program (Full-Time)

Job Opportunities

Graduates who successfully complete this program will have an opportunity to gain employment in the following areas.

Aviation: Avionics bench repair technicians; Air traffic control systems maintenance and repair technicians; Airport ground control systems technicians.

Marine: Bench technicians; Onboard installation and repair technicians.

Commercial: Communications installation and repair technicians; Data transfer installation and repair technicians; Tracking/Navigation installation and repair technicians.

The Program

The Radio Frequency Communications Technician program emphasizes the practical skills required to function effectively as a bench technician in the aviation, marine or commercial electronics fields. Emphasis is placed on the student's abilities to integrate theoretical models with practical applications. Applicants should have excellent analytical skills, good hand skills and a desire to be constantly challenged in this rapidly changing industry.

Entrance Requirements

High school graduation English 12 or Communications 12. Academic Math 11(C). Math 12 recommended. BCIT pretest acceptable for English only. Graduation from a Provincially approved Electronics Common Core technician program.

Direct Entry

Direct entry applications will be evaluated by the program area on a case by case basis.

Program Length

Full -time, 40 weeks, beginning in September each year.

Normal Course Hours

0800-1600, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,508.50 for the 40-week program.

Books and Supplies 2001/2002

\$600.00 (general estimated cost and subject to change).

Grading

All courses are percentage-based grading structure. Passing grade is 70 per cent per level GPA. Students must obtain 70 per cent in one level before going on to the next level.

Program Content - RF Communications Technician

Level 1		Hours	Credits
TRFX	2201 Introduction to RF Communications	90	6.0
TRFX	2203 RF Principles, Transmitters & Receivers	210	14.0
TRFX	2205 Transmission Lines & Antenna Systems	30	2.0
TRFX	2207 Satellite Communication Systems	30	2.0
TRFX	2209 Cellular Communication Systems	30	2.0
Total Level 1		390	26.0
Level 2			
TRFX	3301 Video Systems	60	4.0
TRFX	3303 Data Communications Systems	120	8.0
TRFX	3305 Fiber Optic Communications	60	4.0
TRFX	3307 Microwave Systems	30	2.0
TRFX	3309 Radar Systems	60	4.0
TRFX	3311 Navigation/Tracking Systems	60	4.0
Total Level 2		390	26.0
Level 3			
TRFX	4401 High Reliability Soldering	60	4.0
TRFX	4403 Test Equipment, Calibration & Use	60	4.0
TRFX	4405 System Configuration & Integration	60	4.0
TRFX	4407 System Analysis & Troubleshooting	120	8.0
TRFX	4409 Electronic Equipment Test and Repair	120	8.0
Total Level 3		420	28.0
Total Program		1200	80.0

Faculty and Staff

Emile Gaudet, Chief Instructor, egaudet@bcit.ca

Telecommunications Technician

Diploma of Technical Studies Program (Full-time)

This program builds on the foundation of generic technical skills developed in the Electronics Technician Common Core program.

Job Opportunities

Graduates are employed in all aspects of the telecommunications industry, including telephone companies, telecommunications equipment manufacturers, utility companies, cable and satellite entertainment and communications companies, data communications companies, fibre optic companies, RF communications and pager companies and government departments.

The Program

The Telecommunications Technician program focuses on the installation, maintenance and repair of telecommunications equipment. The student is prepared to work in a variety of roles in this field. The program emphasizes hands-on, practical training on equipment typically encountered in industry.

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11(C). Math 12 is recommended. BCIT pretest is acceptable for English only. Also required is graduation from a Provincially approved Electronics Common Core program.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Length

Full-time, 40 weeks, beginning in September and January each year.

Normal Course Hours

0800-1500, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,483.50 for the 40-week program.

Books and Supplies 2001/2002

\$627 (general estimated cost and subject to change).

Grading

The student must maintain a minimum of 70 per cent overall average in the theory portion and a minimum of 70 per cent overall average in the laboratory portion of each level in order to proceed to the next level.

Program Content - Telecommunications Technician

Level 1 (10 weeks)	Hours	Credits
TELX 2211 Principles of Telephony	30	2.0
TELX 2213 RF Communications	180	12.0
TELX 2216 RF Transmission Systems	90	6.0
Total Level 1	300	20.0

Level 2 (10 weeks)	Hours	Credits
TELX 3311 Fibre Optics	60	4.0
TELX 3317 Computer Operating Systems	60	4.0
TELX 3323 Multiplex Systems 1	60	4.0
TELX 3325 Structured Cabling Systems	120	8.0
Total Level 2	300	20.0

Level 3 (20 weeks)	Hours	Credits
TELX 4411 Telephone Communications	150	10.0
TELX 4412 Transport Protocols	60	4.0
TELX 4413 Data Communications	150	10.0
TELX 4415 Customer Relations	30	2.0
TELX 4417 Digital Networks	30	2.0
TELX 4423 Multiplex Systems 2	60	4.0
TELX 4425 Industrial Interfacing	120	8.0
Total Level 3	600	40.0
Program Total	1200	80.0

Each of these three levels consists of essential theory knowledge combined with practical technical skills.

Faculty and Staff

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Advisory Committee Members

John Balenzano, Telus
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Beverly Strench, Logical Solutions Ltd.
Steve Cowel, C-Tron Systems
Ted Serne, Telus
Jack Wickham, Cablecom Int.
Maureen Gaynor, Gaynor Telesystems

Industrial Control and Instrumentation Training

Advanced Industrial Computing

Depending on demand this program is offered at various times throughout the year. Information and admission is handled by the Electrical and Electronic department area and not the BCIT full-time Admissions office. If you are interested in this program, please call Registration and Information at (604) 434-1610 or contact the program department directly at (604) 432-8728.

Industrial Instrumentation Service Technician

Diploma of Technical Studies Program (Full-time)

The industrial instrumentation service technician will apply, install, repair, calibrate and tune measurement and control instruments applied to the industrial manufacturing processes. Students will learn computerized control, programmable logic controllers, and microprocessor instrumentation. These are essential job skills for continued future employment in instrumentation.

Job Opportunities

This program will open new career opportunities for electronics core graduates, as well as address the requirements of the industrial instrumentation industry for skilled and qualified control technicians. Graduates will meet the needs of instrument service and sales companies, the heating and ventilating field, environmental and pollution control work, and will be ready to enter employment in a variety of manufacturing processes such as food processing, manufacturing, oil refining, mining and pulp and paper industries. Graduates may also qualify for advanced standing as indentured candidates with the Industrial Instrumentation Apprenticeship program.

The Program

The Industrial Instrumentation Service Technician program stresses practical, hands-on experience to complement theory. This program will appeal to persons who enjoy mechanical work, as it utilizes the student's electronic knowledge in industrial instrumentation applications.

The program is divided into two levels. Successful completion of the first level will be required before continuing to the second level. Applicants should possess good health and the physical condition necessary to meet the demands of the work: good hearing, eyesight and hand/eye coordination.

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11(C). Math 12 is recommended. BCIT pretest is acceptable for English only. Also required is graduation from a Provincially approved Electronics Common Core program or Certificate of Qualification with IP seal (journeyperson) in the trades of Electrician or Industrial Instrument Mechanic, plus successful completion of a departmental exam on basic electrical/electronic fundamentals.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

This program supports the Trades Discovery for Women program, which is designed to prepare women to enter Trades programs. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Length of Program

Full-time, 40 weeks – two 20-week terms with a two-week break at midterm, beginning in January of each year.

Normal Course Hours

0800-1500, Monday to Friday.

Tuition Fees 2001/2002

(subject to change)

\$1,483.50 for the 40-week program.

Books and Supplies 2001/2002

\$244 (general estimated cost and subject to change).

Grading

Minimum passing grade for each course is 70 per cent. In order to move to the next level a student must have successfully passed all courses in the previous level. Each course must be successfully completed in order to graduate from the program.

Program Content - Industrial Instrumentation Service Technician

Level 1		Hours	Credits
TELX 2102	Instrumentation Fundamentals	120	8.0
TELX 2106	Temperature Instruments & Measurement	150	10.0
TELX 2111	Pressure Instruments & Measurements	150	10.0
TELX 2116	Flow Instruments & Measurements	90	6.0
TELX 2121	Level, Density Instruments & Measurements	90	6.0
Total	Level 1	600	40.0
Level 2			
TELX 3102	Control Valves & Positioners	150	10.0
TELX 3106	Analytical Instrument & Control	90	6.0
TELX 3111	Programmable Logic Controllers	90	6.0
TELX 3116	DCS & Micro Processor Controllers	150	10.0
TELX 3121	Process Control & Control Systems	120	8.0
Total	Level 2	600	40.0
Program Total		1200	80.0

Instructors

J. Armstrong, ASCT., Chief Instructor, jarmstro@bcit.ca
R. Wagner, rwagner@bcit.ca

School of Health Sciences



"I chose Electroneurophysiology Technology because of my interest in neurophysiology and the field of medicine. I wanted a practical program that would amalgamate my biology background with my health care experience. Everything I learned at BCIT, I now find useful in the workplace."

*Tania Burgoyne
Royal Jubilee Hospital
Electroneurophysiology Technology, 2000*

Health Sciences

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Administration

www.health.bcit.ca

Office of the Dean

George Eisler, M.A.Sc., M.B.A., P.Eng., Dean,
george_eisler@bcit.ca

Andrea Labe, Dean's Administrative Assistant,
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Program responsibilities:

Basic Health Sciences
Clinical Research
Health Care Management
Health Care Quality Management
Health Information Systems Technology
Health Technology Management

Administration and Operations

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Yvonne New, Operations Assistant, yvonne_new@bcit.ca

Marketing and Educational Delivery Systems

Lawrence Parisotto, B.Sc., ACNM, Manager, Marketing and Educational Delivery Services, lawrence_parisotto@bcit.ca
Mark Drutz, Coordinator, Marketing and Special Projects, mark_drutz@bcit.ca

TBA, Educational Delivery Assistant

Program responsibilities:

All programs

Diagnostic Technologies

Diana S. Herbst, Ph.D., Associate Dean,
diana_herbst@bcit.ca
Maryanna Nowak, Assistant to Associate Dean,
maryanna_nowak@bcit.ca

Program responsibilities:

Adult Echocardiography
Cardiology
Cardiovascular
Clinical Genetics
Diagnostic Medical Sonography
Electroneurophysiology
Environmental Health (Public Health Inspector Training)
Medical Imaging
Medical Laboratory
Medical Radiography
Nuclear Medicine

Nursing and Health Engineering

M. Bernadet Ratsoy, B.Sc.N., M.Sc., R.N., Associate Dean,
bernadet_ratsoy@bcit.ca
Leslie Colquhoun, Assistant to Associate Dean,
leslie_colquhoun@bcit.ca

Program responsibilities:

Biomedical Engineering
Nursing
Occupational Health and Safety
Prosthetics and Orthotics
Specialty Nursing

Basic Health Sciences

This department provides courses in human anatomy and physiology, immunology, microbiology, pathophysiology and applied behavioural sciences for students enrolled in Health Sciences. These courses are designated by the prefix BHSC and are listed in the following Health Sciences programs. Each course is oriented toward a particular technology so the student quickly becomes aware of applications. In many cases these courses are the foundation upon which specific technology subjects are built. The department's responsibility, therefore, is to teach those concepts of biological and behavioural sciences that provide the student and graduate with the knowledge and comprehension to meet the present and future challenges of the modern health professional.

Faculty and Staff

John Emes, B.Sc. (Hons.), M.Sc., Ph.D., Program Head,
john_emes@bcit.ca
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Gordon Handford, B.A., gordon_handford@bcit.ca
Greg Marshall, B.Sc. (Kines.), M.Sc. (Kines.), greg_marshall@bcit.ca
Tom Nowak, B.A., Dipl.Ed., tom_nowak@bcit.ca

Biomedical Engineering Technology

Two-Year Diploma Program (Full-time)

Program Objective

This program prepares individuals who are interested in technology and life sciences to enter a challenging career in biomedical engineering.

The program graduates biomedical engineering technologists with the ability to ensure safe and correct performance of equipment used in medicine and biology. The curriculum covers fundamental principles and operations of medical equipment such as physiological monitors, defibrillators, electrosurgical units, clinical laboratory instrumentation, medical imaging and other diagnostic and therapeutic devices. Equipment-related standards, performance assurance testing procedures and trouble shooting techniques are included in this two-year program.

Job Opportunities

Graduates of the Biomedical Engineering Technology program may be employed in hospitals, clinics, research laboratories, medical equipment manufacturer sales, and service organizations. Biomedical Engineering Technologists may be responsible for scheduled and corrective maintenance and safety inspection of medical equipment, participate in research and development, purchase specification, equipment evaluation, testing and commissioning, operator training and the management of risks involving the use of biomedical equipment.

The Program

Graduates from the Biomedical Engineering Technology program receive a diploma of technology in Biomedical Engineering Technology. The program provides education and training in the following subject areas: technical communication; algebra; calculus; statistics; basic, bio - and analytical chemistry; human anatomy and physiology; biophysics; electricity and electronics; biomedical devices; digital techniques and microprocessor applications; and equipment-related standards. During the second year, each student spends five weeks in supervised training in a local hospital, research agency or equipment supply company. Graduates work closely with biomedical engineers, physicians, and others who use, manage, maintain, design, manufacture and supply scientific and medical equipment.

Throughout the program, hands-on laboratory experience is provided and students are trained in engineering problem-solving methodology to allow them to upgrade and maintain their knowledge.

Membership in the Canadian Medical and Biological Engineering Society (CMBES) and the Applied Science Technologists and Technicians of British Columbia (ASTTBC) is recommended.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,360

Second year: \$910

General estimated cost and subject to change Plus cost of travel and accommodation if practicum is done outside the greater Vancouver area.

Entrance Requirements

- a. High school graduation. English 12. Math 12 (C+ or better). Physics 11 (C+ or better). Chemistry 11 (C+ or better).
Prerequisites must be current within the last five years.
- b. Selection interview with program instructors.

- c. Applicants with relevant practical experience or special background may be considered.

Completion of an immunization form is required before final acceptance into the program. Satisfactory health is required for all applicants. Applicants should contact BCIT Medical Services if they have questions related to whether or not their level of health is compatible with the requirements of the Biomedical Engineering program.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Re-admission Requirements

1. The student must apply for re-admission with application to the Admissions department. An additional application fee must be paid. It is recommended that the re-admission application be made at least one term in advance of the anticipated re-admission date.
2. Applicants who have failed a term or any course more than once, or have failed more than one term in the program, will not ordinarily be re-admitted.
3. Students may be required to repeat and to successfully complete courses that have undergone significant change, or courses that were taken more than three years previously. This may include courses where transfer credits were previously granted.
4. The opportunity for students to study part-time day in the Biomedical Engineering Technology program is only available to those students who are working to clear previous failures.
5. Re-admission is conditional upon the applicant's successful implementation of a plan resolving previous academic difficulties. It is the responsibility of the applicant to submit such a plan in writing at the time of application to the program head, and to carry out the plan to the satisfaction of the program. Sufficient time should be allowed between submission and the start of the term to enable satisfactory implementation of the plan. (See also item 1 above).
6. Re-admission is conditional upon space availability. Where more applicants apply than there are seats available, the Biomedical Engineering program reserves the right to select those applicants deemed by the program to have the best chance for success.
7. Exceptions to re-admission procedural regulations are rare. Applicants with extenuating circumstances will be considered on an individual basis but there is no guarantee of re-admittance as a condition of this review.
8. The re-admission committee will be composed of a minimum of two faculty members from the department.

continued next page

Accreditation

The Biomedical Engineering Technology program is accredited by ASTTBC. Graduates are eligible for registration as Applied Science Technologists (ASc.T.) after two years of relevant work experience following graduation.

Technology Entry (TE)

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Sciences programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Program Content –

Biomedical Engineering Technology

Level 1 (15 weeks)			hrs/wk	credits
BHSC	1101	Anatomy and Physiology 1	4.0	4.0
BMET	1100	Electronics Principles and Practice 1	9.0	9.0
COMM	1178	Technical Writing 1 for BMET	3.0	3.0
MATH	1151	Computer Skills and Applications	2.0	2.0
MATH	1781	Technical Mathematics for Biomedical Engineering Technology	8.0	8.0
PHYS	1178	Physics for Biomedical Engineering	4.0	4.0
Level 2 (20 weeks)				
BHSC	2201	Anatomy and Physiology 2	3.0	4.0
BMET	2200	Electronics Principles and Practice 2	7.0	9.5
BMET	2215	Digital Electronics	5.0	6.5
CHEM	1205	Chemistry for Biomedical Engineering Technology	5.0	6.5
COMM	2278	Technical Writing 2 for BMET	2.0	2.5
ELEX	2860	Electronic Prototype Manufacturing	4.0	5.5
MATH	2782	Calculus for Biomedical Engineering Technology	5.0	6.5
Level 3 (15 weeks)				
BMET	3300	Electronics Principles and Practice 3	7.0	7.0
BMET	3301	Biomedical Device Technology 1	6.0	6.0
BMET	3302	Quality Assurance and Systems	5.0	5.0
CHEM	2305	Biochemistry/Instrumental Analysis	6.0	6.0
COMP	3151	Software Engineering	5.0	5.0

Level 4 (15 weeks plus practicum)			hrs/wk	credits
BMET	4401	Biomedical Devices Technology 2	6.0	6.0
BMET	4402	Biomedical Engineering Technology Project	3.0	3.0
BMET	4403	Medical Imaging Systems	5.0	5.0
BMET	4415	Digital Systems and Microprocessors	5.0	5.0
BMET	4420	Practical Experience in Biomedical Engineering Technology	35.0	11.5
COMM	3478	Technical Writing 3 for BMET	1.0	1.0
ELEX	4855	Electronic Image Displays	4.0	4.0
MATH	3782	Statistics for Biomedical Engineering	3.0	3.0
NURS	1182	Fundamentals of Patient Care	2.0	2.0

Most courses taken within the program require successful completion of certain prerequisites. For further information contact BCIT Registration and Information at (604) 434-1610.

Faculty and Staff

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 Bruno Jaggi, Dipl.T., B.A.Sc., M.A.Sc., P.Eng., bruno_jaggi@bcit.ca
 Alan Nichols, B.A.Sc., M.A., P.Eng., alan_nichols@bcit.ca

Cardiology Technology

The Cardiology Technology program is not offered in the day school format. The program, leading to a diploma, is available through distance education. For further information, contact the program assistant at (604) 451-7137, toll free (1-800) 663-6542 or e-mail teana_wong@bcit.ca. You can also contact the program head at (604) 432-8956, or e-mail wayne_hay@bcit.ca. Or visit our Web site at www.health.bcit.ca/cardiology.

Cardiovascular Technology

The Cardiovascular Technology Program is not offered in the day school format. This post-diploma diploma program is available through distance education. For further information contact the program assistant at (604) 451-7137, toll-free (1-800) 663-6542, teana_wong@bcit.ca; or the program head at (604) 432-8965, wayne_hay@bcit.ca, or visit our Web site at www.health.bcit.ca/cardiovascular.

Clinical Genetics Technology

Post-degree Diploma Program

Clinical Genetics Technology involves the detailed analysis of the human genome by three distinct technologies. First, chromosome analysis through the use of banded metaphase chromosomes; second, fluorescence in situ hybridization (FISH) on interphase/metaphase chromosomes; and third, molecular genetic techniques involving DNA itself. All three technologies can be used on a wide variety of human tissues.

Chromosomes are the packaged form of the genetic material and are visible under the microscope. Modern clinical cytogenetics became established in the early 1970s with the use of banding techniques that allowed for the identification of individual chromosomes. Any deviation in the structure or number of chromosomes present can be abnormal and may have a deleterious effect on the individual. FISH techniques allow for a more rapid examination of suspected chromosome abnormalities in both living and fixed specimens.

More recently, diagnostic molecular technology has given physicians and scientists additional tools to look further into the human genome for answers to genetic diseases. Diagnosis of single gene defects associated with diseases such as cystic fibrosis, Duchenne muscular dystrophy and the fra (X) syndrome is now routine.

Chromosome analysis, FISH and molecular technology are also very important tools available to physicians for the diagnosis and treatment of various cancers and leukemias.

Job Opportunities

Upon graduation and successful completion of Canadian Society of Medical Laboratory Sciences (CSMLS) certification exams, the clinical genetics technologist may be employed in cytogenetic and molecular diagnostic laboratories found in larger hospitals throughout Canada. There are also opportunities in molecular genetics in private industry and research laboratories. Salaries for entry-level positions in British Columbia start at \$45,000 - \$52,000 per annum (Health Sciences Association rates effective November 1998).

The Program

The training program is 13.5 months in length, consisting of three terms. The first two terms are didactic, 15 and 10 weeks in length respectively, and involve lectures and laboratory study at BCIT. The third term is a 30-week practicum spent at one or more of the practical sites affiliated with BCIT. The time spent in the practicum is divided into cytogenetics, FISH and molecular technologies. After successful completion of each of the three terms, the student is eligible to write the Certification Examination of the Canadian Society of Medical Laboratory Sciences (CSMLS), which leads to the qualification of Registered Technologist (RT) in Clinical Genetics, the nationally recognized qualification for employment in the field.

Tuition Fee 2001/2002 (subject to change)

\$2,340.80 for the 13.5 month program.

Books and Supplies (2001/2002)

\$1,000 (estimated cost, subject to change).

Entrance Requirements

Bachelor of Sciences in Cell Biology. Preference will be given to applicants who have, as part of their B.Sc., courses in genetics (preferably human genetics or cytogenetics), molecular biology or molecular genetics and biochemistry. Applicants must meet BCIT's English language requirements.

Selection

Qualified applicants are required to attend a comprehensive interview by the selection committee (the Clinical Genetics Technology program head and clinical site staff) to assess suitability to the clinical genetics field. Students are selected based on this interview, letters of reference and work related experience (résumé).

Due to the limited number of seats and the large number of applicants, only the most suitable applicants are accepted into the program. The process is competitive. Applications are accepted by the Admissions department after October 1 for entry the following September. Completed applications are reviewed in March with shortlisted applicants to be interviewed in April.

Due to techniques involving colour recognition for genetic diagnosis and interpretation, applicants will only be considered if they are able to detect colour differences in the visible spectrum.

Credential

Students who successfully complete this post-degree program will graduate with a Diploma of Technology.

Program Content – Clinical Genetics Technology

Didactic Terms

Level 5 (14 weeks, including exam week)			Credits
CLGT	5501	Cytogenetics Technology 1	6.5
CLGT	5502	Chromosome Analysis 1	5.5
CLGT	5503	Seminar Topics 1	2.0
CLGT	5504	Photomicrograph Reproduction and Imaging 1	1.0
CLGT	5505	FISH Technology 1	5.5
CLGT	5506	Molecular Technology, Part 1	13.5
Total			34.0
Level 6A (10 weeks, including exam week)			
CLGT	6601	Cytogenetics Technology 2	4.0
CLGT	6602	Chromosome Analysis 2	3.5
CLGT	6603	Seminar Topics 2	1.5
CLGT	6604	Photomicrograph Reproduction and Imaging 2	1.0
CLGT	6605	FISH Technology 2	3.5
CLGT	6606	Molecular Technology 2	10.0
Total			23.5

Practicum Term

Level 6B (30 weeks)

CLGT	6607 Practicum in Cytogenetics	21.0
CLGT	6608 Practicum in Molecular Genetics	21.0
Total		42.0

The practicum is 30 weeks in length and is divided between cytogenetics/FISH technology and molecular technology. The purpose of the practicum is to expose students to the clinical applications of cytogenetics, FISH and molecular technology, and to the pace and environment of a working genetics laboratory while allowing for the enhancement of personal and technical skills.

Faculty and Staff

Diana S. Herbst, Ph.D., Associate Dean, diana_herbst@bcit.ca
 Fred Bauder, B.Sc., ART (CG), CLSp (CG), Program Head, fred_bauder@bcit.ca
 Lynn Bernard, Ph.D., FCCMG, lynn_bernard@bcit.ca

Affiliated Sites and Coordinators

B.C. Cancer Agency
 Molecular Diagnostic Laboratory: Kelly McNeil, B.Sc.
 Centre for Molecular Medicine and Therapeutics:
 Drs. Hayden, Robinson, Sorenson
 Children & Women's Health Centre
 Molecular Diagnostic Laboratory: Linda Kwong, R.T.
 Cytogenetics Laboratory: Pearl Wong, B.Sc., R.T.(Cg)
 Royal Columbian Hospital
 Cytogenetics Laboratory: Bhushan Verma, M.Sc., RT (Cg)
 Vancouver General Hospital
 Cytogenetics Laboratory: C. Haessig, B.Sc., RT (Cg)
 Capital Health Region, Victoria
 Cytogenetics Laboratory: Jeannette Klein, B.Sc., R.T. (Cg)



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Diagnostic Medical Sonography

One Year Post-diploma Program (Full-time)

Diagnostic Medical Sonography (ultrasound) is a rapidly expanding medical technique. High frequency sound waves are emitted from a probe (transducer) that is moved over the body to obtain images of various body structures. This technique provides valuable diagnostic information regarding the underlying anatomy and pathology that may be present. Unlike X-rays, diagnostic ultrasound is a non-ionizing technique. To date, no significant biological effects have been demonstrated.

A diagnostic medical sonographer is a medical professional who performs ultra-sound examinations under the supervision of a physician. Areas of particular interest are the abdomen, the pregnant and non-pregnant female pelvis, the vascular system and the heart.

A sonographer must be able to:

- obtain diagnostic images
- correlate clinical and diagnostic findings
- work efficiently in an often stressful environment
- demonstrate excellent interpersonal skills
- communicate well verbally and in writing
- visualize anatomy in three dimensions
- provide high quality patient care
- physically assist in moving patients and equipment
- maintain a high level of physical fitness, especially strength in the upper body and back.

Job Opportunities

Graduates in this dynamic allied health field will assume an important role in maintaining high quality patient care using this diagnostic imaging technique. Employment opportunities exist in hospitals, clinics, commercial areas and research. Most graduates work on a casual basis initially, moving into full-time employment. Salaries for sonographers, based upon the current HSA scale, range from \$21 to \$26 per hour.

The Program

Because knowledge in allied health is an entrance requirement, the basic program is one year (12 months) in length. The first term has a focus on academics with some clinical experience. Through the remaining eight months, clinical applications are emphasized.

Students may elect to learn echocardiography upon completion of the general program.

Graduates of this program apply to write the American Registry of Diagnostic Medical Sonography examinations.

Tuition Fees 2001/2002 (subject to change)

\$2,340.80 for the one-year program.

Books and Supplies 2001/2002

\$1,635 (general estimated cost and subject to change).

Entrance Requirements

English 12 with a B or better. Diploma of Technology in a minimum two year allied health program such as Radiography, Nuclear Medicine or Registered Nursing, or a Bachelor of Science in an appropriate health-related field, and with an emphasis on human anatomy and physiology.

Application Deadline

Deadline for completed applications is March 15, 2001. All program requirements must be completed and documentation received in Admissions prior to the deadline.

Selection

Selection Objectives:

The Diagnostic Medical Sonography program is committed to a selection model that attracts qualified applicants, selects qualified students who are capable of program and employment success, makes the criteria explicit, and makes selection decisions in a manner that is fair for applicants while meeting the needs of the program and the profession.

Selection Criteria:

Applicants who meet the prerequisites (entrance requirements) are assessed against the following selection criteria.

1. Patient care experience

Sonography students are required to possess patient care skills consistent with those performed by health care technologists in an acute care setting. These skills must be present upon program entry, as they are not taught in the program and are required from the first week of the program. Specific patient care skills include communication, patient transfer, basic catheter and intravenous care, bedpan and urinal use, sterile technique, oxygen set-up, patient safety, and respect for patient diversity and confidentiality. The most competitive applicants will have recent (within three years) patient care experience as described above. Other patient care experiences will be considered.

Documentation Required

One-page typed essay, outlining patient care experience. The essay will be assessed for content, completeness, conciseness, clarity, grammar, and spelling.

The essay must include:

- The dates and length of the experience.
- The patient care environment (e.g. acute care, extended care, outpatient).
- Specific tasks performed (refer to selection criteria for tasks performed by allied health technologists).
- Names, addresses, and phone numbers of two supervisors. The program will contact these referees for short-listed applicants.
- Signed consent to contact supervisors for references (to be obtained from admissions upon receipt of application).

2. Knowledge of sonography as practised in B.C.

Students who clearly understand the roles and responsibilities of sonographers prior to admission are quickly integrated into the training site. Advance preparation for the clinical practicum reduces the amount of time required by busy clinical sites and the DMS program in professional orientation for the student.

Knowledge of sonography is an awareness of the roles and responsibilities of sonographers; their relationship with patients, reporting physicians, and other members of the health care team; and the physical requirements of the profession. Investigation must take place in Canada, as sonography is practised differently in other countries.

Documentation Required

Completed answers to clinical site questionnaire (to be obtained from admissions upon receipt of application).

3. Participation in relevant continuing education

Applicants must demonstrate a commitment to life-long learning through continuing education.

Examples of acceptable continuing education include, but are not limited to:

Relevant coursework, such as:

- Cross-sectional anatomy (BCIT or CAMRT). Knowledge of cross-sectional anatomical relationships is necessary for students to visualize organs in three dimensions during clinical practicums.
- Patient care for Allied Health Professionals (BCIT).
- Advanced topics in patient care (BCIT).
- Pathology (BCIT or CAMRT).
- Medical Terminology (BCIT).
- Communication for Allied Health Professionals (BCIT).
- Human Behaviour (BCIT).
- Participation at relevant allied health, nursing or medical professional meetings.

4. Self study

The most competitive applicants will have undertaken relevant coursework within the past three years.

Documentation Required

Professional profile outlining continuing education activities. It must include:

- Types of activities (e.g. graded coursework, seminar, self study)
- Dates and lengths of activities
- Transcripts of graded courses
- List of seminar/self study topics, including brief (maximum one paragraph per event) summaries of material learned.

5. Post-secondary performance

Present academic performance is positively correlated with previous academic performance. Previous post-secondary grades offer an external assessment of applicant ability.

Documentation Required

Official post-secondary transcripts to include graduation status, courses taken and grades.

Selection Process

Admission does not happen on a first-come, first-served basis. The process is competitive. Due to the large number of applicants and limited number of seats, top down selection is employed, with the most suitable applicants invited to join the program. Some applicants may meet the minimum requirements for admission and not be invited to join the program. Applications are accepted by the BCIT Admissions department after October 1 for entry the following September. The program area will review completed applications in March.

Note: Applicants should fully outline how selection criteria have been met. Please do not assume that BCIT has knowledge of your past experiences.

Post-Selection Requirements

Following provisional acceptance, full acceptance into the program will be granted upon submission of:

- Proof of current Cardiopulmonary Resuscitation Level C.
- A signed consent for full participation in scan labs held at BCIT.
- A completed health form.
- Agreement to undertake a criminal record search.

Credential

Students who successfully complete this post-diploma program will graduate with a Diploma of Technology.

Program Content -

Diagnostic Medical Sonography

Core (all students September-December)

Level 5 (15 weeks)	hrs/wk	credits
BHSC 5507 Anatomy and Physiology, Pathophysiology	6.0	6.0
DSO 5112 Abdominal Sonography 1	4.5	4.5
DSO 5113 Obstetrical/Gynecological Sonography 1	3.5	3.5
DSO 5116 Clinical Experience in Sonography 1	14.0	14.0
PHYS 5273 Physics for Ultrasound	4.5	4.5
Level 6 (35 weeks)		
DSO 6112 Abdominal Sonography 2	1.5	1.5
DSO 6113 Obstetrical/Gynecological Sonography 2	1.5	1.5
DSO 6114 Vascular Sonography	1.5	1.5
DSO 6115 Echocardiography	1.5	1.5
DSO 6116 Clinical Experience in Sonography 2*	31.5	70.0
PHYS 6273 Physics for Ultrasound 2	1.0	1.0

All courses have a 60 per cent pass mark.

* For DSO 6116 students complete 28 hours per week of clinical training during Term A (17 weeks) and 35 hours per week of clinical training during Term B (16 weeks)

Faculty and Staff

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Clinical Coordinators

B.C. Children's Hospital, Debbie Zachariuck, RDMS
 B.C. Women's Hospital, Judy Harder, B.Sc., RDMS
 Burnaby Hospital, Donna Belasic, B.Sc., RDMS;
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 Eagle Ridge Hospital, Dianne Hagen, RDMS
 Lion's Gate Hospital, Rachel MacAulay, RDMS;
 Ann Thur, RDMS
 Richmond Hospital, Evelyn Wright, RDMS
 Royal Columbian Hospital, Nell Venir, B.A., RDMS
 St. Paul's Hospital, Teresa Fanning, RDMS
 Surrey Memorial Hospital, Heather Gretchen, RDMS
 Vancouver General Hospital, Kathy Conner, RDMS;
 Michelle Duchak, RDMS

Electroneurophysiology Technology

Two-year Diploma Program (Full-time)

Modern hospitals and healthcare clinics require the services of trained technologists to operate sophisticated electroneurodiagnostic (E.N.D.) testing equipment and other related biomedical equipment. In order to understand the operation of this equipment, the graduate will have studied mathematics, physical science and engineering. Courses in the basic health sciences will inform the student about human physiology and the biological signals to be measured. In addition, courses in the social sciences will prepare the student for interpersonal relationships within the clinical environment. Extensive clinical experience is built into the program to ensure the student develops necessary practical skills in the work environment.

Job Opportunities

Graduates will principally find employment in diagnostic neurophysiology departments of hospitals or private clinics in the following fields: electroencephalography (electrical activity of the brain), electromyography (electrical activity of the neuromuscular system), evoked potentials (electrical activity generated by stimulation of the sensory systems) and polysomnography (electrical activity of the body during sleep). In addition to performing a wide variety of tests on patients, the graduate will be expected to evaluate the results to assess the performance of the test equipment and perform quality control procedures on equipment and basic calibration/maintenance functions.

The Program

The program is a combination of lab and lecture instruction at BCIT and clinical experience in the diagnostic neurophysiology departments of major hospitals.

In both spring and fall terms, special courses in electroneurophysiology, neuroanatomy and neuropathology will train students in the basics of biological signal measurement and clinical apparatus. In the spring term (20 weeks), different areas of clinical experience will be covered: electroencephalography, electromyography, evoked potentials and polysomnography.

Upon completion of the two-year program, graduates will receive a diploma of technology in Electroneurophysiology. After a period of work experience in a clinical situation, graduates will be eligible to write the Technologist Registration examinations of the appropriate certifying body in their chosen fields of interest.

Entrance Requirements

This program is offered every second year, with the next intake scheduled for September 2002.

High school graduation. English 12 (C+). Math 12 (C+). Physics 11 (C+). Chemistry 11 (C+). Biology 12 (C+). Individuals wishing to enter this field should be interested in the welfare of people and should have an aptitude for physics and electrical and mechanical apparatus. Applicants who have special backgrounds and/or experience will also be considered on an individual basis. Most courses taken within the program require successful completion of certain prerequisites. Documented competence in Cardio-Pulmonary Resuscitation (CPR) is a program prerequisite. Based on the documentation submitted, the most suitable applicants will be invited to an interview. A health form and student acknowledgement of program requirements are part of application packages.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Length

Two years, full-time beginning in September of alternate years.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

Year 1; \$755 (general estimated cost and subject to change).

Program Content - Electroneurophysiology Technology

Electroneurophysiology is currently under curriculum review. There may be adjustments to the courses described below.

Level 1 (15 weeks)			hrs/wk	credits
BHSC	1112	Anatomy and Physiology	4.0	4.0
BHSC	1151	Fundamentals of Neurology	5.0	5.0
CHEM	1117	Chemistry	3.0	6.0
COMM	1180	Communication/Applied Research	4.0	4.0
ENPY	1152	Electroneurophysiology 1	4.0	4.0
MATH	1791	Technical Math for Electroneurophysiology	5.0	5.0
Level 2 (20 weeks)			hrs/wk	credits
PHYS	2279	Physics for Electroneurophysiology	3.0	3.0
BHSC	2212	Anatomy and Physiology	4.0	5.5
COMM	2280	Communication/Applied Research	4.0	2.5
ENPY	2250	Electroneurophysiology 2	8.0	10.5
MATH	2792	Computer Applications and Statistics	5.0	6.5
NURS	1184	Patient Care	3.0	4.0
Level 3 (15 weeks)				
BHSC	1339	Human Behaviour	4.0	4.0
BHSC	3312	Neuroanatomy and Physiology	6.0	6.0
ENPY	3351	Introduction to Clinical EEG	8.0	8.0
ENPY	3352	Electroneurophysiology 3	4.0	4.0
ENPY	3353	Nerve Conduction Techniques	5.0	5.0
Level 4 (20 weeks)				
ENPY	4450	Electroneurophysiology Practicum	35.0	46.5

Faculty and Staff

Diana S. Herbst, Ph.D., Associate Dean, diana_herbst@bcit.ca
Michael Young, B.A., Dipl.T., R.E.T., Program Head,
michael_young@bcit.ca

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Environmental Health (Public Health Inspector Training)

Four-year Degree Program (Full-time) Two-year Degree Program Direct-Entry (Full-time)

The Public Health Inspector/Environmental Health Officer (PHI/EHO) is a vital member of the public health team and delivery system. The role of the PHI/EHO includes preventing disease, promoting health and improving the environment through the use of education, consultation, inspection and monitoring techniques and, if necessary, by the enforcement of health legislation. The scope of interest covers food hygiene, insect and rodent control, communicable disease investigation, public accommodation, community care facilities, public recreational facilities, water supply and waste disposal systems, occupational health and safety and environmental pollution – air, water, soil and noise. The graduate provides leadership and technical expertise in the development of long-range planning to protect and improve the public's health. To meet these demands, the candidate must be a mature, practical person and possess excellent communication skills, as well as considerable tact and discretion in working with people at all levels within the community. Proficiency is required in problem solving and decision-making.

Job Opportunities

Employment possibilities include municipal, regional, provincial and national health agencies, environmental and pollution control agencies, by-law enforcement, health education as well as private businesses and industries such as food processing, catering and fisheries.

The Program

The cross-disciplinary curriculum includes general studies in health and the health engineering sciences, liberal education, health care management, math and the physical and social sciences. Students are made aware of the many health hazards in the environment and develop skills to measure, evaluate and recommend controls for these hazards. Instructional modes include lectures, labs, guided learning, field trips, directed studies and practical experiences. Environmental health is a complex and rapidly changing area of human endeavour. A firm foundation of education and experience in science and health is provided.

Program Length

Four-year: The program is four years long and begins in September of each year. The first three years consist of full-time studies on campus. The fourth year combines practical experience with guided learning (distance education). Practical experiences may also be completed after the second or third year during the summer months.

Direct entry: The program is two years long and begins in September of each year. The first year consists of full-time studies on campus followed by a practical experience during the summer months. The second year consists of on-campus studies followed by a combination of practical experience and guided learning (distance education). The second practical experience may also be completed during the summer months.

Entrance Requirements and Selection Criteria

Four year: High school graduation. English 12. Math 12. Chemistry 12. Physics 11. Biology 11. Preference is given to applicants who have completed their entrance requirements within five years of applying, and have achieved a C+ standing in the entrance requirement courses. Preference may also be given to applicants who have successfully completed Biology 12.

If you are in the process of completing any of the prerequisites when you apply, please indicate this in your application and keep us apprised of your standing at mid-term. Forward your final marks as soon as they are available. It is possible to be accepted into the program on a provisional basis pending completion of your prerequisites.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Direct entry (entrance requirements currently under review):

1. B.Sc. or equivalent, or a BCIT Diploma of Technology in Occupational Health & Safety, Food Technology or Biotechnology or equivalent, with at least one B.C. university-level course or equivalent, in each of the following topics:

- Biology
- Microbiology
- Chemistry
- Math or calculus
- Biostatistics or statistics.

Applicants who have completed non-Canadian post-secondary studies may be requested to have a comprehensive evaluation of their credentials done by the International Credential Evaluation Service (ICES).

2. English 12. Applicants who do not meet these requirements may be considered on an individual basis.

3. In addition, preference will be given to applicants who have:

- Also taken B.C. university-level courses or equivalent in anatomy and physiology, organic chemistry, biochemistry, physics and computer skills.
- Completed their entrance requirements within five years of applying and who have achieved a C+ (65 per cent) standing or better in these courses.

Note: Applicants who are accepted into the Direct-Entry program will be responsible for the content of courses from which they are exempted for the purpose of completing prerequisite courses. For example, the noise component of the Environmental Assessment course requires a knowledge of the physiology and anatomy of the human ear as well as an understanding of wave theory and logarithms. Students will be provided with course outlines from exempted courses for reference as they progress through the program.

Program Structure

Four-year Program

	Credits
A. Technical Component	
1. Specialty Courses	156.0
2. Management Courses	9.0
3. Practical Experience	10.0
B. Liberal Education	12.0
Total	187.0

Direct entry program

A. Technical Component	
1. Specialty Courses	92.0
2. Management Courses	9.0
3. Practical Experience	10.0
B. Liberal Education	12.0
C. Block Transfer Credit	64.0
Total	187.0

Additional Criteria

Applicants must be in good health with adequate hearing and vision. An up-to-date immunization program is suggested for applicants accepted into the program. The nature of the work precludes individuals who are physically impaired. Applicants should be able to show evidence of maturity, have a positive outlook and an interest in serving the public.

International students who are applying for student authorization should request a work permit to cover the practicum courses at the same time as they apply for their student authorization.

Preparation

We suggest that people interested in this program contact a health agency in their area to speak to a PHI/EHO about the job. Note that workloads in some agencies will limit the available time for such inquiries. If possible, both a rural and an urban agency should be approached because the role of the PHI/EHO can vary considerably in these two settings. Alternatively, contact the program head to speak to PHIs on faculty about the job. We also recommend acquiring keyboarding (typing) skills in preparation for computer use.

Selection Process

Applications are received by the Admissions department after October 1 for entrance in the following September. Selection of candidates is based on currency and strength of prerequisites, relevant experience and demonstrated interest in this field. To support your application, we suggest you include the following:

1. Resume.
2. Covering letter/statement of purpose including information on:
 - Why you have chosen Environmental Health as a career.
 - What steps you have taken in selecting this career path (i.e. speaking to a PHI/EHO).
 - How your past experience has prepared you for this career (if applicable).
3. Reference letters (three maximum) which refer to your maturity, your ability to communicate, and any other personal attributes that will be of benefit in this career.

Please clearly specify "Environmental Health" on your application to prevent confusion with other BCIT programs. If you are applying for the Direct Entry (two-year) program, please clearly specify this as well. You are welcome to submit your application in advance of the additional supporting documentation listed above. If you wish to add information to your application, please forward the items to the Admissions department. Clearly state your name and BCIT student number on each submission.

Initial selections will likely be made in late March or early April. We will make every effort to select successful candidates as early as possible but the process typically extends into June or July. For information regarding the status of your application, please call the Admissions department at (604) 432-8419.

Industry (Practical) Experience

Practical experience is a significant component of this program. It consists of industry-related projects courses (Industry Project 1 and 2, Research Methods and Applied Research Project) as well as six months of off-campus experience in an appropriate agency (Practicum 1 and 2). Additional information for Practicum 1 and 2:

- These courses are required for graduation.
- You will need a valid driver's licence and access to a vehicle.
- Students are usually assigned to practicum sites by the program.
- A limited number of positions are available in the Vancouver area, so you may have to relocate.
- The positions are unpaid.
- You are responsible for relocation costs (if applicable), accommodation, and transportation associated with these positions.
- A criminal record search may be required.

Professional Association Registration

The BCIT Environmental Health program is recognized by the Canadian Institute of Public Health Inspectors (CIPHI) for certification. The Program is also affiliated with the International Federation of Environmental Health.

Certification is required prior to being eligible to work as a PHI/EHO in many locations across Canada. The certification process is additional to the academic work at BCIT and is accomplished through the Board of Certification (BOC) of the Canadian Institute of Public Health Inspectors. The Certification exam has both written and oral components; the cost is currently \$400 (subject to change). To be eligible for certification you must complete 12 weeks of practicum (field experience) under the supervision of a Certified Public Health Inspector. Practicum 1 and/or Practicum 2 satisfy this BOC requirement.

Tuition Fees 2001/2002 (subject to change)

\$1,802.50 per term.

Direct Entry

\$1,802.50 per term.

(Fall and Winter terms, to a maximum of \$3,600 per year).

Graduation Requirements

Four-year Program: Students are required to complete 12 credits of Liberal Education prior to graduation from the program. Two compulsory courses (6 credits) of Liberal Education are available at BCIT. It is the responsibility of the student to complete the remaining 6 credits at an alternative post-secondary institution (subject to approval). Students must complete the Bachelor of Technology in Environmental Health program within six years of the start date.

Direct entry program: Students are required to complete 12 credits of Liberal Education prior to graduation from the program. Two compulsory courses (6 credits) of Liberal Education are available at BCIT. It is the responsibility of the student to complete the remaining 6 credits at an alternative post-secondary institution (subject to approval). Also, students may be required to complete a computer skills course prior to graduation.

For more information contact:

Diane Pollock, Program Assistant
(604) 432-8429 or diane_pollock@bcit.ca

Charlie Young, Program Head
(604) 432-8807 or charlie_young@bcit.ca

For further information on the Liberal Education component: Bachelor of Technology department, call the Registrar's office at (604) 432-8230.

Program Content - Environmental Health

The Four-year program content is listed first, followed by the Direct entry program content. Students in the four-year program must successfully complete Levels 1 to 4 before they can enter Level 5.

Note: During the implementation of the Bachelor of Technology in Environmental Health, there may be adjustments to the program descriptions below.

Four-Year Degree program:

First Year: Level 1 (15 weeks)			hrs/wk	credits
BHSC	1123	Microbiology 1	3.0	3.0
CHEM	1108	Chemistry 1 for EH	6.0	6.0
ENVH	1100	Introduction to EH	3.0	3.0
ENVH	1210	Soils	3.0	3.0
ENVH	1220	Hydrogeology	3.0	3.0
MATH	1821	Technical Math for EH	4.0	4.0
OPMT	1119	Introduction to Information Systems	3.0	3.0

First Year: Level 2 (20 weeks)

BHSC	1204	Anatomy and Physiology 1	4.0	2.5
BHSC	2223	Microbiology 2	3.0	4.0
CHEM	2208	Chemistry 2 for EH	6.0	8.0
ENVH	1300	Food Hygiene	6.0	8.0
ENVH	2200	Water Supply	4.0	2.5
PHYS	1282	Physics for EH	3.0	4.0

Liberal Education course ¹

Second Year: Level 3 (15 weeks)

COMM	1282	Communication for EH ¹	3.0	3.0
ENVH	1143	Pools and Recreational Water	4.0	4.0
ENVH	2100	EH Legislation	3.0	3.0
ENVH	2210	Sewage Disposal Methods	3.0	3.0
ENVH	3600	Environmental Assessment	5.0	5.0
FOOD	3020	Food Microbiology for EH	4.0	4.0

Liberal Education course ¹

Second Year: Level 4 (20 weeks)

CHEM	3321	Toxicology for EH	2.5	3.0
COMM	2382	Communication for EH ²	3.0	4.0
ENVH	1124	Pest Management ^A	4.0	2.5
ENVH	2700	Biostatistics	3.0	3.5
ENVH	3100	Applied Law	4.0	5.5
ENVH	3200	Land Use ^B	4.0	2.5
ENVH	3500	Human Relations	3.0	4.0
ENVH	4300	Food Equipment and Processing ^B	4.0	2.5
ENVH	4600	Indoor Air Quality ^A	5.0	3.5

Management courses ^A

Management courses ^B

Third Year: Level 5 (15 weeks)			hrs/wk	credits
BUSA	7250	Management Skills and Applications ²	3.0	3.0
CHEM	7313	Analytical Measurements	4.0	4.0
ENVH	7001	Solid and Hazardous Waste	3.0	3.0
ENVH	7002	Outdoor Air Quality	3.0	3.0
ENVH	7266	Epidemiology	5.0	5.0
ENVH	7400	Industry Project 1	3.0	3.0

Third Year: Level 6 (20 weeks)

BHSC	7423	Communicable Disease Control	4.0	5.5
CHEM	8422	Environmental Chemistry	5.0	6.5
ENVH	7410	Industry Project 2	6.0	8.0
ENVH	8001	Environmental Risk Assessment	2.5	3.0

Management courses^A

Management courses^B

Fourth Year: Level 7 and 8 (35 weeks)

ENVH	7500	Practicum 1 (practical experience)		3.0
ENVH	8400	Research Methods		3.0
ENVH	8410	Applied Research Project (directed studies)		5.0
ENVH	8500	Practicum 2 (practical experience)		7.0

Liberal Education course¹

Notes (see superscripts above):

^A Designates courses of 10-week duration offered during the first 10 weeks of the term.

^B Designates courses of 10-week duration offered during the last 10 weeks of the term.

¹ Students are required to complete 12 credits of Liberal Education prior to graduation from the program. Two compulsory courses (6 credits) of Liberal Education are available at BCIT. They are LIBS 7001 Critical Reading and Writing and LIBS 7002 Applied Ethics. It is the responsibility of the student to complete the remaining 6 credits at an alternative post-secondary institution (subject to approval). For more information, contact the BCIT Registrar's office at (604) 432-8230.

² BUSA 7250 is offered as a guided learning course. The student is responsible for registering for this course in the appropriate term.

³ Management elective courses can be selected from ENVH 7606 or HMGT 4140, HMGT 4150, HMGT 4210, HMGT 4310 and HMGT 5140 (see course descriptions). A total of 6 credits of elective courses are required.

Direct entry Degree program

Level 5 (15 weeks)

ENVH	1100	Introduction to EH	3.0	3.0
ENVH	1143	Pools and Recreational Water	4.0	4.0
ENVH	1210	Soils	3.0	3.0
ENVH	1220	Hydrogeology	3.0	3.0
ENVH	2210	Sewage Disposal Methods	3.0	3.0
ENVH	3600	Environmental Assessment	5.0	5.0
FOOD	3020	Food Microbiology for EH	4.0	4.0

Level 6 (20 weeks) Full Term			hrs/wk	credits
CHEM	3321	Introduction to Toxicology	2.5	3.0
BHSC	7423	Communicable Disease Control	4.0	5.5
ENVH	1300	Food Hygiene	6.0	8.0
ENVH	3100	Applied Law	4.0	5.5

First 10 weeks

ENVH	2200	Water Supply ^A	4.0	2.5
ENVH	4600	Indoor Air Quality ^A	5.0	3.5

Second 10 weeks

ENVH	3200	Land Use ^B	4.0	2.5
ENVH	4300	Food Equipment & Processing ^B	4.0	2.5

Summer Session (12 weeks)

ENVH	7500	Practicum 1 (practical experience)		3.0
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Level 7 (15 weeks)

CHEM	7313	Analytical Measurements	4.0	4.0
ENVH	7266	Epidemiology	5.0	5.0
BUSA	7250	Management Skills and Applications ¹	3.0	3.0
ENVH	2100	EH Legislation	3.0	3.0
ENVH	7001	Solid & Hazardous Waste	3.0	3.0
ENVH	7002	Outdoor Air Quality	3.0	3.0
ENVH	8400	Research Methods	3.0	3.0

Liberal Education courses²

Level 8 (20 weeks) Full term

ENVH	8410	Applied Research Project (directed studies)	4.0	5.0
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Liberal Education courses²

First 10 Weeks

CHEM	8432	Environmental Chemistry	4.0	2.5
Management elective course ³				
ENVH	8001	Environmental Risk Assessment	5.0	3.0
ENVH	1124	Pest Management	4.0	2.5

Second 10 weeks

Management elective course ³				
ENVH	8500	Practicum 2 (practical experience)		7.0

Notes (see superscripts above):

^A Designates courses of 10-week duration offered during the first 10 weeks of the term.

^B Designates courses of 10-week duration offered during the last 10 weeks of the term.

¹ BUSA 7250 is offered as a guided learning course. The student is responsible for registering for this course in the appropriate term.

² Students are required to complete 12 credits of Liberal Education prior to graduation from the program. Two compulsory courses (6 credits) of Liberal Education are available at BCIT. It is the responsibility of the student to complete the remaining 6 credits at an alternative post-secondary institution (subject to approval). For more information contact the Registrar's office at (604) 432-8230.

³ Management elective courses can be selected from ENVH 7606 or HMGT 4140, HMGT 4150, HMGT 4210, HMGT 4310, and HMGT 5140 (see course descriptions). A total of 6 credits of elective courses are required.

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Medical Imaging

Bachelor of Technology Degree (Part-Time)

BCIT continues to offer Canada's first degree completion baccalaureate-level program specialty in Medical Imaging. The Bachelor of Technology in Medical Imaging is available by distance education to registered Medical Imaging technologists from across Canada and other parts of the world who have completed two years of relevant work experience. This program addresses the pressing need for advanced education resulting from the significant technical and clinical advances that have occurred in medical imaging in recent years.

New developments in medical radiography, nuclear medicine and diagnostic sonography have dramatically increased the knowledge base needed to function competently in modern imaging departments. The skills and responsibilities of senior imaging technologists have expanded to the point where they need a baccalaureate-level education to be adequately prepared for the technological challenges of their profession. In many parts of the world baccalaureate education is now the norm for medical imaging technologists. BCIT's Bachelor of Technology in Medical Imaging establishes a universally recognized educational standard for medical imaging in Canada and provides formal recognition of the high level of education required by the profession.

The BCIT Bachelor of Technology in Medical Imaging degree program currently offers specialization in radiography, which involves the use of X-rays to produce radiographs (X-ray films) for diagnostic purposes. Specialization in nuclear medicine, which makes use of measured doses of radioactive material to obtain information about a patient's condition, and sonography, in which high-frequency sound waves are used to produce images for diagnostic purposes, are also under consideration. This document presents information related to the radiography specialization only.

The target group for the Bachelor of Technology in Medical Imaging is registered medical imaging technologists who possess a diploma of technology or equivalent.

The Program

The Bachelor of Technology degree completion program is offered in a distance education format. These guided learning courses involve self-directed study supported by telephone tutoring. The courses are advertised in the Health Sciences Part-time Studies course offerings booklet (call [1-800]-663-6542 or [604] 432-8727) and on the BCIT Web site at www.health.bcit.ca.

Application Procedures

Individuals interested in applying for entry into the Bachelor of Technology, Medical Imaging program should contact the program head, Medical Imaging or Registration and Information for an information/admission package. This information package will include a BCIT degree application form.

Admission Procedures

Submit a completed Application: Bachelor of Technology form to the Admissions department in the Registrar's office. To be included with this application are:

- Official documents of all previous post-secondary education.
- Official documents showing successful completion of English 12 or equivalent.
- A letter or resume indicating completion of two years of relevant work experience.

Registration Procedures

Register for courses by following BCIT's standard procedures for registering in a distance education course. This can be accomplished in one of five ways:

1. By mail: complete the Registration form and mail it with a cheque or credit card number (Visa or MasterCard) to BCIT Registration.
2. By fax: complete the Registration form and fax to (604) 430-1331. Payment must be made by Visa or MasterCard at the time of registration.
3. By phone: Registration is accepted at (604) 434-1610 providing fees are paid by Visa or MasterCard.
4. In person: At the BCIT Burnaby campus. Payment must be made at the time of registration.
5. Through the Internet: www.bcit.ca.

Course work completed prior to acceptance into the program may not be transferable into the program.

Program Length

The Bachelor of Technology degree must be completed within six years of acceptance into the program.

Candidates should be aware that, prior to acceptance into the program, they may complete:

- a maximum of 6 credits of Technical Component course work
- a maximum of 12 credits of Liberal Education Component course work.

Entrance Requirements

The entrance requirements for the Bachelor of Technology in Medical Imaging are:

- BCIT Diploma in Medical Radiography, or equivalent
- English 12, or equivalent
- Two years of relevant work experience.

Course Transfer Credit

Within the Technical Component, a maximum of 18 credits can be transferred in from another institution, with approval of the program head. Within the Liberal Education Component, the required 6 Liberal Education credits are available at BCIT; the remaining six must be transferred in from another institution with approval of the Registrar.

Program Content - Medical Imaging

Technical Component (48 credits)

- Required courses (24 credits)
- Elective courses (15 credits)
- Management courses (9 credits)

Liberal Education Component (12 credits)

- Students must complete 12 credits of Liberal Education. For further information please contact the Registrar's office at (604) 432-8230.

For more information on Bachelor of Technology programs offered at BCIT please refer to page 68-69 of this Calendar.

Program Structure

The program content is currently under review. Please check the BCIT Web site at www.bcit.ca for updated information.

Technical Component

Required Courses (24.0 credits)		credits
MIMG 7000	Technological Advances in X-ray Imaging	3.0
MIMG 7003	Digital Imaging and Information Technology in Radiology	3.0
MIMG 7004	Advanced Topics in Patient Care	3.0
MIMG 7005	Ethics in Health Sciences	2.0
MIMG 7006	Understanding Research in Health Sciences	3.0
MIMG 7007	Image Quality in Diagnostic Radiology	4.0
MIMG 7008	Research Project	3.0
MIMG 7009	Risks and Protection	3.0

Elective Courses (15.0 credits required)

BHSC 7601	Sectional Anatomy/ Abdomen and Pelvis	3.0
BHSC 7602	Sectional Anatomy/Thorax	3.0
BHSC 7603	Sectional Anatomy/Head and Neck	3.0
BHSC 7604	Sectional Anatomy/ Musculoskeletal System	3.0
MIMG 7100	Imaging the Digestive Tract	3.0
MIMG 7101	Advances in Special Procedures	3.0
MIMG 7103	Quality Assurance in Diagnostic Radiology	3.0
MIMG 7200	MRI 1 (Physical Principles & Instrumentation)	3.0
MIMG 7201	MRI 2 (Image Production & Tissue Characterization)	3.0
MIMG 7202	MRI 3 (Imaging Techniques Q.C., Artifacts)	3.0

MIMG 7300	Computed Tomography (Physical Principles & Instrumentation)	3.0
MIMG 7301	Computed Tomography Clinical Applications	3.0
MIMG 7400	Breast Imaging 1	3.0
MIMG 7401	Breast Imaging 2	1.0

Note: credits will not be given for CAMRT Sectional Anatomy courses. CT and MRI certificate holders are not required to complete this section if they have achieved their certificate within the last five years. Exemption is granted based on course work previously completed.

Required Management course

BUSA 7250	Management Skills and Applications	3.0
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Elective Management Courses

Students must choose 6.0 credits of course work from the list below.

HMGT 5130	Information Systems in Healthcare 1	3.0
HMGT 5230	Information Systems in Healthcare 2	3.0
HMGT 4140	Budgeting in Healthcare	1.5
HMGT 4150	Human Resource Management	3.0
HMGT 4160	Health Labour Relations 1	1.5
HMGT 4310	Conflict Management in Health	3.0
HMGT 4410	Managing Organizational Change and Development	3.0
HMGT 4450	Team Building for Healthcare Managers	3.0
HMGT 5120	Healthcare Principles of Management	3.0
HMGT 5170	Healthcare Law 1	3.0

Liberal Education Component (12.0 credits required)

LIBS 7001	Critical Reading and Writing	3.0
LIBS 7002	Applied Ethics	3.0
Electives		6.0

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Medical Laboratory Science

Two-and-a-Half-Year Diploma Program (Full-time)

The medical laboratory technologist as a member of the health care team performs laboratory investigations related to the diagnosis, treatment and prevention of disease. A variety of specimens such as blood, urine, faeces, sputum and tissues are analysed. Technologists also have significant patient contact primarily through blood collection.

Medical laboratory technologists work in a dynamic and evolving environment, and use technological equipment to provide information that must be processed rapidly and accurately. They handle potentially infectious material from patients. Technologists are protected by wearing gloves, gowns, and other protective garments.

Job Opportunities

Certification as a Medical Laboratory Technologist is nationally recognized and is a requirement for employment in most Canadian medical laboratories.

In B.C., the starting salary of an entry level technologist in a medical laboratory is approximately \$39,000 per year.

Most laboratory services are required on a 24-hour basis. As a result, the majority of medical laboratory technology positions in laboratories include some shift work (weekends, afternoons, and/or nights).

Certified graduates seek work primarily in hospital or private clinical laboratories. Medical laboratory technologists are, however, also employed by the Canadian Blood Services, B.C. Laboratory Centre for Disease Control and other public health laboratories, veterinary and industrial laboratories, clinical research laboratories, pharmaceutical and biological supply houses, and commercial companies in sales, research and product development.

The Program

The Medical Laboratory program is a competency-based program. It is designed and based on competencies established by the national certifying body, the Canadian Society of Medical Laboratory Science (CSMLS), and by the BCIT Medical Laboratory industry-based design process.

Theoretical, practical and clinical learning experiences are provided in each level of the program. In a competency-based model, students have the opportunity to first practise, then become capable of a variety of competencies. Competence is assessed and proven during a real-life experience (clinical training). Proof of competence is required for successful completion of all courses and clinical practicums in the program.

BCIT arranges clinical training for the student. Note that students may be required to train in a location that is not their first choice. Training sites are available throughout the province. Students may require a car for transportation to sites within the Vancouver area.

Employers are increasingly seeking graduates with a strong base of critical and analytical thinking, communication, and problem-solving skills. In addition to technical skills, employers value technologists with a commitment to learning new skills and techniques that allow them to adjust to new situations. To help students develop the skills required in the health care system of the future, the program emphasizes the development of professionalism, reasoning and reflection, communication, group process skills, and learning and technical skills.

To help students develop the knowledge, skills, attitudes, and clinical judgement required for success as an entry-level medical laboratory technologist, the program employs a variety of learning strategies that encourage self-directed learning. Students need to be self-aware, self-motivated and able to take initiative to seek and make use of learning opportunities. Instructional methodologies include learner-centred active learning strategies.

Program Length

This program is two-and-one-half years full-time beginning in September each year. This includes a three-month break (June-August) after the first year.

Course Transfer Credit

The program is competency based and therefore no transfer credits are accepted for the medical laboratory science courses.

Tuition Fees 2001/2002

(subject to change)

\$5,858.25 for the total program (\$1,171.65 per level).

Books and Supplies 2001/2002

Supplies, in addition to regular school supplies, include appropriate footwear, uniforms, trainee membership fees (\$40 per year) and certification examination fees (\$260).

General estimated costs are subject to change.

Level 1 - \$1,000, Level 2 - \$1,000, Level 3 - \$1,000,

Level 4 - \$500, Level 5 - \$500

Entrance Requirements

- High school graduation with the following courses and minimum grades: English 12 (B), Biology 12 (C+), Chemistry 12 (C+), Math 12 (C+) and Physics 11 (C+). These prerequisites should have been completed during the past five years. If longer than five years has elapsed, individual assessment will be required. Applicants who have qualifications above the Grade 12 requirement are also eligible to apply.
- Applicants are expected to be competent in written and oral English.
- Applicants should possess a caring and professional attitude, meticulous work habits, fine motor skills, good manual dexterity, the ability to work quickly and accurately under pressure and to make decisions, which directly affect the diagnosis and treatment of disease. Applicants should have strong problem-solving skills, good interpersonal skills and be able to function as part of a team.
- Applicants should be aware that medical laboratory work is physically demanding and requires standing for long periods of time. Applicants should have clear skin (open lesions may prohibit participation due to potential risk to students and patients) and must be able to clearly differentiate colours.
- For applicants with previous employment, not necessarily within the health care field, evidence of this employment and a satisfactory letter of reference is required. For applicants without work experience, volunteer experience, preferably in a health care setting, is accepted. The volunteer experience must include a minimum of 30 hours work with a satisfactory reference.
- A letter of intent (approximately 500 words) is required detailing the applicant's career goals, knowledge of the profession, related experience and reasons for seeking admission to the Medical Laboratory program.

- Several course assignments must be word processed and medical laboratory technologists work with laboratory and hospital information systems. The ability to use word-processing, spreadsheet and communication software is strongly recommended.
- A tour of a medical laboratory and completion of a questionnaire regarding the tour is required. The purpose is to introduce the applicant to the environment of the clinical laboratory and enable them to see the daily operation of this diagnostic services department. BCIT assists in arranging the tours.
- Applicants may be required to attend an interview, and will be contacted accordingly by BCIT. BCIT chooses those applicants considered to have the best chance for success in the program.
- Students accepted into the program are required to complete prior to admission the St. John Ambulance Emergency First Aid Safety Oriented Certificate which includes CPR level C or its equivalent.
- Students accepted into the program are required to undergo a medical examination by their own physician, as satisfactory health is required for all applicants. Certain immunizations are required of anyone entering a training program involving a practicum that takes place in a hospital or related setting. Students must have an up-to-date immunization status. Vaccination against hepatitis B is strongly recommended for students accepted into the program and is available through BCIT medical services, at no cost.
- On entry into the program, trainee membership (\$40) in the Canadian Society for Medical Laboratory Science (CSMLS) is required on a yearly basis.
- A compulsory criminal record search will be required upon admission to the program. Cost is borne by the student.

Professional Association Registration

Graduates of the BCIT program are eligible to write the Registered Technologist National Certification examinations (\$260) set by the Canadian Society of Medical Laboratory Science (CSMLS). Upon completion of the program, the certification exams are written at BCIT in a one-day session. Three sittings of the exams are offered each year in February, June and October.

Advice for Medical Laboratory Technologists Training in Other Countries

To work as a Medical Laboratory Technologist in B.C., you must hold a certificate from the Canadian Society of Medical Laboratory Science (CSMLS). This certificate includes clinical chemistry, hematology, clinical microbiology, histology, and transfusion science (also called blood transfusion).

The CSMLS offers credential assessment services to help new Canadians establish their eligibility for certification as a general medical laboratory technologist. They can be contacted at Canadian Society for Medical Laboratory Science, PO Box 2830 LCD I, Hamilton, ON, L8N 3N8, tel: (905) 528-8642, fax: (905) 528-4968, Web site: www.csmls.org. Technologists trained outside Canada, once assessed by the CSMLS, should make an appointment to meet with the BCIT Medical Laboratory Science program.

Degree Completion

Degree transfer into the Bachelor of Medical Laboratory Science program at the University of British Columbia (UBC) is possible on completion of the Diploma program and Medical Laboratory Certification with the Canadian Society of Medical Laboratory Science (CSMLS).

Other Canadian Universities also offer degree completion programs.

Accreditation

All participating laboratories and BCIT are accredited for training by the Canadian Medical Association Accreditation Services, a peer review process involving representatives from several laboratory professional associations, physicians and educators.

Program Content - Medical Laboratory Science

The program content and course descriptions are currently being developed. For current information, please view our Web site at www.bcit.ca.

Level 1	September - December
Level 2	January - May
Level 3	September - December
Level 4	January - May
Level 5	June - October

Certification examinations are written in early October.

Proof of competence and successful completion of all courses and clinical practicums in each level is required to progress to the next level.

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Health Regions and Clinical Laboratories Affiliated with the Program

B.C. Biomedical Laboratories
Central Vancouver Island Health Region (Nanaimo)
Capital Health Region (Victoria)
Fraser Valley Health Region
MDS-Metro Clinical Laboratories
North Shore Health Region
Simon Fraser Health Region
South Fraser Valley Health Region
Vancouver Richmond Health Region

Medical Radiography Technology

Two-and-a-Half-Year Diploma Program (Full-time)

The medical radiographer is a technologist who works as part of the health team composed of radiologists, interns, surgeons, nurses, laboratory technologists, biomedical technologists, nuclear medicine technologists, sonographers and other specialists. Radiographs are widely used as an aid in making medical diagnoses. A radiograph (X-ray) may be a routine film of the chest or a broken finger or it may form part of the sophisticated examinations used in the detection of heart, blood vessel or brain abnormalities. Radiographers work under the direction of a medical specialist (a radiologist) in the hospital radiology department, at the patient's bedside or in the operating room or Emergency department. Radiographers are also employed in private X-ray clinics.

Medical radiography is not a hazardous occupation. The dangers of radiation are well recognized and rigidly controlled. The conscientious radiographer can derive much personal satisfaction as a contributor to the success of the health team and the well being of the patient. Medical Radiography is a field suited to both men and women.

During training, medical radiography students receive intensive theoretical and practical instruction in lectures, labs at BCIT, as well as clinical experience in hospitals. Students are expected to participate as patients to practise positioning techniques. The final year consists of 48-week clinical training, which is completed at one of the participating hospitals (five in the Vancouver area; three in the Interior; two on Vancouver Island). This additional training is a prerequisite for writing the national certification examination set by the Canadian Association of Medical Radiation Technologists. Students should expect to be assigned to any of the 10 hospitals for their final 12 months of clinical experience.

Job Opportunities

Currently in this field, graduates find employment in casual positions (part-time to full-time hours) with one or more employers. The healthcare system as we currently know it is in a transition phase. Entering the Medical Radiological field means that you are prepared for life-long learning as your chosen career continues to change, grow and advance.

Program Length

Two-and-one-half years, full-time beginning in January each year. This includes a three-month break (June-August) after the first level.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

Level 1: \$1,000

Level 2 and 3: \$400

Level 4 and 5: \$500

(general estimated cost, subject to change).

Entrance Requirements

High school graduation. English 12(B) or 6 credits of 1st year English from UBC or equivalent. Math 12(C+). Physics 11(C+). Physics 12(C+). Biology 11(C+). Biology 12(C+). These entrance requirements must have been completed during the past five years. If longer than five years has elapsed, upgrading in the required subjects will be necessary.

Also required are basic keyboarding and computer skills and a minimum 40 hours of volunteer work in a hospital such as candy stripping and basic life support (Level C).

Applicants must have a strong sense of responsibility, a caring nature, an interest in the well-being of others, particularly the sick and injured, excellent interpersonal skills, strong problem-solving skills and the ability to function as part of a team. Applicants should be aware that the profession is both physically and mentally demanding and therefore requires individuals who cope well in a stressful environment.

Applicants must also complete an immunization program as well as a medical examination by a qualified physician. A pre-admission interview is conducted to assess the applicant's suitability for this field. Applicants must be competent in written and oral English. The applicant's suitability for the program is also assessed, following a two-day clinical orientation in a radiology department.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Accreditation

The program is accredited by the Canadian Medical Association-Conjoint Accreditation Services.

Transfer Credit/Degree Completion

BCIT offers a degree completion Bachelor of Technology in Medical Imaging. This degree continues on from the Medical Radiography two-year Diploma. Simon Fraser University (SFU) grants 57 credits towards a Bachelor of Science degree to graduates of the diploma program.

Program Content - Medical Radiography Technology

Level 1 (17 weeks) January to April			
		hrs/wk	credits
BHSC	1113	Anatomy and Physiology 1	2.0 2.5
BHSC	1241	Human Behaviour	2.5 2.5
MRAD	1102	Medical Imaging 1	3.0 3.0
MRAD	1104	Radiographic Anatomy and Physiology 1	3.0 3.0
MRAD	1106	Radiographic Procedures 1	9.0 9.5
MRAD	1107	Clinical Orientation	3.0 3.0
MRAD	1108	Clinical Education 1*	35.0 9.5
NURS	1180	Patient Care	2.0 2.0
PHYS	1275	Physics: Medical Rad 1	3.5 4.5

*Students are in hospitals for clinical experience for four weeks (35 hr/wk) during the month of May.

Level 2 (15 weeks) September to December			
BHSC	2213	Anatomy and Physiology	4.0 2.0
MRAD	2200	Clinical Education 2	35.0 9.5
MRAD	2204	Radiographic Anatomy and Physiology 2	4.0 2.0
MRAD	2205	Case Studies 1	3.0 2.0
MRAD	2206	Radiographic Procedures 2	10.0 7.5
MRAD	2207	Pathology 1	3.0 2.0
MRAD	2212	Medical Imaging 2	2.0 1.5
NURS	2180	Patient Care 2	6.0 2.5
PHYS	2275	Physics: Medical Rad 2	5.0 3.0

Level 2 is 15 weeks in length, including exam week. For the first six weeks of the school term students attend classroom/lectures on a full-time basis. For the remainder of the term, students alternate every two weeks between BCIT classroom/lecture hours and the clinical area (scheduled for 35 hours per week).

Level 3 (16 weeks) January to April			
COMM	1372	Communication for Medical Radiographers	4.0 2.0
MRAD	3300	Clinical Education 3	35.0 18.5
MRAD	3304	Radiographic Anatomy and Physiology 3	3.0 1.5
MRAD	3305	Case Studies 2	3.0 1.5
MRAD	3306	Radiographic Procedures 3	8.0 4.0
MRAD	3307	Pathology 2	3.0 1.5
MRAD	3308	Radiation Biology and Protection	3.0 1.5
MRAD	3309	Radiographic Procedures 4	3.0 1.5
MRAD	3312	Medical Imaging 3	2.0 1.0
PHYS	3375	Physics: Medical Rad 3	3.0 4.0

Level 3 is 16 weeks in length, including exam week. Students spend two-week blocks alternating between clinical hours and classroom/lecture hours. Therefore, although the school term is 16 weeks in length, total classroom time is eight weeks and total clinical time is eight weeks. Clinical weeks are scheduled at 35 hours a week.

Level 4 (33 weeks) May to December			
		hrs/wk	credits
MRAD	4400	Clinical Education	35.0 77.0

Level 5 (17 weeks) January to April			
		hrs/wk	credits
MRAD	5500	Clinical Education	35.0 39.5

Levels 4 and 5 total either 49 or 48 weeks in length depending on number of weeks of vacation. Length of vacation and time of year it is taken is dependent upon clinical training facility (i.e. hospital).

All didactic courses have a 60 per cent pass mark. All clinical experience has satisfactory/unsatisfactory grading.

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 Go to www.bcit.ca
 and click on
 admissions/registration



Nuclear Medicine Technology

Two-Year Diploma Program (Full-time)

Nuclear medicine is the application of radioactive materials to the diagnosis and management of disease in humans. It is primarily a diagnostic specialty and one of the most challenging and exciting branches of medicine.

Radioactive atoms are chemically identical to stable atoms of the same element and can be introduced into the basic chemical structure of many compounds. The radiation that is emitted from the radioactive atoms in the compound permits the detection and measurement of the compound within the human body. This provides a means of investigating normal and abnormal functions of specific chemical and physiological processes within a human being while those processes are going on. Virtually all physiological processes within the body are now measurable and can be "seen" using radioactive compounds and sophisticated instrumentation. Nuclear technology is also employed to assay the extremely small concentrations of certain substances in blood serum and other patient samples.

Nuclear medicine is responsible for a host of revolutionary, safe, non-invasive diagnostic procedures that are now available to physicians in many branches of medicine.

Job Opportunities

A nuclear medicine technologist performs the diagnostic procedures of nuclear medicine. Certified graduates work primarily in the nuclear medicine departments of hospitals. In addition to performing a wide variety of tests on patients, the technologist may also perform lab tests on patient samples, prepare radiopharmaceuticals for injection into patients, record test results, receive, handle, record, store and measure radioactive materials and perform quality control procedures on a wide variety of instrumentation and imaging devices. In B.C., the beginning wages for entry-level positions are approximately \$21-23 per hour.

The Program

The Nuclear Medicine Technology program design, content and entrance requirements are currently undergoing a curriculum review process and may be subject to change.

Designed to prepare graduates to function as technologists in nuclear medicine departments, the program is a combination of lecture and lab instruction at BCIT and clinical experience in the nuclear medicine departments of clinical facilities currently affiliated with the program.

The student will spend Levels 1 and 2 of first year at BCIT for lectures and labs in basic subjects applicable to nuclear medicine technology and patient care. BCIT is equipped with a lab containing facilities and equipment commonly used in nuclear medicine departments. The student spends the summer term of first year in the nuclear medicine department of a hospital.

In second year, the student spends alternate two-week periods at BCIT and the nuclear medicine department of several Vancouver area hospitals. The summer term of second year is spent in a nuclear medicine department gaining further clinical experience.

Note: During the summer terms only, students may be assigned to any of the accredited hospitals, some away from the greater Vancouver area.

On successful completion of the two-year (six-term) program, the student receives the BCIT Diploma of Nuclear Medicine Technology and is eligible to write national certification examinations.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First-year: \$1,200

Second-year: \$850

(general estimated cost, subject to change).

Entrance Requirements

High school graduation. English 12(C+). Math 12(C+). Chemistry 12(C+). Physics 11(C+). Biology 12 and Physics 12 are also strongly recommended. These entrance requirements should have been completed during the past five years. If longer than five years has elapsed, individual assessment will be required. Since the work is highly technical and exacting, the student must feel comfortable with complex instruments, possess considerable manual dexterity and have meticulous work habits. Applicants must have a strong sense of responsibility and a desire to work as a healthcare team worker. Excellent communication and interpersonal skills are required.

Applicants selected for the program will be required to:

- Submit completed health forms; applicants must undergo a medical examination by their own physician and have a complete updating of immunizations. A Hepatitis vaccine is strongly recommended and is available at BCIT at no cost.
- Provide proof of current Cardiopulmonary Resuscitation Level C.
- Agree to undertake a criminal record search.
- Sign a consent for full participation in labs held at BCIT and clinical experience at affiliated sites.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Application Deadline

Deadline for completed applications is April 30, 2001. All program requirements must be completed and documentation received in admissions prior to the deadline. Applications are accepted by the BCIT Admissions department after October 1 for entry the following September. For any courses that are in progress, we recommend that interim marks and updates be submitted.

Selection Process

The selection process is competitive. Due to the large number of applications and limited number of student seats, not all qualified applicants can be accepted. Based on the documentation submitted, selected applicants will be invited for an interview conducted by members of the Nuclear Medicine Technology program to assess the applicants' suitability for the field and their communication skills.

Applicants selected for the program will be required to:

- Submit completed health forms; applicants must undergo a medical examination by their own physician and have a complete updating of immunizations. A Hepatitis vaccine is strongly recommended and is available at BCIT at no cost.
- Provide proof of current Cardiopulmonary Resuscitation Level C.
- Agree to undertake a criminal record search.
- Sign a consent for full participation in labs held at BCIT and clinical experience at affiliated sites.

Degree Completion

Simon Fraser University grants two years credit toward a Bachelor of Science degree to graduates of this program.

Professional Association Registration

Graduates of the BCIT program are eligible to take the National Certification examinations set by the Canadian Association of Medical Radiation Technologists. Successful candidates may use the designation Registered Technologist Nuclear Medicine (R.T.N.M.) and work as registered nuclear medicine technologists anywhere in Canada and in many other parts of the world. Advanced Certification is available.

Graduates are also eligible to take the Nuclear Medicine Technology Certification Board exam in the United States.

Accreditation

The program is accredited by the Canadian Medical Association Diagnostic Imaging in Medical Radiation Technology Conjoint Committee for Accreditation and by the Joint Review Committee for Educational Programs in Nuclear Medicine Technology in the United States.

Program Content - Nuclear Medicine Technology

			hrs/wk	credits
Level 1 (15 weeks)				
BHSC	1106	Anatomy and Physiology 1	5.0	5.0
BHSC	1126	Medical Microbiology and Immunology	2.0	2.0
CHEM	1116	Chemistry 1 for Nuclear Medicine Technology	4.0	4.0
MATH	1751	Technical Mathematics for Nuclear Medicine	4.0	4.0
NMED	1116	Nuclear Medicine Laboratory Skills	3.0	3.0
NMED	1020	Radiopharmaceuticals 1	4.0	4.0
NMED	1040	Introduction to NMT	2.0	2.0
PHYS	1274	Physics for Nuclear Medicine 1	6.0	6.0
Level 2 (20 weeks)				
BHSC	2206	Anatomy and Physiology 2	4.0	5.5
CHEM	2216	Chemistry 2 for Nuclear Medicine Technology	4.0	5.5
MATH	2751	Statistics for Nuclear Medicine Technology	3.0	4.0
NMED	2025	Radiopharmaceuticals 2	4.0	5.0
NMED	2040	Applied Physiology 1	2.0	2.5
NMED	2050	Radiobiology and Protection	2.0	2.5
NURS	1181	Patient Care	3.0	4.0
PHYS	2274	Physics for Nuclear Medicine 2	8.0	10.5
Summer (12 weeks)				
NMED	2090	Clinical Experience 1	35.0	28.0
Level 3 (15 weeks)				
BHSC	3306	Pathophysiology 1	5.0	3.0
NMED	3010	Image Display	3.0	2.0
NMED	3040	Applied Physiology 2	17.0	9.0
NMED	3080	Clinical Experience 2	35.0	14.0
PHYS	3274	Physics for Nuclear Medicine 3	6.0	3.0
Level 4 (20 weeks)				
BHSC	1439	Human Behaviour	3.0	2.0
BHSC	4406	Pathophysiology 2	3.0	2.0
COMM	1474	Communication for NMT	4.0	2.5
NMED	4040	Applied Physiology 3	15.0	9.5
NMED	4080	Clinical Experience 3	35.0	20.0
PHYS	4274	Physics for Nuclear Medicine 4	5.0	3.0
Summer (15 weeks)				
NMED	4090	Clinical Experience 4	35.0	32.5

*All courses have a 60 per cent pass mark

During Levels 3 and 4, students are in the clinical area for alternate two-week periods of 35 hours per week. The hours listed for these levels are the average hours per week for the term on campus.

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Faculty and Staff

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Clinical Instructors

Burnaby Hospital, Gary Ferdinands, R.T.N.M.
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 Lions Gate Hospital, Debbie Shaw, R.T.N.M.
 Nanaimo Regional General Hospital, Sonya Gibson, R.T.N.M.
 Royal Columbian Hospital, Phyllis Watson, R.T.N.M.
 Royal Jubilee Hospital, Kelly de Groot, R.T.N.M.
 St. Paul's Hospital, Nazma Tarmohamed, R.T.N.M.
 Surrey Memorial Hospital, Alida Dhanani, R.T.N.M.
 Vancouver General Hospital, Linda Harrison, R.T.N.M.
 Victoria General Hospital, Debbie Tooby, R.T.N.M.

Nursing Program

Bachelor of Technology in Nursing (Full- and Part-time)

Two-and-a-Half Year Diploma Program (Full-time)

Please refer to our Web site at www.health.bcit.ca/nursing for current program information.

Registered Nurses (RN) work with other health care professionals in hospitals and community health settings to help people manage their health. To function effectively, nurses must operate according to the Standards for Nursing Practice in British Columbia. Effective communication, continual learning, reasoning and reflection, professionalism and collaboration with other health professionals are especially important in nursing.

Job Opportunities

Registered Nurses (RNs) are employed in hospitals and community health settings. Successful completion of the diploma or degree option of the Nursing program will provide graduates with the knowledge, skills and attitudes necessary to work in all entry-level nursing and complex acute care nursing settings. The salary range for Registered Nurses is \$40,214 - \$49,500 per annum (April 2000). Additional payment is received for shift work and charge positions. RNs with a nursing degree receive an additional \$100 per month.

The Program

The major focus of the Nursing Program is acute care in hospitals and the community. As the demands and complexity of the British Columbia health care system have expanded and requirements for registration have increased, courses in nursing, management/leadership, communication, community theory and practice, research, specialty theory and practice, and liberal studies have been added to the traditional courses in clinical techniques, professional knowledge and clinical practice.

The program provides for two completion options, the Diploma option or the Bachelor of Technology Degree option. Both options prepare highly skilled 'job-ready' graduates eligible for nurse registration. Students complete a common, core program for Levels 1 through 4. Those students who wish to continue in the Bachelor of Technology option must apply for this option at the end of Level 3. In the event of limited seat availability, students who apply for the Bachelor of Technology Degree option will be selected on the basis of grade point average (GPA) for Level 1 through 3. Students who successfully complete the core program and who do not apply for the Bachelor of Technology Degree option will continue in the Diploma option.

To help students develop the skills required in the health care system of tomorrow, both options of the program emphasize the development of professionalism, communication, professional growth, reasoning and reflection, creative leadership (including group facilitation skills) and technical skills, as well as acquisition of an integrated body of knowledge that is useful in nursing practice. To help students develop these skills, self-directed learning, problem-based learning, small group learning and information and communication technology skills are emphasized.

Self-directed learning is a method that encourages students to take charge of their learning by identifying learning needs, implementing strategies to meet these learning needs, and evaluating progress toward learning. These skills prepare students for life-long learning and professional growth.

Problem-based learning is an approach in which a health 'problem' is presented as a starting point for learning. With the help of a tutor, students work together to acquire the knowledge they need to nurse patients with the health problem. Two to three problems are presented in each course. Problem-based learning has two purposes: the development of a base of knowledge related to the problem and the development of reasoning and problem-solving skills. Because it occurs in groups of about ten people, communication and group facilitation skills are also developed.

Small group learning is an approach in which students work in groups of 4 to 12 people to learn material and discuss course issues. Communication and group facilitation skills are perfected in these groups. Information and communication technology skills are skills that enable students to access CD-ROM and online databases for information, to use Internet course materials and resources, and to communicate via e-mail and bulletin boards, mixed media presentation and written reports.

The program offers courses in nursing, basic health sciences, psychology, English, liberal studies, health informatics, health care management and specialty nursing. Learning opportunities in hospitals include practica with acutely ill elders, adults, children and families. Learning opportunities in community health include practica with various community health agencies, home care and community groups. The practicum experience can be during the day, evening or night shifts. All nursing programs in British Columbia are evaluated and approved by the Registered Nurses Association of British Columbia.

Preparation for the Program

Applicants assessing their aptitude for Nursing and/or wishing to prepare themselves for this program should read Mosby's Tour Guide to Nursing School, 3rd ed. by M. Chenevert. It is available in the BCIT Bookstore, Burnaby campus. We also recommend that prospective applicants attend a BCIT Information session on the Nursing program. Please call (604) 434-1610 for available dates. To inquire about becoming a 'student for a day', please call (604) 451-6954.

Computer literacy is a program requirement. Prospective students unfamiliar with word processing and the Internet should become comfortable with both aspects of computer use before entering the program.

Students are expected to write academic papers.

Program Length

Diploma Option – the program is approximately two-and-one-half years in length and consists of five, 17-week levels. The length of the diploma program is currently under review.

Bachelor of Technology Degree Option – the program is approximately three and one-half years in length and composed of seven, 17-week levels. The degree option program must be completed within three years from the beginning of Level 5.

For both program options, the fall term extends from August to mid-December and the winter term extends from January to mid-May. Students are free from mid-May to August. There may be an option of a spring term for students taking courses that are offered through distance education.

Tuition Fees 2001/2002 (subject to change)

Diploma option: \$5858.25 for the complete program.

Bachelor of Technology Degree option: Levels 1-4 are \$4686.60 in total.

Tuition fees for Levels 5, 6, and 7 are a combination of a term fee and individual course fees of \$150 per credit (for course-by-course registration) to a maximum of \$1820 per level for the prescribed courses in a level.

Books, Supplies and Miscellaneous Expenses (2001/2002)

Level 1 - \$1,000, Level 2 - \$550, Level 3 - \$535

Level 4 - \$650, Level 5 - \$1,000, Level 6 - \$650, Level 7 - \$750

(general estimated cost and subject to change)

Additional expenses may be incurred. Uniforms and shoes are about \$250. The student is responsible for transportation to assigned hospitals and community agencies. We recommend that students have the use of a car, particularly for Levels 5, and 6 and 7 if applicable. Level 1 students are required to join the Registered Nurses Association of British Columbia as student members, and to maintain active student membership throughout their nursing program at BCIT. The membership fee is \$37.45 (subject to change) and includes a compulsory criminal record search. If applicants have concerns about the criminal record search, please phone the RNABC. The yearly renewal of membership is \$26.75 (subject to change).

Application Deadline Dates

For the January intake, applications are accepted from June 1 to August 31.

For the August intake, applications are accepted from October 1 to January 31.

Entrance Requirements

All academic requirements must be complete before submitting an application.

Academic (A or B must be completed):

A. High school graduation or GED or BTSD level 4 is required with:

- i. English 12 (B) or better, or ENGL 1177 (Academic Writing) with a (P) or better, or equivalent (i.e. 3 credits of a university/college first-year transferable English composition course with a pass or better).
- ii. Chemistry 11 (C+) or better.
- iii. Math 11(C+) or better.
- iv. Biology 12 (C+) or better, or BCIT course BHSC 0100 (C+) or better, or BHSC 2217 (C+) or better (Distance Ed.) Please note that BHSC 0100 and BHSC 2217 are acceptable in lieu of Biology 12 for this program, but are not university transferable.

Biology recency:

Applicants who have not completed their Biology 12 (C+) or acceptable equivalent within the last five years but have successfully completed biology courses at a post-secondary level, will have the acceptability of their Biology prerequisite assessed on an individual basis.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

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For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

B. High school graduation and successful completion of BCIT Technology Entry program (TE) with the following minimum standings - COMM 0007 with 80 per cent; CHEM 0010 with 65 per cent; COMP 0107 with 50 per cent; NTRY 0301 with (S); MATH 0005 with 60 per cent; and Biology 12 (C+) or BCIT course BHSC 0110 (C+) or BHSC 2217 (C+). Biology 12 is not part of the TEU/TEWELT program and must be completed at another institution or through BCIT Part-time Studies (BHSC 0100 or 2217). For more information on these programs please call (604) 451-6815 or fax (604) 434-9451 or refer to the information contained in this Calendar.

Non-academic:

A. Employment or Volunteer Work:

For individuals with previous employment (does not have to be in the healthcare area), evidence of this employment and a satisfactory confidential reference is required. Work experience is preferred for all applicants. If applicants do not have work experience, volunteer experience in a healthcare area is required. The health-related volunteer experience must include a minimum of 30 hours of volunteer work with a satisfactory confidential reference.

B. Immunization:

Completion of the immunization form is required before final acceptance into the program.

C. Satisfactory Health:

Satisfactory health is required for all applicants. Applicants should contact BCIT Medical Services if they have questions related to whether or not their level of health is compatible with the requirements of the Nursing program.

D. Cardio-Pulmonary Resuscitation (C.P.R.):

C.P.R. (Level C or Basic Rescuers) is required and must be kept valid during the entire program.

E. Course assignments must be typed. Typing, word processing and computer skills are required.

F. On entry to the program, student membership in the Registered Nurses Association of British Columbia (RNABC) is required. A compulsory criminal record search will be done at this time. (Cost is borne by the student.) If you have any concerns please contact the RNABC.

G. You may be required to attend an interview. You will be contacted by BCIT if this is required.

H. Applicants with demonstrated ability (C+ grade or higher) in university-level courses (any subject area) will be given preference for admission.

I. Recommended only: library skills are an advantage to students in the program.

Note: Applicants are prioritized based on qualifications (i.e. post-secondary education and related work experience).

Direct entry to Diploma or Degree Option

Licensed Practical Nurses (L.P.N.) are eligible for consideration directly into the second level of the Nursing core program if the requirements outlined below have been met and a seat is available.

Academic Requirements

A. Current **full** registration as a Licensed Practical Nurse in any Canadian province.

B. Graduate of a Licensed Practical Nursing program and, if graduated within one year of acceptance into the BCIT Nursing program, employment in patient care is not required; if the applicant graduated more than a year prior to acceptance, employment in patient care for a minimum of 1,420 hours during the past five years is required. Consideration may be made for those who graduated within the past two to five years, but do not have the minimum 1,420 hours. If this is your situation please include a letter outlining your work experience.

C. Graduation from high school or equivalent.

D. English 12 with a B or better. The following are also acceptable: satisfactory completion of BCIT ENGL 1177 Academic Writing, a university/college first-year transferable English composition course with a pass or better.

E. Math 11 with a C+ or better (a challenge exam can be written at BCIT).

F. Chemistry 11 with a C+ or better.

G. Applicants with the following will be given preference:

- i. The equivalent of at least six months full-time clinical experience on a medical/surgical ward as a Licensed Practical Nurse, within the last two years.
- ii. Successful completion of university level courses, taken within the past ten years.

Non-Academic Requirements

A. One reference letter (non-family) which specifically addresses the potential for academic success and capability in nursing.

i. If the applicant is a recent graduate, then this reference must come from a faculty member of their L.P.N. program who is able to summarize his/her time while in the program.

ii. If the applicant is employed in nursing, this confidential reference is to be from her/his employer and sent directly to the Nursing department.

B. A satisfactory interview with a member of the Nursing program.

C. The rest of the entrance requirements are identical to those for Level 1 students in the non-academic section of the BCIT Calendar. (Please refer to our Web page: www.health.bcit.ca/nursing). These entrance requirements deal with immunization, satisfactory health, CPR, the need for word processing and computer skills. Applicants are directed to review these requirements for entrance.

Note: on entry to the program, student membership in the Registered Nurses Association of British Columbia is required. A criminal record search will be done at this time. The cost of the membership is borne by the student; additional credit will be dealt with on a course by course basis, following BCIT course exemption procedures.

Registered Psychiatric Nurses are eligible for placement into Level 3 of the Nursing core program if the requirements outlined below have been met and seats are available.

Academic Requirements

- A. Current active registration as a Registered Psychiatric Nurse in Canada.
- B. Graduate of a Registered Psychiatric Nursing Program and, if the applicant graduated within one year of acceptance into the BCIT Nursing program, employment in patient care is not required. If the applicant graduated more than a year prior to acceptance, employment in patient care for a minimum of 1,420 hours during the past five years is required. Consideration may be made for those who graduated within the past two to five years, but do not have the minimum 1,420 hours. If this is your situation please include a letter outlining your work experience.
- C. Graduation from high school or equivalent.
- D. English 12 with a B or better. The following are also acceptable: satisfactory completion of BCIT ENGL 1177 Academic Writing, a university/college first-year transferable English composition course with a pass or better.
- E. Math 11 C+ or better (a challenge exam can be written at BCIT).
- F. Applicants with the following will be given preference:
 - i the equivalent of at least six months full-time clinical experience as a Registered Psychiatric Nurse, in the last two years.
 - ii successful completion of university-level courses, taken within the past ten years.

Non-Academic Requirements

- A. One reference letter (non-family) which specifically addresses the potential for academic success and capability in nursing.
 - i If the applicant is a recent graduate, this reference must come from a faculty member of their L.P.N. program who is able to summarize his/her time while in the program.
 - ii If the applicant is employed in nursing, this reference is to be from her/his employer.
- B. A satisfactory interview with a member of the Nursing program.
- C. The rest of the entrance requirements are identical to those for Level 1 students in the Non-Academic section of the BCIT Calendar. (Please refer to our Web page: www.health.bcit.ca/nursing) These entrance requirements deal with immunization, satisfactory health, C.P.R., the need for word processing and computer skills. Applicants are directed to review these requirements for entrance.

Note: on entry to the program, student membership in the Registered Nurses Association of British Columbia is required. A criminal record search will be done at this time. The cost of the membership is borne by the student; additional credit will be dealt with on a course by course basis, following BCIT course exemption procedures.

Advanced Training

Graduates may elect to undertake one of the many part-time advanced certificate programs at BCIT or elsewhere in B.C., Canada, or the U.S., to further their knowledge and/or skills in specialty areas of nursing. All B.C. universities recognize diploma nursing preparation.

BCIT offers a Bachelor of Technology in Specialty Nursing. Specialty Nursing programs are offered in Critical Care, Emergency, Neonatal, Nephrology, Pediatric, Pediatric Critical Care, Perinatal, Occupational Health and Perioperative Nursing. For more information, see the Specialty Nursing section of this calendar or contact BCIT Registration and Information at (604) 434-1610.

Professional Registration

Following completion of either option of the Nursing program at BCIT, graduates must write the Canadian registration examinations to obtain the R.N. (Registered Nurse) designation. There is a fee for these examinations: the June 2000 examination fee is \$265. Applicants for nurse registration are required to disclose previous criminal convictions and to have a criminal record search. Concerns regarding criminal records should be discussed with the RNABC.

For more information about the BCIT Nursing program please contact Registration and Information at (604) 434-1610 or visit our Web site at www.health.bcit.ca/nursing.

We invite you to attend one of BCIT's Nursing Information Sessions held throughout the year. To find out about and register for the next available Information Session please contact Registration and Information at (604) 434-1610.

**Access the latest BCIT
program information
at www.bcit.ca**



Program Content - Nursing

Core Requirements (Note: No credential is granted upon completion of core program requirements.)

		Credits
Level 1 (17 weeks)		
BHSC 1103	Physiology and Pathophysiology	3.5
PSYC 1101	Introductory Psychology 1	3.0
ENGL 1177	Academic Writing	3.0
NURS 1000	Applied Nursing Science 1	3.5
NURS 1019	Clinical Techniques 1-Assessment	3.5
NURS 1020	Clinical Techniques 1-Laboratory	3.5
NURS 1040	Professional Practice Seminar 1	2.5
NURS 1030	Nursing Practicum 1	5.5

Level 2 (17 weeks)		
BHSC 2203	Physiology and Pathophysiology	3.5
BHSC 2228	Microbiology	3.0
NURS 2000	Applied Nursing Science 2	3.5
NURS 2020	Clinical Techniques 2-Laboratory	3.5
NURS 1050	Interpersonal Communication	2.0
NURS 2030	Nursing Practicum 2	9.0

Level 3 (17 weeks)		
BHSC 3329	Immunology for Nursing	3.5
PSYC 1102	Introductory Psychology 2	3.0
NURS 3000	Applied Nursing Science 3	3.0
NURS 3032	Family Nursing Theory	2.0
NURS 3034	Family Practicum	5.0
NURS 3036	Mental Health Issues in Nursing	1.0
NURS 3038	Mental Health Practicum	6.0

Level 4 (17 weeks)		
NURS 1060	Pharmacology	2.0
NURS 2040	Professional Practice Seminar	2.0
NURS 3020	Clinical Techniques 3-Laboratory	2.0
NURS 4000	Applied Nursing Science 4	3.5
NURS 4030	Nursing Practicum 4	11.5

Diploma Option

Level 5 (17 weeks)		
NURS 4530	Nursing Practicum 5	28.0

Note: The length and curriculum of the Diploma option is currently under review; contact program staff for program advising.

Bachelor of Technology Degree Option

Level 5 (17 weeks)		
NURS 7030	Nursing Practicum 6	13.0
NURS 7050	Communication for Effective Leadership	3.0
NURS 7100	Community Nursing	3.0
BUSA 7250	Management Skills & Applications	3.0*
LIBS 7001	Critical Reading & Writing	3.0*
Specialty Nursing elective (see list of courses below)		3.0*

Level 6 (17 weeks)		
HINS 5205	Health Informatics	3.0
NURS 7130	Nursing Practicum 7	7.5
NSSC 8300	Creative Leadership	3.0
NSSC 8800	Community Health	3.0
LIBS 7002	Applied Ethics	3.0*

Specialty Nursing Elective (see list of courses below)	3.0*
Liberal Studies Elective (see Liberal Studies section of this calendar)	3.0*

Note: Students must register for a minimum of 17 credits in Level 6 to qualify for Financial Aid.

Level 7 (17 weeks)		
NURS 8000	Systematic Inquiry	3.0
NURS 8130	Nursing Practicum 8	6.0
NURS 8330	Nursing Practicum 9	13.0
HMGD 5180	Canadian Health System	3.0*
Liberal Studies Elective (see Liberal Studies section of this calendar)		3.0*

* Denotes courses registered on course-by-course basis at \$150 per credit. These courses must be completed before graduation.

Note: The Bachelor of Technology Degree option curricula is currently under review and the courses listed above may change. For current information, contact program staff for program advising.

Specialty Nursing Courses

Students in the Bachelor of Technology Degree option should take two courses from one specialty. Those wishing to take beginning courses from two specialties must consult with a Bachelor of Technology in Nursing advisor. Course descriptions for the Specialty Nursing electives can be found in the Specialty Nursing section of this calendar. Select from the following Specialty Nursing courses:

Course			Credits
NSNN	7200	Introduction to Nephrology Nursing	3.0
NSNN	7300	Predialysis Clinical	2.0
NSNN	7400	Introduction to Dialysis Nursing	3.0
NSCC	7100	Introduction to Critical Care Nursing	3.0
NSCC	7200	Critical Care Nursing Theory 1	4.0
NSCC	7225	Cardiac Nursing Theory	2.0
NSER	7100	Introduction to Emergency Nursing Theory 1	3.0
NSER	7200	Emergency Nursing Theory 2	4.0
NSER	7800	Emergency Nursing and Mental Health	3.0
NSNE	7100	Neonatal Theory 1	3.0
NSNE	7200	Neonatal Theory 2	3.0
NSPE	7100	Pediatric Theory 1	3.0
NSPE	7200	Pediatric Theory 2	3.0
NSPE	7210	Pediatric Critical Care Theory 2	3.0
NSPE	7910	Pediatric Nursing in the Home	3.0
NSPE	7920	Pediatric Arrest Management	3.0
NSPN	7100	Perinatal Theory 1	3.0
NSPN	7200	Perinatal Theory 2	3.0
NSPO	7100	Perioperative Theory 1	3.0
NSPO	7200	Perioperative Theory 2	4.0

Faculty and Staff

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Occupational Health and Safety

Two-Year Diploma Program (Full-time)

One of the primary purposes of this program is to graduate individuals who are able to provide the knowledge and leadership necessary to develop programs in industry that will assist in conserving life, health and property; improve productivity by implementing loss control programs in consultation with company and labour officials; identify health and safety hazards in the work environment and advise corrective action. The occupational health and safety professional plays a major role in the development and application of accident investigations, risk assessments, loss prevention, and safety training programs for workers.

To achieve these career objectives, applicants are expected to be mature, objective persons who possess the ability to communicate decisions and goals in a tactful and professional manner.

Job Opportunities

Career openings are found throughout industry, government, and regulatory agencies where the health and safety of workers is of concern. As well, many graduates are finding employment as consultants.

The Program

The science-oriented program includes combined studies in the safety, health, engineering and business fields. This ideal combination prepares the student to understand the potential safety and health hazards of the work environment, as well as the human relations involved in seeking beneficial solutions and methods of improving the workplace environment.

Program Length

Two years, full time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First-year: \$1,500

Second-year: \$1,100

(general estimated cost and cost, subject to change).

Students are required to obtain C.S.A. approved safety footwear in the first term.

Entrance Requirements

High school graduation. English 12. Math 12. Chemistry 11. Physics 11. Candidates will be interviewed. Preference will be given to applicants who have completed the entrance requirements within five years prior to application. In addition, it is strongly recommended that candidates be familiar with the use of personal computers.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

Technology Entry (TE) Program

This full-time, day-school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Sciences programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Program Content - Occupational Health and Safety

Level 1 (15 weeks)			hrs/wk	credits
BLAW	1100	Introductory Law for OCHS	1.5	1.5
BUSA	1610	Microcomputer Software 1	3.0	3.0
CHEM	1115	Chemistry 1 for OCHS	6.0	6.0
COMM	1188	Communication 1 for OCHS Professionals	3.0	3.0
MATH	1881	Technical Mathematics for OCHS	4.0	4.0
OCHS	1143	OCHS Legislation	2.5	2.5
OCHS	1161	Principles of Loss Management	5.0	5.0
PHYS	1288	Applied Physics 1 for OCHS	5.0	5.0
Level 2 (20 weeks)				
BHSC	1207	Anatomy and Physiology	2.0	2.5
BUSA	2610	Software Systems	3.0	4.0
CHEM	2215	Chemistry 2 for OCHS	5.0	6.5
COMM	2288	Communication 2 for OCHS Professionals	3.0	4.0
MATH	2881	Statistics for OCHS	4.0	5.5
OCHS	1262	Hazardous Materials Management	3.0	4.0
OCHS	2272	Safety Engineering and Training	5.0	6.5
PHYS	2288	Applied Physics 2 for OCHS	5.0	6.5

Level 3 (15 weeks)			hrs/wk	credits
CHEM	3315	Organic Chemistry for OCHS	6.0	6.0
COMM	3388	Advanced Communication for OCHS	4.0	4.0
ENVH	3350	Noise and Vibration	5.0	5.0
HRMG	3220	Industrial Relations for OCHS	3.0	3.0
OCHS	1300	Ergonomics	3.0	3.0
OCHS	1555	Environmental Management	3.0	3.0
OCHS	3359	Risk Management	3.0	3.0
OCHS	3371	Safety in the Workplace	3.0	3.0

Level 4 (20 weeks)				
CHEM	4418	Industrial Chemistry for OCHS	3.0	4.0
CHSC	1488	Engineering Concepts for OCHS	3.0	5.5
COMM	4488	Writing Safety Program Reviews	2.0	2.5
ENVH	3450	Occupational Hygiene	7.0	9.0
FMGT	1154	Accounting for Health Managers*	3.0	2.0
HRMG	3060	Human Resource Management*	4.0	2.5
OCHS	1460	Fire Prevention and Security	4.0	5.5
OCHS	4458	Safety Program Review	6.0	8.0

* denotes a half-term (10-week) course

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Prosthetics and Orthotics Technology

Two-Year Diploma Program (Full-time)

Prosthetists and orthotists help people who have become disabled, or who were born with physical defects, by fitting them with artificial limbs or supports. The prosthetist designs, constructs and fits artificial limbs, while the orthotist designs, constructs and fits orthopedic braces and supports. Both work closely with doctors, physiotherapists and others in rehabilitation medicine. After assessing the needs of a patient, the prosthetist or orthotist may fabricate the artificial limb or support personally, or may develop specifications for its construction by a technician. The device is then fitted and adjusted to the patient. From time to time, repairs and maintenance work must also be done.

Job Opportunities

Prosthetists and orthotists work in rehabilitation hospitals and in private practice. Starting salaries are about \$30,000/annum, rising to about \$50,000 after certification.

The Program

The two-year course of studies combines lectures, labs and practical experience in local health agencies. The curriculum equips graduates to recognize patient problems, assess individual needs, design and construct appliances, select appropriate materials and deal with the emotional difficulties of patients.

The Prosthetics and Orthotics program is jointly funded by three western Canadian provinces: B.C., Alberta and Saskatchewan. Applications are accepted every second year on a pro-rated basis from each of the three provinces. The next intake of students is set for September 2002.

Program Length

Two years, full time, with intake in September of even-numbered years.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First-year: \$1,060

Second-year: \$995

(general estimated cost, subject to change).

Entrance Requirements

High school graduation. English 12. Math 12. Physics 11. C+ average or better in all academic requirements. Because of the limited number of seats and large number of applicants, only the most suitable applicants are accepted into the program. The process is competitive. Some applicants may meet the minimum requirements for admission and are not short-listed for interviews. Short-listed applicants are called in for a comprehensive, in-person interview by the selection committee.

Applicants wishing to enter this field should be interested in the welfare of people and possess a caring, professional attitude and good interpersonal skills. They should also have a strong academic background, a mechanical aptitude, and good manual dexterity. Patience and inventiveness are of considerable importance. A Letter of Intent detailing the applicant's career goals, knowledge of the profession, related experience and reason for seeking admission to the program is required.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Expenses

Students are also responsible for costs of travel to and from agencies where practicum or clinical seminars are held, and should be prepared to purchase certain small hand tools.

Professional Association Registration

After 22 months work experience under the guidance of a certified orthotist or prosthetist, graduates may write the National Certification examination of the Canadian Board of Certification for Prosthetists and Orthotists.

Program Content - Prosthetics and Orthotics Technology

Level 1 (15 weeks)		hrs/wk	credits
BHSC 1110	Anatomy and Physiology 1	4.0	4.0
COMM 1184	Technical Writing for Prosthetics and Orthotics	3.0	3.0
MATH 1841	Technical Math for Prosthetics and Orthotics	4.0	4.0
PHYS 1284	Physics for Prosthetics and Orthotics	4.0	4.0
PROR 1100	Prosthetics and Orthotics 1	15.0	15.0
Level 2 (20 weeks)			
BHSC 1242	Behavioural Science	3.0	3.5
BHSC 2210	Anatomy and Physiology 2	4.0	4.5
BHSC 2211	Regional Anatomy 1	2.0	2.0
CHSC 1284	Materials Workshop	2.0	2.0
MATH 2841	Statistics for Prosthetics and Orthotics	1.0	2.0
PROR 2200	Prosthetics and Orthotics 2	14.0	16.0
PROR 2220	Biomechanics	3.0	3.5
PROR 2230	Practicum (3 weeks)	35.0	7.0
Level 3 (15 weeks)			
BHSC 3310	Pathology and Pathophysiology	3.0	3.0
BHSC 3311	Regional Anatomy 2	2.0	2.0
NURS 1183	Patient Care	2.0	2.0
PROR 3300	Prosthetics and Orthotics 3	19.0	19.0
PROR 3320	Biomechanics	2.0	2.0
PROR 3330	Applied Materials	2.0	2.0
Level 4 (20 weeks)			
BHSC 4410	Applied Pathology	2.0	2.0
BMET 1482	Applied Electrical Fundamentals	2.0	2.0
COMM 2284	Technical Writing	2.0	3.0
PROR 1402	Professional Ethics	3.0	3.0
PROR 4330	Practicum (4 weeks)	35.0	9.5
PROR 4400	Prosthetics and Orthotics 4	14.0	15.0
PROR 4410	Patient Assessment and Care	3.0	3.0
PROR 4420	Case Studies	5.0	5.5

Faculty and Staff

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Specialty Nursing

Bachelor of Technology (Part-time)

Introduction

The Bachelor of Technology in Specialty Nursing is the only program in British Columbia designed to prepare registered nurses for employment in specialty nursing practice.

These specialties include:

• Critical Care	(604) 451-7103
• Emergency	(604) 451-7094
• Neonatal	(604) 432-8982
• Nephrology	(604) 451-7094
• Occupational Health	(604) 451-7102
• Pediatric	(604) 432-8982
• Pediatric Critical Care	(604) 432-8982
• Perinatal	(604) 432-8982
• Perioperative	(604) 451-7102

For all programs, call toll-free in Canada and U.S.
(1-800) 663-6542.

Learners in the Bachelor of Technology in Specialty Nursing program are registered nurses who are either seeking employment or are employed in one of the nursing specialties listed above. The program combines part-time distance study with practice-based clinical education. Credit for previous experience and education is granted through a variety of transfer credit and course challenge procedures.

The curriculum for the Bachelor of Technology in Specialty Nursing has been developed through the collaborative efforts of the BCIT Specialty Nursing faculty, nursing curriculum consultants, employers, learners, practising nurses and clients. The curriculum focuses on the technology of specialized nursing practice. Technology is broadly conceptualized as the knowledge, skills and attitudes that specialty nurses require in order to practise.

The curriculum also focuses on building partnerships. Both nursing and learning are viewed as relational endeavours in which communication and collaboration enhance the processes and outcomes of these endeavours. Partnership, therefore, is the context in which specialty knowledge, skills and attitudes are learned and enacted.

The faculty are experienced clinical specialists, academically prepared as educators, who maintain their competency by regular clinical practice. They demonstrate their commitment to the profession and to practice-based education by active involvement in professional organizations and interest groups.

Graduate Characteristics

The Bachelor of Technology in Specialty Nursing program provides a broad range of perspectives, specialized knowledge and skills. The intent is to build on learners' previous experience and education in order to prepare them to competently care for individuals, groups and communities.

Competence in specialty nursing practice is facilitated by the following graduate characteristics:

- Development of reflective, critical thinking skills.
- Participation in collaborative relationships.
- Further development of verbal and written communication skills.
- Development of systematic inquiry as a basis of practice.
- Expansion of professionalism through caring for and about individuals, groups and communities.
- Engagement in personal and professional growth.

Flexible Learning Options

Learners may take all theory courses on a part-time basis via distance education modes. Selected courses may be offered on-site. Methods of delivery include print-based material, audio and video conferencing, computer mediated communications, and classroom formats. There are three terms per year, each 12 weeks in length: Winter, January to March; Spring, April to June; Fall, September to December. Registration should occur at least one month prior to the term start date.

Clinical courses are offered full-time or part-time at various appropriate clinical sites throughout the province of B.C. Clinical placements outside of B.C. may be negotiated individually.

Entrance Requirements

- Proof of active, or eligibility for, practising RNABC registration.
- English 12 or equivalent.
- Two years of current and relevant work experience.

Registration Procedures

Individuals interested in applying for entry into the Bachelor of Technology in Specialty Nursing program should complete a BCIT Bachelor of Technology Application Form and send it to the BCIT Admissions department.

Previous Learning

Learners with previous Specialty Nursing course work and relevant work experience will be assessed on an individual basis by the program faculty.

- Learners with previous BCIT course work will have this work assessed for potential credit into the degree program.
- Transfer of credit for non-BCIT Specialty courses may be granted.
- Transfer of credit for Liberal Education courses will be assessed by the Registrar's office.

Original, sealed transcripts and course outlines are required to assess transfer of credit.

Program Information

For more detailed information, please call the Specialty Nursing Advisor at 1-800-663-6542 or (604) 451-7100.

Program Structure

	Credits
1. Technical Component	48.0
a. Specialty Certificate	24.0 - 34.0
b. Core Courses	18.0 - 21.0
2. Liberal Education Component	12.0
Total	60.0 - 64.0

Program Content - Specialty Nursing

1. Technical Component

A. Specialty Certificate 24.0 - 34.0

Students choose one area and complete the requirements within that specialty area to qualify for a Specialty Certificate.

a) Critical Care	credits
NSSC 7115 Client Education	3.0
NSSC 7100 Introduction to Critical Care Nursing	3.0
NSSC 7200 Critical Care Nursing Theory 1	4.0
NSSC 7300 Critical Care Nursing Clinical 1	3.0
NSSC 7400 Critical Care Nursing Theory 2	5.0
NSSC 7500 Critical Care Nursing Clinical 2	5.0
NSSC 7600 Nursing the Complex Critically Ill Patient	4.0
Total	27.0

Students wishing to pursue the Cardiac Step Down/Telemetry Option:

NSSC 7115 Client Education	3.0
NSSC 7100 Introduction to Critical Care Nursing	3.0
NSSC 7200 Critical Care Nursing Theory 1	4.0
NSSC 7225 Cardiac Nursing Step-down Theory	2.0
NSSC 7325 Cardiac Nursing Step-down Clinical	4.0
NSSC 7400 Critical Care Nursing Theory 2	5.0
NSSC 7500 Critical Care Nursing Clinical 2	5.0
NSSC 7600 Care of Patients with a Complex Critical Illness	4.0
Total	30.0

Students wishing to pursue the Post Anesthetic Recovery Option:

NSSC 7115 Client Education	3.0
NSSC 7100 Introduction to Critical Care Nursing	3.0
NSSC 7200 Critical Care Nursing Theory 1	4.0
NSSC 7300 Critical Care Nursing Clinical 1	3.0
NSSC 7400 Critical Care Nursing Theory 2	5.0
NSSC 7500 Critical Care Nursing Clinical 2	5.0
NSSC 7625 Post-Anesthetic Care Nursing	4.0
Total	27.0

b) Emergency

NSSC 7115 Client Education	3.0
NSER 7100 Intro to Emergency Nursing Theory 1	3.0
NSER 7200 Emergency Nursing Theory 2	4.0
NSER 7300 Emergency Nursing Clinical 1	5.0
NSER 7400 Emergency Nursing Theory 3	4.0
NSER 7500 Emergency Nursing Clinical 2	5.0
NSSC 8160 Independant Study in Specialty Nursing or Program head approved elective	6.0
Total	30.0

Combined Critical Care/Emergency credits

NSSC 7115 Client Education	3.0
NSSC 7100 Introduction to Critical Care Nursing	3.0
NSSC 7200 Critical Care Nursing Theory 1	4.0
NSSC 7300 Critical Care Nursing Clinical 1	3.0
NSSC 7400 Critical Care Nursing Theory 2	5.0
NSSC 7500 Critical Care Nursing Clinical 2	5.0
NSER 7200 Emergency Nursing Theory 2	4.0
NSER 7300 Emergency Nursing Clinical 1	5.0
Total	32.0

Combined Emergency/Critical Care

NSSC 7115 Client Education	3.0
NSER 7100 Intro to Emergency Nursing Theory 1	3.0
NSER 7200 Emergency Nursing Theory 2	4.0
NSER 7300 Emergency Nursing Clinical 1	5.0
NSER 7400 Emergency Nursing Theory 3	4.0
NSER 7500 Emergency Nursing Clinical 2	5.0
NSSC 7400 Critical Care Nursing Theory 2	5.0
NSSC 7500 Critical Care Nursing Clinical 2	5.0
Total	34.0

c) Nephrology

NSSC 7115 Client Education	3.0
NSNN 7200 Nephrology Theory 1	3.0
NSNN 7300 Nephrology Clinical 1	2.0
NSNN 7400 Nephrology Theory 2	3.0
NSNN 7500 Nephrology Clinical 2	5.0
NSNN 7600 Nephrology Theory 3	3.0
NSNN 7700 Nephrology Clinical 3	5.0
Total	24.0

d) Neonatal

NSSC 7115 Client Education	3.0
One of the following two courses:	
NSNE 7100 Neonatal Theory 1 or	3.0
NSNE 7110 Neonatal Theory 1, Modified	3.0

One of the following two courses:

NSNE 7200 Neonatal Theory 2 or	3.0
NSNE 7210 Neonatal Theory 2, Modified	3.0
NSNE 7300 Neonatal Clinical 1	4.0
NSNE 7400 Neonatal Theory 3	4.0
NSNE 7500 Neonatal Clinical 2	4.0
Program Head Approved Electives	9.0
Total	30.0

e) Occupational Health

BUSA 7250 Management Skills and Applications	3.0
NSSC 7115 Client Education	3.0
NSOH 7100 Introduction to Occupational Health	3.0
NSOH 7200 Work and Work Environment 1	3.0
NSOH 7250 Work and Work Environment 2	3.0
NSOH 7255 OHN Practice Experience 1	1.0
NSOH 7300 OHN Practice Experience 2	3.0
NSOH 7400 Occupational Health Assessments	3.0
NSOH 7450 Occupational Health Surveillance	3.0
NSOH 7500 OHN: Practice Experience 3	4.0
NSOH 7600 Occupational Health Program Planning	4.0
Total	33.0

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f) Pediatric		credits
NSSC 7115	Client Education	3.0
NSPE 7100	Pediatric Theory 1	3.0
NSPE 7400	Pediatric Theory 3	4.0

One of the following two courses:

NSPE 7200	Pediatric Theory 2: Acute Illness, or	3.0
NSPE 7210	Pediatric Theory 2: Critical Care	3.0

One of the following two courses:

NSPE 7300	Pediatric Clinical 1, or	4.0
NSPE 7310	Pediatric Critical Care Clinical 1	4.0

One of the following two courses:

NSPE 7500	Pediatric Clinical 2, or	4.0
NSPE 7510	Pediatric Critical Care Clinical	4.0

Plus an additional 9.0 credits selected from the list below:

NSPE 7900	Pediatric Preceptorship	3.0
NSPE 7910	Pediatric Nursing in the Home	3.0
NSPE 7920	Pediatric Arrest Management	3.0
NSSC 8120	Independent Study in Specialty Nursing	2.0
NSPE 7940	Adv Concepts in Pediatric Nursing	3.0
and/or program head approved electives		9.0

Total 30.0

Students wishing to pursue the

Pediatric Critical Care Option:

NSSC 7115	Client Education	3.0
NSPE 7100	Pediatric Theory 1	3.0
NSPE 7210	Pediatric Theory 2: Critical Care	3.0
NSPE 7310	Pediatric Critical Care Clinical 1	4.0
NSPE 7400	Pediatric Theory 3	4.0
NSPE 7510	Pediatric Critical Care Clinical	4.0
NSPE 7940	Adv Concepts in Pediatric Nursing	3.0

Plus an additional 6.0 credits selected from the list below:

NSPE 7900	Pediatric Preceptorship	3.0
NSPE 7910	Pediatric Nursing in the Home	3.0
NSSC 8120	Independent Study in Specialty Nursing	2.0
and/or program head approved electives		6.0

Total 30.0

g) Perinatal

NSSC 7115	Client Education	3.0
NSPN 7100	Perinatal Theory 1	3.0
NSPN 7200	Perinatal Theory 2	3.0
NSPN 7250	Fetal Health Surveillance	0.5
NSPN 7300	Perinatal Clinical 1	6.0
NSPN 7400	Perinatal Theory 3	4.0
NSPN 7450	Neonatal Resuscitation	0.5
NSPN 7500	Perinatal Clinical 2	5.0

NSPN 7800	Clinical Preceptorship or	
NSPN 7900	Independent Study or	
program head approved elective		3.0

Total 28.0

Perinatal – Neonatal Option

NSSC 7115	Client Education	3.0
NSNE 7110	Neonatal Theory 1, Modified	3.0
NSNE 7300	Neonatal Clinical 1	4.0
NSPN 7100	Perinatal Theory 1	3.0
NSPN 7200	Perinatal Theory 2	3.0
NSPN 7250	Neonatal Resuscitation	0.5
NSPN 7300	Perinatal Clinical 1	5.0

Perinatal – Neonatal Option		credits
NSPN 7400	Perinatal Theory 3	4.0
NSPN 7450	Fetal Health Surveillance	0.5
NSPN 7500	Perinatal Clinical 2	5.0
Total		31.0

h) Perioperative

NSSC 7115	Client Education	3.0
NSPO 7100	Perioperative Theory 1	3.0
NSPO 7200	Perioperative Theory 2	4.0
NSPO 7300	Perioperative Clinical 1	5.0
NSPO 7400	Perioperative Theory 3	2.0
NSPO 7500	Perioperative Clinical 2	6.0
NSPO 7600	Perioperative Theory 4	3.0
NSPO 7700	Perioperative Clinical 3	4.0

Total 30.0

B. Core/Management Courses (21.0 credits)

All courses must be completed by all students:

BUSA 7250	Management Skills and Applications	3.0*
NSSC 8000	Systematic Inquiry	3.0
NSSC 8300	Creative Leadership	3.0
NSSC 8500	Professional Growth	3.0
program head approved elective		3.0

*Occupational Health students will have completed this course as part of their certificate program.

These two courses must be completed by all students in Critical Care, Emergency, Neonatal, Pediatric, and Perinatal Nursing:

NSSC 8600	Communities, Health and Partnership	3.0
NSSC 8800	Health Issues/Action	3.0

Nephrology students complete:

NSSC 8600	Special Nursing Practice/Communities	3.0
NSSC 8800	Communities Health Issues/Action	3.0
program head approved elective		3.0

Occupational Health students complete:

NSOH 8800	OHN Creating the Future	6.0
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Perioperative students complete:

NSPO 8800	Expanded Peri Practice Clinical Study; or both of	6.0
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NSSC 8600	Special Nursing Practice/Communities	3.0
NSSC 8800	Communities Health Issues/Action	3.0

2. Liberal Education Component (12.0 credits)

Mandatory courses:

LIBS 7001	Critical Reading and Writing	3.0
LIBS 7002	Applied Ethics	3.0

Elective courses:

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

RNABC Registration

As well as providing this information at the time of admission, students are required to provide proof of RNABC membership for each clinical course in the year they apply for graduation from the degree program.

School of Manufacturing and Industrial Mechanical



The CAD/CAM program gave me strong basic training and exposed me to the latest technology this field has to offer. I have been given the background to develop better tools for the design process.

~ Bronson Boglari
Noram Engineering and Constructors Ltd.
Mechanical Technology CAD/CAM, 2000

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Administration

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Manufacturing and Industrial Mechanical Programs

Manufacturing

Bachelor of Technology (Part-time)

The Bachelor of Technology in Manufacturing program is a career-enhancement degree designed for graduate engineers and technologists to provide them the necessary skills and knowledge for advanced technology in manufacturing.

The Bachelor of Technology in Manufacturing degree is a flexible program that allows a student to study in several of the following areas:

- Manufacturing Management
- Automation and Robotics
- Manufacturing Processes
- Design for Manufacture and Assembly
- Materials
- Product Development
- Operations Management
- Information Technology
- Quality Assurance and Control.

This Part-time Studies program is scheduled to serve the needs of working professionals. Classes are held in the evenings or weekends. The program allows students to specialize in one area of study or take courses from a variety of areas.

Entrance Requirements

1. A diploma in a manufacturing-related technology such as Plastics, Robotics and Automation or Mechanical Technology with a minimum course average of 65 per cent or the equivalent level of formal training/education at the post-secondary level.
2. At least two years of appropriate work experience.
3. English 12 or equivalent.
4. Interview.

Registration Procedure

Individuals interested in applying for entry into the Bachelor of Technology in Manufacturing should complete a BCIT Bachelor of Technology Application form and send it, along with their official transcript, resume and application fee to the BCIT Admissions department, 3700 Willingdon Avenue, Burnaby, B.C., V5G 3H2.

An interview with the program head is required to have the proposed Program of Study form for Technical Coursework approved. The applicant may alternatively request an informal interview with the program head prior to sending in the application. Contact the program administrative assistant at (604) 432-8274 to arrange for an interview.

Candidates may select and register for courses after reviewing each term's course offerings in the BCIT Part-time Studies flyer. Candidates should be aware that they may complete only 6.0 credits of Technical/Management Component course work and up to 12.0 credits for Liberal Education courses prior to completion of work experience. Candidates are expected to complete at least ten credits per year.

Program Length

As a Part-time Studies program, a period of three to five years may be required to complete the program. However, the degree must be completed within six years from acceptance into the program.

Prior to acceptance into the program, candidates may complete:

- A maximum of 6 credits of Technical Studies/ Management course work.
- A maximum of 12 credits of Liberal Education Component course work.

Program Structure

The general requirement for a Bachelor of Technology in Manufacturing degree program is a minimum of 60 credits from four components. Candidates will follow their individually approved educational plan.

Components	Credits
1. Technology Studies Section	24.0
• Common Core Courses	15.0
• Major Elective Studies Courses	9.0
2. Management Section	9.0
3. Graduation Project	15.0
4. Liberal Education Section	12.0
Total	60.0

1. Technology Studies Section

Common Core Courses (15.0 credits required)

FMGT 7221	Manufacturing Cost Accounting	3.0
MTEC 7017	Inspection Methods for Quality Control	3.0
MTEC 7045	Industrial Design Process	3.0
MTEC 7054	Manufacturing Control Systems	3.0
OPMT 7023	Materials Logistics	3.0

Major Elective Studies Courses (9.0 credits required)

Automation and Control

MTEC 7051	Introduction to Machine Vision	3.0
MTEC 8051	Applications in Machine Vision	3.0
MTEC 8050	Manufacturing Automation Systems	3.0

Manufacturing Engineering Technology			Credits
MTEC	7000	Parametric Modeling	3.0
MTEC	7040	Introduction to FEM	3.0
MTEC	7041	Processes and Materials	3.0
MTEC	7042	Product Design	3.0
MTEC	7047	Advanced Engineering Materials	3.0
MTEC	7065	Manufacturing Processes for Wood Products	3.0
MTEC	8012	Advanced CAM Applications	3.0
MTEC	8015	Fixture and Tool Design	3.0
MTEC	8045	Design for Manufacture and Assembly	3.0
MTEC	8055	Computer Aided Process Planning	3.0
Manufacturing Management			
OPMT	7021	Quality Assurance	3.0
OPMT	7026	Manufacturing Information Systems	3.0
OPMT	8021	Design of Experiments	3.0
OPMT	8025	Manufacturing Facility Layout & Analysis	3.0
2. Management Studies Section (9.0 credits required)			
Management Common Core Courses (5 credits required)			
BUSA	7250	Management Skills and Applications	3.0
TMGT	7122	Accounting for Technologists	1.0
TMGT	7144	Resource Planning and Control	1.0
Elective Studies Courses (4.0 credits required)			
TMGT	7101	Engineering, Technology and Management	1.0
TMGT	7102	Management in High Technology	1.0
TMGT	7104	Management of Technological Change	1.0
TMGT	7121	Principles of Finance	1.0
TMGT	7123	Technology Information Systems	1.0
TMGT	7124	Technology and International Finance	1.0
TMGT	7141	Managing in a Technical Environment	1.0
TMGT	7142	Technology Management Communication	1.0
TMGT	7143	Problem Solving and Decision Making	1.0
HRMG	3205	Labour Relations 1	3.0
3. Graduation Project Section (15.0 credits)			
Each degree program student, after completing the prescribed course work, will have to complete an industry-sponsored project in their selected area.			
MTEC	7090	Research Methods	3.0
MTEC	7092	Degree Project Planning and Management	3.0
MTEC	8090	Mechanical Degree Project	9.0
4. Liberal Education Component (12.0 credits)			
Mandatory courses:			
LIBS	7001	Critical Reading and Writing	3.0
LIBS	7002	Applied Ethics	3.0
Elective courses:			
All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.			

CAD Programming

One-Year Post-diploma Program (Full-time)

Computer Aided Design (CAD) techniques are common engineering tools in industry and specialized training is required to effectively use and manage the technology. The objective of the post-diploma program in CAD Programming is to develop a skill set that will allow engineers and technologists to take full advantage of this technology through customization and application development.

The CAD Programming post-diploma program is available as a one-year, full-time program.

Job Opportunities

Graduates of the program work in diverse areas of engineering including drafting/designing, CAD system management, software development and system automation. Students have started their own consulting and service companies or have moved into technical sales and training.

Entrance Requirements

A National Diploma of Technology (or equivalent) in a relevant engineering discipline (mechanical, civil, structural, building, mining, geology, electronics, etc.) or an engineering degree. Students must meet BCIT's English Language requirement.

Students should have a basic knowledge of personal computers, and should enjoy working with computers and learning new software.

Program Requirements

The general requirement for a post-diploma is the completion of a minimum of 50 credits from the following components:

Components	Minimum credits
Management Subjects	6.0
Core and Specialty Technology Subjects	35.0
Graduation Project	6.0

This program is in the process of continuous improvement; therefore, the actual courses may vary from those shown.

Tuition Fees 2001/2002 (subject to change)

\$2,338.30 for the one-year, full-time program.

Books and Supplies 2001/2002

\$780 (general estimated cost and subject to change).

Credential

Students who successfully complete this post-diploma program will graduate with a Diploma of Technology.

Program Content - CAD Programming

Level 1 (Sept - Dec) (15 weeks)			hrs/wk	credits
CDCM	1575	Windows NT Environment	3.0	3.0
CDCM	2370	Technical Programming 1	4.0	4.0
CDCM	2372	Database Applications	3.0	3.0
CDCM	3375	CAD Customization 1	4.0	4.0
CDCM	3500	CAD Graphics (AutoCAD)	6.0	6.0
CDCM	3505	CAD Graphics (Microstation)	3.0	3.0
OPMT	3560	System Analysis	3.0	3.0
Level 2 (January - May) (20 weeks)				
CDCM	3470	Technical Programming 2*	4.0	3.0
CDCM	3472	CAD/Database Applications *	3.0	2.0
CDCM	4470	Technical Programming 3*	4.0	3.0
CDCM	4475	CAD Customization 2*	3.0	2.0
CDCM	4600	Advanced CAD Graphics	4.0	5.5
CDCM	4605	AEC CAD Applications*	2.0	1.5
CDCM	4671	CAD Programming*	3.0	2.0
CDCM	4690	Post Diploma Project	5.0	6.5
CDCM	5660	Graphic System Management*	3.0	2.0
CDCM	6660	Graphics Information Management*	3.0	2.0
COMP	3765	Issues in Networking*	3.0	2.0
COMP	4575	Graphics Programming*	2.0	3.0

*denotes half-term courses

Mechanical Engineering Technology

Two-Year Diploma Program (Full-time)

The Mechanical Engineering Technology program is a program accredited by the Applied Science Technologists and Technicians of British Columbia. It is designed to provide graduates with a sound background in the principles of mechanical engineering, allowing the students to select one of four areas of specialization following the completion of a common first year. The areas of specialization are CAD/CAM, Mechanical Design, Mechanical Manufacturing and Mechanical Systems.

Students participate in an industry-sponsored project (practicum or directed studies) in the second year of the program.

The industry project is an integral program component required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.90 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,420

Second year: \$1,000

(general estimated cost and subject to change).

Entrance Requirements

First year applicants: High school graduation. English 12. Math 12. Physics 11. Minimum (C) letter grade preferred. Completion of related Technology Education courses a definite asset.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs.

Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Second-year applicants: Direct entry applicants into second year are assessed individually on their post-secondary academic achievement and experience. Applicants should have a solid academic background and good communication skills, be able to apply ideas in practical situations and be able to work effectively with people in a team situation. Applicants must meet BCIT English Language requirements (English 12) and course by course equivalency to all first year courses.

Degree Transfer/Completion

Graduates from the program have the option of obtaining their engineering degrees by applying to the University of Victoria or Lakehead University, which have bridging agreements with BCIT.

Graduate Programs

Graduates have continuing education opportunities through the Bachelor of Technology in Manufacturing degree program.

Bachelor of Technology

BCIT is now offering several Bachelor of Technology programs enabling graduates to complete their degrees on a part-time basis.

The Programs

Following the completion of the common first-year, students will select one of the following areas of specialization:

CAD/CAM Option

Engineering and industrial practices have been and will continue to be transformed by the introduction of computers into the workplace. Engineers and technologists routinely use CAD (Computer Aided Design), CAM (Computer Aided Manufacturing) and CAE (Computer Aided Engineering). A graduate of the CAD/CAM program will be capable of applying engineering principles to the solution of engineering and industrial problems as well as managing computers in an engineering environment.

CAD/CAM technology has important implications in the production, supervision, distribution and storage of the computerized design database. The design database not only conveys the graphical information needed for the design and development of machines, tools, buildings and structures, but also the associated non-graphical information. The exchange of both graphical and non-graphical information between databases allows engineers and technologists to use computers more efficiently for both design and manufacturing.

Job Opportunities

While the primary area of employment for the CAD/CAM technologist is the mechanical design and manufacturing industry, graduates have found work in the many disciplines that use CAD/CAM. Some graduates have worked for software developers, consulting and service companies. Other graduates have successfully started their own companies to supply CAD/CAM services.

Mechanical Design Option

Mechanical engineering design requires a broad range of knowledge in machinery design, fabrication and production technologies, electrical machinery, thermal and fluid systems, hydraulics and pneumatics, material science, instrumentation and controls, CAD (Computer Aided Design) and CAE (Computer Aided Engineering) software packages. With this knowledge base, a graduate can design or improve existing designs of products and systems. Design offers an exciting and rewarding career providing the satisfaction of seeing a newly developed product from conception to production.

Job Opportunities

A mechanical design technologist has diverse employment opportunities in industries such as pulp and paper, mining, oil refineries, sawmills, machinery design and manufacturing companies, power generation, steel mills, electrical and electronics manufacturers, and consulting engineering firms. Positions of employment include design draftsman, production technologists, maintenance, cost estimating, technical sales and services, plant engineering staff and machinery operator. Supervisory and management positions may be assumed after appropriate job experience.

Mechanical Manufacturing Option

Manufacturing requires knowledge of production technologies, process automation, material properties as well as modern manufacturing management strategies such as Material Resource Planning (MRP). To stay competitive, the modern manufacturers have to participate in "design for manufacture." It is the role of the manufacturing technologist to be involved in the entire design and production cycle of a product. This program provides its graduates with the necessary knowledge to embark on a rewarding career in Mechanical Manufacturing.

Job Opportunities

Diversified employment opportunities for manufacturing technologists are available in a variety of industries involved in manufacturing such as wood products, mechanical components, electronic/electrical parts and assemblies, and food products. The duties of a manufacturing technologist include production planning, tool and/or product design, process automation, cost estimating and manufacturing management.

Mechanical Systems Option

This program in Mechanical Engineering Technology concentrates on the mechanical systems of buildings. These systems must provide comfortable, healthy, safe environments that are energy efficient, economically practical and address environmental and resource issues. Comprehensive engineering principles and skills are provided in heating, ventilation and air conditioning (HVAC), plumbing, controls, and fire protection courses. Computer application software is used in many courses.

Job Opportunities

Graduates from this program will be able to pursue dynamic and challenging careers in the field of mechanical systems for residential, commercial, institutional and industrial buildings working with consulting engineering firms assisting in design, energy management, specification writing and installation inspection; with contractors, estimating, planning and scheduling; with suppliers in design and technical sales, or with systems balancing companies, setting up and adjusting and commissioning equipment in areas of HVAC, systems controls, fire protection, plumbing and mechanical maintenance systems. Supervisory posts may be assumed after appropriate job experience.

The programs are in a process of "continuous improvement," thus the actual courses may vary from those shown.

Program Content - Mechanical Engineering Technology

Common First-year Courses

Level 1 (15 weeks)			hrs/wk	credits
CHSC	1105	Engineering Materials 1	4.0	4.0
COMM	1149	Technical Communication	4.0	4.0
MATH	1491	Technical Mathematics for Mechanical	5.0	5.0
MECH	1100	Engineering Graphics 1	3.0	3.0
MECH	1105	CAD Graphics	4.0	4.0
MECH	1120	Energy Systems	3.0	3.0
MECH	1141	Engineering Mechanics 1	4.0	4.0
MECH	1171	Computer Applications and Programming	4.0	4.0

Level 2 (20 weeks)

CHSC	2205	Engineering Materials 2	4.0	5.5
MATH	2491	Calculus for Mechanical	4.0	5.5
MECH	1210	Manufacturing Processes	4.0	5.5
MECH	2201	Engineering Graphics 2	5.0	6.5
MECH	2240	Strength of Materials	4.0	6.0
MECH	2241	Engineering Mechanics 2	4.0	5.5
PHYS	2149	Physics for Mechanical	4.0	5.5

CAD/CAM Option/Second-year Courses

Level 3 (15 weeks)

CDCM	2370	Technical Programming 1	4.0	4.0
CDCM	2372	Database Applications	3.0	3.0
CDCM	3300	Parametric Modeling	3.0	3.0
CDCM	3375	CAD Customization 1	4.0	4.0
MANU	3318	CNC Programming	5.0	5.0
MATH	3491	Numerical Methods	4.0	4.0
MECH	3340	Machine Design 1	4.0	4.0
MECH	3345	Computer Aided Engineering	4.0	4.0

Level 4 (20 weeks)

CDCM	3460	CAD/CAM System Management	3.0	4.0
CDCM	3470	Technical Programming 2*	4.0	2.5
CDCM	3472	CAD/Database Applications *	3.0	2.5
CDCM	4400	Selected Topics in CAD	4.0	5.5
CDCM	4470	Technical Programming 3*	4.0	2.5
CDCM	4475	CAD Customization 2*	3.0	2.0
CDCM	4490	CAD/CAM Projects	5.0	6.5
COMM	2460	Advanced Technical Communication for CAD/CAM	4.0	5.5
MATH	4602	Mathematics for CAD/CAM	4.0	5.5
MECH	4440	Machine Design 2	5.0	6.5

* denotes half-term course

Design Option/Second-year Courses

Level 3 (15 weeks)

ELEX	2845	Electrical Equipment	4.0	4.0
CDCM	3300	Parametric Modeling	3.0	3.0
MATH	3491	Numerical Methods	4.0	4.0
MECH	2350	Fluid Power 1	3.0	3.0
MECH	3320	Thermal Engineering 1	4.0	4.0
MECH	3325	Fluid Mechanics	4.0	4.0
MECH	3340	Machine Design 1	4.0	4.0
MECH	3345	Computer Aided Engineering	4.0	4.0

Level 4 (20 weeks)

COMM	2449	Technical Communication	4.0	5.5
ELEX	2835	Instrumentation for Mechanical	4.0	5.5
MECH	3445	Theory of Mechanisms*	4.0	2.5
MECH	3451	Fluid Power 2*	4.0	2.5
MECH	3452	Fluid Power 3*	4.0	2.5
MECH	3460	Engineering Economics*	3.0	2.0
MECH	4421	Thermal Engineering 2*	4.0	2.5
MECH	4440	Machine Design 2	5.0	6.5
MECH	4450	Mechanical Control Systems*	4.0	2.5
MECH	4491	Design Projects*	5.0	3.5
MECH	4495	Engineering Design*	4.0	2.5

* denotes half term course

Manufacturing Option/Second-year Courses

Level 3 (15 weeks)

ELEX	2845	Electrical Equipment	4.0	4.0
MANU	3310	Material Removal Processes	5.0	5.0
MANU	3312	Computer Aided Manufacturing	5.0	5.0
MANU	3314	Tool Design	4.0	4.0
MANU	3316	Advanced Materials	4.0	4.0
MECH	2350	Fluid Power 1	3.0	3.0
OPMT	1411	Production Engineering Management	5.0	5.0

Level 4 (20 weeks)

COMM	2449	Technical Communication	4.0	5.5
MANU	4410	Material Joining Processes *	4.0	2.5
MANU	4412	Production Planning*	4.0	2.5
MANU	4450	Automated Manufacturing*	4.0	2.5
MANU	4490	Manufacturing Projects	3.0	4.0
MATH	4491	Statistical Quality Control	4.0	5.5
MECH	3440	Mechanical Equipment*	4.0	2.5
MECH	3451	Fluid Power 2*	4.0	2.5
MECH	4450	Mechanical Control Systems*	4.0	2.5
MANU	3410	Metrology	4.0	5.5
OPMT	1182	Total Quality Management	4.0	5.5

* denotes half-term course

Mechanical Systems Option/Second-year Courses

Level 3 (15 weeks)

ELEX	2845	Electrical Equipment	4.0	4.0
MATH	3492	Statistics	3.0	3.0
MECH	3320	Thermal Engineering 1	4.0	4.0
MECH	3325	Fluid Mechanics	4.0	4.0
MSYS	2380	Building Construction	4.0	4.0
MSYS	3382	Load Analysis	5.0	5.0
MSYS	3386	Heating Systems	6.0	6.0

Level 4 (20 weeks)

COMM	2449	Technical Communication	4.0	5.5
MECH	3440	Mechanical Equipment*	4.0	2.5
MECH	3460	Engineering Economics *	3.0	2.0
MSYS	3389	Plumbing Systems	3.0	4.0
MSYS	4410	Systems Seminars*	2.0	1.5
MSYS	4450	Instrumentation & Controls*	5.0	3.5
MSYS	4470	Project Management	3.0	4.0
MSYS	4480	Air Conditioning Systems	6.0	8.0
MSYS	4486	Energy Management*	4.0	2.5
MSYS	4488	Fire Protection Systems*	4.0	2.5
MSYS	4490	Systems Projects	4.0	5.5

* denotes half-term course

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S. Samarsekara, Sulzer Bingham Pumps Ltd.
D. Smith, Autodesk Canada Inc.
A. Totto, K.D. Engineering Co.
A. Tuningley, Vae Nortrak Ltd.
P. Vatcher, Belcor Industries Inc.

Plastics Technology

Two-Year Diploma Program (Full-time)

Plastics' unusual and wide ranging properties make it an ideal candidate for innovative new products. The program is designed to provide a solid background in the selection and application of plastic materials, the unique plastics processing technologies as well as the design and development of new products. The student receives practical hands-on training in a modern lab and manufacturing facility utilizing the latest in production scale equipment.

The Program

Emphasis is placed on plastics processes such as injection molding, extrusion, thermoforming, rotational molding, blow molding, film production and related quality assurance testing procedures. A study of the construction and design of plastic dies and molds as well as product design is strongly backed by studies in materials science, polymer chemistry, mathematics, technical communication, mechanical design and computer-aided drafting.

Students participate in an industry-sponsored project in the second year of the program. The industry project is an integral program component required for completion and certification.

Job Opportunities

The plastics industry is relatively young worldwide and one of the fastest growing technology sectors in Canada, particularly in B.C. This tremendous growth is expected to continue on a broad scale. Graduates of the Plastics Technology program will find opportunities for satisfying and rewarding careers in manufacturing, product and process research and development, technical sales and marketing, product and mold design, inspection and quality control. A lack of well-trained people together with exceptional growth has meant supervisory positions are assumed quite rapidly.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$900

Second year: \$674

(general estimated cost and subject to change).

Accreditation

This program is recognized by the Applied Science Technologists and Technicians of British Columbia. The program is in a process of "continuous improvement," thus the actual courses may vary from those shown.

Entrance Requirements

High school graduation. English 12. Math 12. Physics 11 or Chemistry 11. Completion of both Physics and Chemistry is recommended. In addition, good communication skills -being able to work effectively with people and enjoying the challenge of applying ideas to practical situations-is considered a definite asset.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

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For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Program Content - Plastics Technology

Level 1 (15 weeks)			hrs/wk	credits
CHEM	1120	General Chemistry for Plastics	4.0	4.0
COMM	1149	Technical Communication	4.0	4.0
MATH	1491	Technical Mathematics for Mechanical	5.0	5.0
MECH	1104	Computer Aid Design	4.0	4.0
MECH	1141	Engineering Mechanics 1	4.0	4.0
MECH	1171	Computer Applications and Programming	4.0	4.0
PLAS	1110	Plastics Technology 1	4.0	4.0
Level 2 (20 weeks)				
CHEM	2220	Organic Chemistry for Plastics	4.0	5.5
CHSC	1262	Engineering Materials for Plastics Technology	3.0	4.0
MATH	2491	Calculus for Mechanical	4.0	5.5
MECH	1210	Manufacturing Processes	4.0	5.5
MECH	2204	Technical Graphics for Plastics	3.0	4.0
MECH	2240	Strength of Materials	4.0	6.0
PHYS	1162	Physics for Plastics Technology	4.0	5.5
PLAS	2210	Plastics Technology 2	4.0	5.5
Level 3 (15 weeks)				
CHEM	3320	Polymer Chemistry and Technology	4.0	4.0
ELEX	2845	Electrical Equipment	4.0	4.0
MECH	2350	Fluid Power 1	3.0	3.0
OPMT	1411	Production Engineering Management	5.0	5.0
PLAS	3310	Plastics Technology 3	7.0	7.0
PLAS	3340	Plastics Design	2.0	2.0
PLAS	3320	Fibre Reinforced Plastics	5.0	5.0

Level 4 (20 weeks)			hrs/wk	credits
COMM	2462	Technical Communication for Plastics	4.0	5.5
MECH	3440	Mechanical Equipment*	4.0	2.5
MATH	4491	Statistical Quality Control	4.0	5.5
MECH	3451	Fluid Power 2*	4.0	2.5
MECH	3460	Engineering Economics *	3.0	2.0
MECH	4450	Mechanical Control Systems*	4.0	2.5
OPMT	1182	Total Quality Management	4.0	5.5
PLAS	4410	Plastics Technology 4	6.0	8.0
PLAS	4490	Plastics Project	4.0	5.5
PLAS	3445	Injection Molding Analysis	2.0	3.0

*denotes half-term course.

Faculty and Staff

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D. Moore, Johnston Height Secondary School
D. Sabourin, ASI Plastics Ltd.
T. Simmons, Vision Plastics Ltd.
C. Stewart, Columbia Plastics Ltd.

Robotics and Automation

Two-Year Diploma Program (Full-time)

The Robotics and Automation Technology program will provide the student with knowledge of the applications of flexible automation equipment, the various mechanical systems used and the electronics incorporated for their control. Gaining hands-on experience with a variety of industrial robots and automated machinery in a modern, well-equipped lab will be emphasized. Particular attention will be given to applying automation techniques to industries in British Columbia.

The Program

The Robotics and Automation program consists of four terms. Students are admitted into the first level in September only.

Job Opportunities

Graduates of the Robotics and Automation Technology find employment in industries using computers and electronics to control mechanical systems. Technologists write specifications and plan for purchasing new equipment, design, construct and implement control systems and troubleshoot and maintain automation systems. Some graduates are currently working as research and development technologists while others have successfully started their own automation consulting businesses.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,435

Second year: \$1,630

(general estimated cost and subject to change).

Degree Transfer/Completion

Graduates from the program may obtain an Engineering degree by applying to the University of Victoria which has a bridging agreement with BCIT.

Accreditation

This program is recognized by the Applied Science Technologists and Technicians of British Columbia.

Entrance Requirements

High school graduation. English 12. Math 12(C+) and Physics 11(C+) or Physics 12(C). Preference may be given to those candidates who have completed the entrance requirements within the last three years.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provide courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Program Content

The program is in a process of "continuous improvement," thus the actual courses may vary from those shown.

Program - Robotics and Automation

Level 1 (September - December) 15 weeks			hrs/wk	credits
COMM	1164	Technical Writing for Robotics	3.0	3.0
ELEX	1205	DC Circuits for Robotics	6.0	6.0
ELEX	1215	Digital Techniques 1 for Robotics	6.0	6.0
MATH	1342	Technical Math for Robotics	6.0	6.0
MECH	1104	Computer Aided Design	4.0	4.0
PHYS	1164	Physics for Robotics 1	5.0	5.0
Level 2 (January - May) 20 weeks				
ELEX	2205	AC Circuits for Robotics	5.0	6.5
ELEX	2220	Digital and Electronic Circuits	6.0	8.0
MATH	2342	Calculus for Robotics	6.0	8.0
MECH	1210	Manufacturing Processes	4.0	5.5
PHYS	2164	Applied Physics 2 for Robotics	5.0	6.5
ROBT	1270	"C" Programming	5.0	6.5
Level 3 (September - December)				
ELEX	3321	Electronics Circuits 2 (Robotics)	6.0	6.0
MATH	3342	Transform Calculus (Robotics)	4.0	4.0
MECH	2350	Fluid Power 1	3.0	3.0
ROBT	3341	Robot Applications	6.0	6.0
ROBT	3351	Automation Equipment	5.0	5.0
ROBT	3356	Controller Systems	6.0	6.0
Level 4 (January - May)				
COMM	2464	Technical Writing 2 for ROBT	3.0	4.0
ELEX	4336	Feedback Systems	6.0	8.0
MECH	3451	Fluid Power 2*	4.0	2.5
MECH	3452	Fluid Power 3*	4.0	2.5
OPMT	1184	Industrial Engineering (ROBT)	4.0	5.5
ROBT	3416	Computer Integrated Manufacturing for Robotics*	4.0	2.5
ROBT	4451	Sensor Interfacing	6.0	8.0
ROBT	4455	PLC Applications for Robotics*	4.0	2.5
ROBT	4491	Robotics Project	4.0	5.5

* denotes a half-term course

Faculty and Staff

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Technology Teacher Education

Two-Year Diploma Program (Full-time)

The Technology Teacher Education program for public school technical studies teachers is an affiliated cooperative program between BCIT and UBC that has three components.

Technological Component

Completion of a Diploma of Technology Teacher Education at BCIT.

Academic Component

Completion of 30 credits of university transfer Liberal Arts and science courses including six credits of English.

Pedagogical Component

Completion of professional teacher education studies at UBC. When all three of the above program components have been completed a Bachelor of Education Degree is awarded by UBC. B.Ed. degree holders qualify for a B.C. Professional Teaching Certificate.

Job Opportunities

Technical studies in schools are now focusing on Technology Education in grades K-12. In most school districts Technology Education has absorbed or replaced Industrial Education. The resulting new focus has broadened the range of technologies being studied using a practical (hands-on) student centred approach. Employment opportunities for recently trained male and female technology teachers are extremely good at all grade levels as well as for several high school Career Preparation options. Technology Teacher Education may also lead to careers in post-secondary training, industry training or other occupations that require technical generalists.

Who Should Apply?

- Anyone with trades or technology experience looking for a rewarding career.
- Anyone who enjoys working with technology in a hands-on way.
- Anyone interested in working with young people in a technical environment.
- Certified teachers who wish to include technical studies in their areas of specialization.

Prior Learning Assessment Recognition (PLAR)

Opportunities exist within the Technology Teacher Education program at BCIT for students to receive PLAR credit for skill and knowledge they possess that aligns with the TTED program goals and the technical teachable subject areas in schools. When applying for PLAR credit, students must illustrate their applicable skill and knowledge through a variety of testimonials, portfolios, demonstrations and tests.

Program Completion

Normally, the Academic Component requirements will be completed before candidates begin the Technological Component at BCIT. However, applicants may apply to complete parts of the Academic Component after they complete the Technical Component at BCIT.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,660

Second year: \$955

(general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12, Math 11 and any Science 11 course. All with a C grade or better. Additionally, upon request, applicants must be prepared to submit an illustrated portfolio which demonstrates their technical experience, accomplishments, aptitude and capability.

All applicants must submit a resume with their application.

Preference may be given to applicants having:

- Extensive technical experience aligned with program goals.
- (C+) or better grades.
- Completed senior secondary or post-secondary Math and Science Physics, Chemistry, Biology courses.
- Completed Industrial/Technology Education courses.
- Completed all or majority of university transfer liberal arts and science courses.
- Completed secondary or post-secondary computer applications courses in fundamental computer literacy (able to word process, create, store and transfer files).

All applicants must submit the following three Confidential Letters of Reference: (Confidential Letters of Reference are to include the referee's phone number, be signed by the referee and submitted in an envelope with the referee's signature across the sealed flap):

- A character reference letter supporting suitability for teaching.
- A technical reference letter supporting technical capability and experience.
- A reference letter outlining experience and capability of working with young people.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

These full-time, day school programs provide academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Program Content - Technology Teacher Education Diploma

Level 1 (September - December) (15 weeks)			
	hrs/wk		credits
COMM 3394 Communication Foundation for TTED	2.0		2.0
MATH 3942 Math Foundations for TTED	2.0		2.0
TTED 3010 Computer Application Foundations*	5.0		1.5
TTED 3002 Precision Measurement Foundations*	4.0		1.0
TTED 3009 Basic Safety Foundations*	4.0		1.0
TTED 3030 Hand Tool Basics Wood/Plas*	4.0		1.0
TTED 3020 Hand Tool Basics Metal/Mech*	4.0		1.0
TTED 3040 Materials Science Foundations*	5.0		1.5
TTED 3000 Sketch & Drawing Foundations*	3.0		2.0
TTED 3005 Design Foundations*	3.0		2.0
TTED 3031 Power Tool Basics Wood/Plas*	3.0		2.0
TTED 3021 Power Tool Basics Metal/Mechanical*	3.0		2.0
TTED 3004 Joining Process Foundations*	4.0		2.5
TTED 3003 Structures Foundations*	4.0		2.5
TTED 3050 Power Technology Foundations*	3.0		2.0
TTED 3060 Electronic Foundations*	3.0		2.0

* denotes half term courses

Level 2 (January - May) (20 weeks)

COMM 4494 Advanced Communications for TTED	2.0	3.0
MATH 4943 Advanced Mathematics for TTED	2.0	3.0
TTED 4000 Design, Drawing & CAD 1 for TTED	3.0	5.5
TTED 4035 Computer Control 1 for TTED	3.0	4.0
TTED 4025 Product Manufacturing for TTED	10.0	13.5
TTED 4040 Materials Science for TTED	5.0	6.5
TTED 4010 Computer Applications for TTED	2.0	2.0
TTED 4070 Introduction to Tech Ed	2.0	2.0

Level 3 (September - December) (15 weeks)

TTED 4001 Design, Drawing & CAD 2 for TTED*	2.0	1.5
TTED 4036 Computer Control 2 for TTED*	2.0	1.5
TTED 4050 Power Technology for TTED*	12.0	9.0
TTED 4060 Teaching Electronics 1	12.0	9.0
TTED 4071 Tech Ed Applications*	2.0	1.5
TTED 4080 Tech Ed Projects*	30.0	8.0
TTED 6099 Safety Across Tech Ed Curriculum		2.0

* denotes half term courses

Level 4 (January - May) (20 weeks)			hrs/wk	credits
TTED	5060	Teaching Electronics 2		8.0
TTED	5030	Teaching Woods/Composites Mfg		8.0
TTED	5020	Teaching Metal Product Mfg		8.0
TTED	5050	Teaching Automotive Systems		8.0
TTED	5000	Teaching Design, Draw & CAD/CAM		8.0
TTED	5080	Directed Technical Project		8.0

Faculty and Staff

Mechanical Technology Programs

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D. Podetz, Frank Hunt Secondary School

J. Shapino, University of British Columbia

Wood Products Manufacturing

Two-Year Diploma Program (Full-time)

British Columbia's leading industry is rapidly adopting advanced technology for the production of lumber and plywood. New plants use computerization with automated processes to convert raw material into products that are in great demand in local and world markets.

Job Opportunities

Young men and women with management skills are needed in B.C.'s largest industry to fill supervisory, technical, marketing and sales positions. Graduates from this technology are found in key jobs throughout B.C.'s wood products industries. Most are employed where management skills are needed, as supervisors, foremen, mill managers, sales people and sales managers, traders and quality control technicians or supervisors. Graduates are also employed in many other areas where their management-oriented training is valued.

continued next page

The Program

First-year students in the Wood Products Manufacturing program study basic sciences and introductory courses including wood science, log utilization, computer skills, and lumber tallying and grading. In the second year there is an increased emphasis on manufacturing techniques, process control, mechanical and electrical equipment and economics. Second-year courses also emphasize management skills in areas such as problem solving, supervision, cost control, product sales and distribution, and business communications. Classroom instruction is heavily augmented by field trips to coastal and interior operations.

Students participate in an industry-sponsored project (practicum or directed studies) in the second year of the program.

The industry project is an integral program component, which is required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$775

Second year: \$770

(general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12. Math 11 (C+). Any science course at the grade 11 level.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provide academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provide courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. For information about the TE program, please refer to page 61 of this calendar.

Program Content - Wood Products Manufacturing

Level 1 (15 weeks)			hrs/wk	credits
COMM	1135	Technical Communication 1	3.0	3.0
COMP	1130	Computer Applications/ Wood Products	4.0	4.0
MATH	1461	Technical Mathematics for Wood Products Manufacturing	5.0	5.0
MSYS	1860	Mechanical Equipment	3.0	3.0
PHYS	1146	Physics for Wood Products 1	5.0	5.0
WOOD	1102	Lumber Grading 1	3.0	3.0
WOOD	1103	Lumber Tallying**	2.0	2.0
WOOD	1104	Log Utilization	6.0	6.0

Level 2 (20 weeks)			hrs/wk	credits
COMM	2235	Technical Communication 2	3.0	4.0
COMP	2140	Linear Programming	3.0	4.0
MATH	2461	Statistics and Quality Control for Wood Products Manufacturing	5.0	6.5
MECH	1900	Interpretation of Technical Drawing	2.0	2.5
PHYS	2146	Physics for Wood Products 2	5.0	6.5
WOOD	1201	Wood Science 2	3.0	4.0
WOOD	1202	Lumber Grading 2**	8.0	10.0

**The attainment of a recognized industrial certificate with a minimum mark of 70 per cent is required as a condition of graduation.

Level 3 (15 weeks)			hrs/wk	credits
COMM	3346	Advanced Technical Communication (Wood Products)	2.0	2.0
ELEX	2845	Electrical Equipment	4.0	4.0
MECH	3850	Process Control for Wood Products	4.0	4.0
OPMT	1164	Management Engineering 1 for Wood Products	3.0	3.0
WOOD	1203	Summer Technical Report	1.0	1.0
WOOD	1301	Wood Science 3	3.0	3.0
WOOD	2105	Lumber Manufacture 1	8.0	8.0
WOOD	2106	Plywood Manufacture	4.0	4.0
WOOD	2107	Mill Management 1	3.0	3.0

Level 4 (20 weeks)			hrs/wk	credits
COMM	4446	Advanced Technical Communication (Wood Products)	2.0	2.5
MKTG	1420	Wood Products Sales and Distribution	4.0	5.5
OPMT	2264	Management Engineering 2 for Wood Products	4.0	5.5
WOOD	1401	Wood Science 4	2.0	2.5
WOOD	2207	Mill Management 2	10.0	13.5
WOOD	3105	Lumber Manufacture 2	5.0	6.5
WOOD	3106	Plywood/Panelboard Manufacture	3.0	4.0

Faculty and Staff

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R. Fraser, Lignum Limited
S. Gray, Weldwood of Canada Ltd.
Harvey, B.C. Wood Specialties Group
R. Stewart, Canadian Forest Products

Heating, Ventilating, Air Conditioning and Refrigeration Technician (HVAC and R)

Two-Year Cooperative Trades Training Diploma Program (Full-time)

Job Opportunities

The Heating, Ventilating, Air Conditioning and Refrigeration Technician (HVAC and R) program will produce competent entry-level tradespersons who are knowledgeable in all aspects of the HVAC and R industry. Graduates of this program will be prepared to enter and complete the existing Refrigeration Apprenticeship program with employers such as commercial/industrial refrigeration contractors, air conditioning commercial contractors, HVAC and R controls, or they may find positions in building maintenance. Refrigeration is a compulsory certification trade. Workers in this trade must be apprentices or journeypersons. For more information, contact your local Industry Training and Apprenticeship Commission (ITAC) office.

The Program

The HVAC and R Technician program provides a foundation in basic refrigeration system design, installation and service with an on-the-job experience component to support the Institutional instruction. The course is two years in duration combining classroom and shop instruction with Cooperative Education experience in industry. The first year is devoted to direct refrigeration systems. The second year includes a broad range of topics focused on HVAC systems design, operation and controls. Emphasis will be placed on diagnosis, service requirements and procedures.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In

addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Grading

Course passing grade is 64 per cent. In order to successfully complete each level a minimum grade point average GPA of 70 per cent is required. An overall GPA of 70 per cent is required to successfully complete the program.

Cooperative Programs

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria of the program itself. While Co-op coordinators find the majority of job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be difficult to find. It is then the responsibility of the student to work with the coordinator (and independently) to find meaningful work experience.

For more information visit our cooperative training section on the Web. The complete cooperative education policy including student, Institute and employer responsibilities is available through the Cooperative Education office and the Registrar's office.

- Co-op Coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1 at the Burnaby campus.

Program Length

Full-time, 85 weeks, consisting of one 20-week and two, ten-week school terms, combined with two co-op work terms: co-op work term one is 23 weeks, and co-op work term two is 22 weeks.

Tuition Fees 2001/2002 (subject to change)

\$2,133.50 for the 85-week program.

Books and Supplies 2001/2002

\$1,003 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11 (C). BCIT pretest is acceptable for English and Math. Applicants must pass a BCIT Mechanical Reasoning test. Applicants must also attend a personal interview to determine their suitability for the program. An interview is granted only after academic requirements have been met.

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Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Heating, Ventilating, Air Conditioning and Refrigeration Technician (HVAC&R)

Level 1		hours	credits
HVAC	1095 Apply Effective Learning Techniques	6	0.5
HVAC	1100 Apply Trade Safety Practices	30	2.0
HVAC	1101 Process Technical Information	40	2.5
HVAC	1103 Apply Trade Tools and Fasteners	60	4.0
HVAC	1104 Apply Fundamentals of Refrigeration	130	8.5
HVAC	1105 Proper Service Procedures	82	5.5
HVAC	1106 Apply Electrical Fundamentals	82	5.5
HVAC	1107 Interpret Electrical Diagrams	44	3.0
HVAC	1108 Apply Electrical Test Equipment	30	2.0
HVAC	1109 Install Electrical Devices	60	4.0
HVAC	1111 Install Refrigeration Project	30	2.0
HVAC	1112 Prepare for Employment	6	0.5
HVAC	1990 Co-op 1	690	22.0
Total Level 1		1290	62.0
Level 2			
HVAC	2110 Design Refrigeration Systems	48	3.0
HVAC	2111 Ammonia Systems Water Treatment	42	3.0
HVAC	2112 Describe Basic HVAC Systems	30	2.0
HVAC	2113 Air Distrib Arrangement for HVAC	30	2.0
HVAC	2114 Air Properties and Measurement	34	2.0
HVAC	2115 Explain HVAC Control Loops	56	4.0
HVAC	2116 Maintain Heat Pump Systems	60	4.0
HVAC	2990 Co-op 2	660	22.0
Total Level 2		1260	42.0

Level 3		hours	credits
HVAC	3101 Comm HVAC Heat/Cool Load Calc	33	2.0
HVAC	3101 Service Gas Heating Systems	120	8.0
HVAC	3102 Design HVAC Distribution System	27	2.0
HVAC	3103 Maintain Computer Environ Syst	90	6.0
HVAC	3104 Explain Heat Recovery/Energy Mgt	30	2.0
Total Level 3		300	20.0

Faculty and Staff

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 Bruce Plom, Mawdt Air Conditioning
 Mark Porter, Airstream Heating & AC
 Dave Serguis, Polar Industries
 Peter Whiten, Custom Air Conditioning
 Robert Wilkinson, Chill Air

Refrigeration Mechanic

Certificate Program (Full-time)

A refrigeration mechanic's job is very rewarding and encompasses a wide variety of duties, such as repair/installation of commercial equipment found in the food industry; repair/installation of residential equipment such as central air conditioning; other tasks such as operation and/or repair of ammonia plants, fish boats and small corner store equipment. Refrigeration mechanics also deal with customers daily, therefore customer relations is a very important aspect of the daily routine.

Job Opportunities

Employment opportunities exist throughout the province in areas such as residential equipment repair/installation, commercial industrial equipment repair/installation, refrigeration wholesale parts/counter person, and domestic appliance repair.

The Program

Training prepares students for entry-level employment in the commercial refrigeration industry. Upon successful completion of this program, students should seek an entry-level position as an apprentice in this field or in other related industries.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Grading

Minimum course passing grade is 64 per cent. In order to successfully complete the program an overall grade point average (GPA) of 70 per cent or better is required.

Program Length

Full-time, 25 weeks.

Tuition Fees 2001/2002 (subject to change)

\$911.25 for the 25-week program.

Books and Supplies 2001/2002

\$675 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11 (C). BCIT pretest is acceptable for English and Math. Applicants must also pass the BCIT Mechanical Reasoning test.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Refrigeration Mechanic

Courses		hours	credits
RFMX 1100	Apply Effective Learning Techniques	14	1.0
RFMX 1102	Apply Trade Safety Practices	36	2.0
RFMX 1104	Process Technical Information	60	4.0
RFMX 1106	Perform High Temperature Welding	30	2.0
RFMX 1108	Apply Trade Tools and Fasteners	60	4.0
RFMX 1110	Apply Fundamentals of Refrigeration	160	11.0
RFMX 1112	Perform Proper Service Procedures	120	8.0
RFMX 1114	Apply Electrical Fundamentals	90	6.0
RFMX 1116	Interpret Electrical Diagrams	60	4.0
RFMX 1118	Apply Electrical Test Equipment	60	4.0
RFMX 1120	Install Electrical/Mechanical Equipment	60	4.0
Total		750	50.0

Faculty and Staff

Trevor Williams, B.Sc., M.Sc. (Mech Eng.), P.Eng., Dean
 Kate Pelletier, B.Ed. MRE, Associate Dean, kpellet@bcit.ca
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 rverch@bcit.ca
 Glenn Walsh, Refrigeration T.Q. and I.P., gwals@bcit.ca

Industrial Maintenance Programs

Industrial Maintenance Mechanic

Two-Year Cooperative Trades Training Diploma Program (Full-time)

Industrial Maintenance Mechanics are responsible for the maintenance and repair of a wide variety of industrial equipment. Duties include installation, maintenance and repair of mechanical, hydraulic, pneumatic and hybrid systems. These systems include power drives, material handling, production, power generating and distribution equipment.

Associated skills and knowledge in related areas such as welding, fabrication, electrical troubleshooting and machining are sometimes required. Knowledge of preventive maintenance methods and the use of computers may be required. Good interpersonal and communication skills are important in the performance of duties in a wide variety of industrial environments.

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Job Opportunities

Opportunities exist throughout the province in a variety of manufacturing plants from the food industry to machine building and maintenance and small service shops. Graduates may want to explore the prospects of an apprenticeship in either the millwright or machinist trades.

Grading

Course passing grade is 64 per cent. In order to successfully complete each level a minimum grade point average (GPA) of 70 per cent is required. An overall GPA of 70 per cent is required to successfully complete the program.

Cooperative Programs

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria as the program itself. While Co-op coordinators find the majority of job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be difficult to find. It is then the responsibility of the student to work with the coordinator (and independently) to find a meaningful work experience. For more information, visit our cooperative training section on the Internet.

The complete Cooperative Education policy including student, Institute and employer responsibilities is available through the Cooperative Education office and the Registrar's office.

- Co-op Coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1.

Program Length

Full-time, 80 weeks, consisting of three 16-week academic terms combined with two co-op work terms: of 16 weeks each.

Tuition Fees 2001/2002 (subject to change)

\$2,206.70 for the 80-week program.

Books and Supplies 2001/2002

\$891 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the Grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math, or individual assessment by the department. An interview is required and will be granted after the academic requirements have been met.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability

Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Industrial Maintenance Mechanic

	hours	credits
Level 1		
IMMX 1100 Mechanics 1	180	12.0
IMMX 1101 Machining 1	150	10.0
IMMX 1102 Welding	60	4.0
IMMX 1103 Steel Fabrication	90	6.0
IMMX 1990 Co-op 1	480	16.0
Total Level 1	960	48.0
Level 2		
IMMX 2100 Mechanics 2	120	8.0
IMMX 2101 Machining 2	120	8.0
IMMX 2102 Computers in Industry 1	120	8.0
IMMX 2103 Electrical	120	8.0
IMMX 2990 Co-op 2	480	16.0
Total Level 2	960	48.0
Level 3		
IMMX 3100 Mechanics 3	150	10.0
IMMX 3101 Machining 3	150	10.0
IMMX 3102 Computers in Industry 2	30	2.0
IMMX 3103 Maintenance Methods/Systems	60	4.0
IMMX 3104 Maintenance Project	90	6.0
Total Level 3	480	32.0
Program	400	128.0

Faculty and Staff

Trevor Williams, B.Sc., M.Sc. (Mech Eng.), P.Eng., Dean
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 Owen Collings, I.D., Machinist T.Q., Millwright T.Q.,
 ocolling@bcit.ca

Millwright ELTT

Certificate Program (Full-time)

Millwrights are often described as masters of all trades as they are expected to install, maintain and repair all types of machinery in almost any industry.

Job Opportunities

The potential for entry into a millwright apprenticeship is good at this time. The expertise gained in this entry-level course is suitable for application to other trades and almost all industries. A graduate from this course should expect entry-level employment until an apprenticeship becomes available.

Anywhere that machinery exists there is usually work for a millwright. Employment for millwrights is mainly centred on the major B.C. industries: mining, pulp mills, wood processing and petrochemical plants, with smaller groups being employed in the manufacturing field and the food processing industry. The construction industry also employs millwrights on short and long-term contracts where their main function is the installation of equipment.

The Program

Training prepares students for entry-level employment in the millwright trade. Basic theory and related information along with hands-on shop practice will enable students to become competent in basic millwright duties. Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Grading

Minimum course passing grade is 80 per cent.

Program Length

Full-time, 39 weeks.

Tuition Fees 2001/2002 (subject to change)

\$1,403.35 for the 39-week program.

Books and Supplies 2001/2002

\$745 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level. BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Millwright ELTT

Courses	hours	credits
MILL 1100 Use Safe Work Practices	36	2.5
MILL 1101 Process Technical Information	42	3.0
MILL 1102 Solve Mathematical Problems	48	3.0
MILL 1103 Apply Physics Concepts	36	2.5
MILL 1104 Identify Common Materials	30	2.0
MILL 1105 Sketch and Read Drawings	36	2.5
MILL 1106 Measure Layout and Hand Tools	30	2.0
MILL 1107 Use Fasteners and Fittings	48	3.0
MILL 1108 Use Support Machines	120	8.0
MILL 1109 Use Shafts Hubs and Keys	24	1.5
MILL 1110 Use Bearings	36	2.5
Courses		
MILL 1111 Use Seals and Packing	18	1.0
MILL 1112 Use Lubrication	30	2.0
MILL 1113 Use Power Drives	30	2.0
MILL 1114 Millwright Shop Equipment	72	5.0
MILL 1115 Perform Fitting and Assembly	24	1.5
MILL 1116 Rigging Ladders and Scaffolds	42	3.0
MILL 1117 Describe Fluid Power	150	10.0
MILL 1118 Identify Pneumatic Systems	36	2.5
MILL 1119 Material Handling Systems	24	1.5
MILL 1120 Perform Welding and Cutting	90	6.0
MILL 1121 Machinery Install/Alignment	54	3.5
MILL 1122 Use Machine Shop Equipment	72	5.0
MILL 1123 Prepare for Employment	12	1.0
MILL 1124 Electrical Circuits	30	2.0
Total	1170	78.5

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Faculty and Staff

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Machinist Programs

Computer Numerical Control (CNC) Operator

This program trains students to operate CNC machines. Training is designed for machinists and other tradespersons who wish to upgrade their skills in the operation, IG coding and conventional programming of CNC equipment.

Job Opportunities

This efficient and precise method of machine operation has a variety of applications in machine shops, the tool and die and mold making fields, the aircraft industry, metal fabrication, sign making, furniture production, etc. Any industry which requires the manufacture of individual parts or limited production runs could use this method of manufacturing.

Program Length

14 weeks.

Normal Course Hours

1800-2200 (Monday to Thursday).

Tuition Fees 2000/2001 (subject to change)

\$331.60 for the 14-week program.

Books and Supplies 2000/2001

\$229 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level. BCIT pretest is acceptable for English and Math. Applicants must have completed third year Machinist apprentice level or undergo department review.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school Counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content -

Computer Numerical Control (CNC) Operator

Courses	hours	credits
MACH 2100 Apply Safe Work Practices	5	0.5
MACH 2101 Trade Related Mathematics	14	1.0
MACH 2102 Introduction to Computers	15	1.0
MACH 2104 Use CNC Turning Centres	90	6.0
MACH 2106 Use CNC Machinist Centres	100	6.5
Total	224	15.0

Machinist Core (ELTT)

Certificate Program (Full-time)

The machinist makes or repairs metal and plastic parts, tools and machines, including custom work on one-off items and operating semi-automatic equipment on production runs. General machinists use lathes, drill presses, milling machines and grinders to shape the material to size. Higher level work includes programming and operating computer controlled machine tools.

Job Opportunities

Training prepares students for entry-level employment in the machinist trade. Upon successful completion of the program, students should seek employment as apprentices. Opportunities exist throughout the province. Formal apprenticeships are common in this trade, but a graduate should be prepared to take an entry-level job in a shop until an apprenticeship becomes available. Opportunities also exist in industrial sales. The machinist apprenticeship is four years long. Graduates of the Machinist Core program are eligible for credit toward their first level of apprenticeship technical training.

The Program

Basic theory and related information along with hands-on shop practice will enable students to become competent in the basic operations needed to make industrial parts and components.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Grading

Minimum passing grade of 70 per cent for each course. Students must achieve an overall grade point average (GPA) of 70 per cent to successfully complete the program.

Normal Program Length

Full-time, 38 weeks.

Course Hours

0700-1400 (first shift) or 1230-1930 (second shift), Monday through Friday.

Tuition Fees 2001/2002

(subject to change)

\$1,368.20 for the 38-week full-time program

Books and Supplies 2001/2002

\$742 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Machinist Core (ELTT)

Courses	hours	credits
MACH 1100 Apply Safe Work Practices	25	1.5
MACH 1101 Solve Math Problems Machinery	90	6.0
MACH 1102 Shop Drawings	45	3.0
MACH 1103 Layout Measure/Test Tools/Equip	90	6.0
MACH 1104 Use Support Machines	115	7.5
MACH 1106 Use Lathes	200	13.5
MACH 1108 Vertical/Horizontal Milling	170	11.5
MACH 1110 Use Precision Grinders	45	3.0
MACH 1111 Oxyacetylene Cut and Weld	15	1.0
MACH 1112 Fit Bearings Seals Gaskets	60	4.0
MACH 1113 Select Lubricants for Application	15	1.0
MACH 1115 Prepare for Employment	20	1.5
MACH 1116 Complete Machine Shop Projects	90	6.0
MACH 1124 Fundamentals of NC and CNC	120	8.0
MACH 1129 Basic Metallurgy	40	2.5
ZAPR 0000 Apprenticeship Year 1 Exam		
Total	1140	76

Machinist/CNC

Cooperative Education Diploma Program (Full-time)

Job Opportunities

Graduates of the Machinist/CNC Machinist co-op program seek employment as apprentice machinists or entry-level workers in a shop using computer numerical control (CNC) equipment.

Formal credit arrangements have not been finalised with the Industry Training and Apprenticeship commission (ITAC), however graduates of this program can expect minimum credit of first level apprenticeship technical training.

The Program

The Machinist/CNC Machinist co-op program provides training in basic machining skills as well as basic CNC machining skills. This co-op program consists of three terms. The first term is Machinist Core 38-weeks (see page 210), followed by a work term of 28 weeks and finishing with a 32-week in school session in CNC Machining. The total program is 98 weeks long. Graduates receive a Diploma in Trades Training.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

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Grading

Course passing grade is 64 per cent for each component within a course with a minimum passing grade of 70 per cent for each course. In order to successfully complete the program each level requires a minimum grade point average (GPA) of 70 per cent.

Cooperative Programs

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria of the program itself. While co-op coordinators find the majority of job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be difficult to find. It is then the responsibility of the student to work with the coordinator (and independently) to find meaningful work experience.

For more information visit our cooperative training section on the Web. The complete cooperative education policy including student, Institute and employer responsibilities is available through the Cooperative Education office and the Registrar's office.

- Co-op coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1 at the Burnaby campus.

Program Length

Full-time, 98 weeks

Level 1 - 38 weeks

Level 2 - 28 weeks (Coop)

Level 3 - 32 weeks (CNC Machinist Specialization)

Tuition Fees 2001/2002 (subject to change)

\$1,591.30 for the 60 week program.

Books and Supplies 2001/2002

\$850 (general estimate, subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the Grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math. Interview for ALL applicants is required prior to program entry. An interview is only granted after academic requirements have been met.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Machinist/CNC

The following information reflects the general topic areas that will be covered. The curriculum is currently under development please check BCIT's Web site at www.bcit.ca for updated information.

- Machinist
- Fundamentals of CNC
- Programming Fundamentals
- Set up/Use CNC Lathes
- Set up/Use CNC Machining Centers
- Use CAD/CAM
- Coordinate Measuring Machines
- Apprentice 2nd year exam.

Tool and Die Technician

Cooperative Education Diploma Program (Full-time)

This technician program will provide you with tool-making skills. A toolmaker is required to operate all types of shop equipment such as lathes, grinders, milling machines and computer numerical control (CNC) machines. On completion, graduates will receive a Diploma of Trades Training.

Job Opportunities

Graduates of the Tool and Die Technician program can look forward to an apprenticeship in machining, tool and die-making or mold-making, or a career in modern production processes: quality control, process planning, designing, estimating or technical sales.

The Program

The Tool and Die Technician program provides a foundation of tool-making and plastic mold-making skills. This program combines an on-the-job component to support institutional instruction. The first term is the Machinist Core program and provides training in basic machining skills. This is followed by a co-op work term in industry. The final term is the Tool and Die Specialization and is devoted to the design and making of jigs and fixtures, the making of metal forming dies and punches, progression die design and building and the designing and building of plastic molds.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Cooperative Programs

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria of the program itself. While co-op coordinators find the majority of job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be difficult to find. It is then the responsibility of the student to work with the coordinator (and independently) to find meaningful work experience.

For more information visit our cooperative training section on the Web. The complete cooperative education policy including student, Institute and employer responsibilities is available through the Cooperative Education Office and the Registrar's office.

- Co-op Coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1 at the Burnaby campus.

Grading

Minimum passing grade of 70 per cent for each course. In order to successfully complete the program each level requires a minimum grade point average (GPA) of 70 per cent.

Program Length

Full-time, 98 weeks.

Level 1-38 weeks

Level 2-28 weeks (Coop Work Term)

Level 3-32 weeks (Tool and Die Specialization)

Books and Supplies 2001/2002

\$693 (general estimated cost and subject to change)

Tuition Fees 2001/2002

(subject to change)

\$1,591.30 for the 60-week program

Entrance Requirement

High school graduation. English 12 or Communications 12. Academic Math 12 (P). BCIT pretest is acceptable for English and Math. A successful interview by the department is required only after all academic requirements have been met.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Tool and Die Technician

The following information reflects the general topic areas that will be covered. The curriculum is currently under development. Please check BCIT's Web site at www.bcit.ca for updated information.

- Machinist Core
- Jigs and Fixtures
- Mechanics
- Tool Design and Manufacturing
- Mold Design and Manufacturing
- CNC
- EDM
- Materials, Manufacturing and Processing

Faculty and Staff

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 Terry Wadd, Machinist T.Q., Mach-Fitter

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Machinist Advisory Committee Members

Tony Berry, Nicholson Manufacturing Ltd.
Jonni Fox, Sharp-Rite Technologies Ltd.
Joel Lafleur, NCCO Manufacturing
Surinder Lubana, Creo Products Inc.
Michel Maillolchon, Ebco Aerospace
Bob McDiarmid, CAE Machinery
Rob Strell, Raute-Wood Industries Ltd.
Rob Vanderstarren, Pazmac Enterprises
Walter Voros, Teleflex (Canada) Ltd.
Guy Walton, Creo Products Inc.

Power Engineering Programs

Power engineers operate, maintain and manage industrial power and process plants. These plants are associated with various industries such as pulp and paper, chemical manufacturing, food processing, electrical generation, petroleum refining, institutional mechanical systems and others. Provincial Acts require that plant personnel be certified prior to assuming positions of responsibility in the operation of fired pressure equipment.

Certificates range from the entry-level of Fourth Class to the highest level of First Class. The larger the plant, the higher the level of certificate required to operate and manage the facility.

A First Class Power Engineer's certificate entitles the holder to be in charge of a plant of unlimited size. A combination of theoretical study and practical plant experience is required to qualify to write each level of certificate examination.

There are three entry-level programs offered at BCIT. The Power Engineering General program prepares participants for entry into industry with a Fourth Class Power Engineer's certificate.

The Power Engineer Technical program is similar to the general program but in addition provides participants with a higher level of mathematics, physics and electricity to meet the prerequisites for entry into the Power and Process Engineering program.

The Power and Process program prepares participants for entry into industry with a Third Class Power Engineer's certificate. In addition, graduates of this program are brought to a high knowledge level in the subjects of math, physics and electricity, providing an easier progression to higher levels of certification as a power engineer.

Graduates of the Power and Process Engineering program may be exempted by the B.C. Regulations from 50 per cent of the on-the-job qualifying experience required between the Third and the Second Class certificate examinations.

Power Engineering General Program

Certificate Program (Full-time)

Provides sound practical and technical knowledge and skills to persons desiring to enter the power engineering field. After completing this program, graduates are prepared to write the B.C. Ministry of Municipal Affairs examinations for an Interprovincial fourth Class Power Engineer's Certificate of Competency.

Job Opportunities

Former graduates have secured employment in hospitals, chemical plants, oil refineries, breweries, pulp and paper plants, sawmills, schools and institutions. Average salaries reported by students were among the highest when compared to other occupational programs.

Graduates of this program may be able to obtain employment as Fourth Class Power Engineers in industry, and qualify for positions as plant operators and maintenance technicians.

The Program

The program is divided into two levels. Classroom activity consists of lectures, demonstrations, audiovisual presentations and exercises that provide practical working knowledge of plant systems. Power plant tours, extensive workshop and power plant laboratory experience are provided to reinforce theoretical concepts, develop manual skills and familiarity with power engineering techniques.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have good theoretical and practical mathematical skills and mechanical aptitude. Previous power plant experience and related training are assets. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Grading

A minimum course passing grade is 60 per cent.

Program Length

Full-time, 40 weeks.

Tuition Fees 2001/2002

(subject to change)

\$1,408.50 for the 40-week program.

Books and Supplies 2001/2002

\$756 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content -

Power Engineering General Program

Courses	hours	credits
POWR 1100 Power Plant Training 1	90	6.0
POWR 1101 Power Plant Oper and Systems 1	40	2.5
POWR 1102 Drafting	20	1.5
POWR 1103 Power Plant Theory 1	90	6.0
POWR 1104 General Electricity 1	60	4.0
POWR 1105 Power Plant Maintenance 1	90	6.0
POWR 1106 Instrumentation 1	60	4.0
POWR 1107 General Mathematics	150	10.0
POWR 2200 Power Plant Training 2	80	5.5
POWR 2201 Power Plant Oper and Systems 2	40	2.5
POWR 2203 Power Plant Theory 2	90	6.0
POWR 2204 General Electricity 2	60	4.0
POWR 2205 Power Plant Maintenance 2	90	6.0
POWR 2206 Instrumentation 2	60	4.0
POWR 2208 Heating/Ventilation/Air Cond	40	2.5
POWR 2209 Applied Science	100	6.5
POWR 2210 Business Writing	40	2.5
Total	1200	79.5

Power Engineering Technical Program

Certificate of Technical Studies Program (Full-time)

Note: Technical program students wishing to continue into the Power and Process program the following year must inform the Admissions department in writing by February 15 in order to have a seat reserved.

Provides sound practical and technical knowledge and skills to persons desiring to enter the power engineering field. In addition, the program includes courses that provide graduates with the necessary technical background in applied mathematics and science to be eligible to enter the Power and Process Engineering program.

After completing the program, graduates are prepared to write the B.C. Ministry of Municipal Affairs examinations for an Interprovincial Fourth Class Power Engineer's Certificate of Competency.

Job Opportunities

Former graduates have secured employment in hospitals, chemical plants, oil refineries, breweries, pulp and paper plants, sawmills, schools and institutions. Average salaries reported by students were among the highest when compared to other occupational programs.

Graduates may then be able to obtain employment as Fourth Class Power Engineers in industry and be qualified for positions as operators and maintenance technicians:

The Program

The program is divided into two levels. Classroom activity consists of lectures, demonstrations, audiovisual presentations and exercises that provide a practical working knowledge of plant systems. Power plant tours and extensive workshop and power plant laboratory experience are provided to reinforce theoretical concepts, develop manual skills, and a familiarity with power engineering techniques.

The Technical program differs from the General program in that it provides students with higher level studies in mathematics, physics and electricity to meet the prerequisites for the Power and Process program.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing, eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have excellent theoretical and practical mathematical skills and mechanical aptitude. Previous power plant experience and related training are assets. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

continued next page

Grading

A minimum course passing grade of 60 per cent.

Program Length

Full-time, 40 weeks.

Tuition Fees 2001/2002 (Subject to Change)

\$1,408.50 for the 40-week program.

Books and Supplies 2001/2002

\$896 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12.
Academic Math 12. Physics 11. BCIT pretest is acceptable for
English, Math and Physics.

Note: Applied Academics courses taught in B.C. high schools
are acceptable as entrance requirements for BCIT programs.
Applied Academics courses include: Technical and Professional
Communications 12, Applications of Math 11 and 12,
Applications of Physics 11 and 12, Information Technology 11
and 12.

For information on specific Applied Academics course
equivalencies as they relate to entrance requirements for your
chosen program, please contact your high school counsellor or
BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic
upgrading in an applied setting for students wishing to enter a
trades/technical program at BCIT.

For information about the Fresh Start program, please refer to
page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to
successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women
program, please refer to page 62 of this Calendar.

Program Content - Power Engineering Technical Program

Courses	hours	credits
POWR 1100 Power Plant Training 1	90	6.0
POWR 1101 Power Plant Oper and Systems 1	40	2.5
POWR 1102 Drafting	20	1.5
POWR 1103 Power Plant Theory 1	90	6.0
POWR 1105 Power Plant Maintenance 1	90	6.0
POWR 1106 Instrumentation 1	60	4.0
POWR 1120 Technical Electricity 1	60	4.0
POWR 1121 Technical Mathematics 1	90	6.0
POWR 1122 Applied Physics 1	60	4.0
POWR 2200 Power Plant Training 2	80	5.5

Program Content -

Power Engineering Technical Program

Courses	hours	credits
POWR 2201 Power Plant Oper and Systems 2	40	2.5
POWR 2203 Power Plant Theory 2	80	5.5
POWR 2205 Power Plant Maintenance 2	80	5.5
POWR 2206 Instrumentation 2	60	4.0
POWR 2211 Business Writing	40	2.5
POWR 2220 Technical Electricity 2	60	4.0
POWR 2221 Technical Mathematics 2	80	5.5
POWR 2222 Applied Physics 2	60	4.0
POWR 2223 Industrial Electronics	20	1.5
Total	1200	80.0

Power and Process Engineering

Diploma of Technical Studies (Full-time)

Note: BCIT Power Engineering Technical students wishing to
continue their studies in the Power and Process Engineering
program the following year must inform the Admissions
department in writing by February 15 in order to have a seat
reserved.

This program provides sound practical and technical knowledge
and skills to persons desiring advancement to the highest levels
in the field of power engineering. After completing the
program, graduates are prepared to write the B.C. Ministry of
Municipal Affairs examinations for an interprovincial Third Class
Power Engineer's Certificate of Competency.

Job Opportunities

An analysis of five years of data shows that 80 per cent of
Power and Process Engineering graduates were placed in a
training-related job, usually within a few weeks of graduation.
Average salaries reported by students were among the
highest when compared to other occupational programs.
Former graduates have secured employment in hospitals,
chemical plants, oil refineries, breweries, pulp and paper plants,
sawmills, thermal power stations, schools and institutions and
design offices.

Graduates of this program may be able to obtain employment
as Third Class Power Engineers and be qualified for positions of
considerable responsibility as plant operators, plant
maintenance technicians, sales engineers and design
technicians.

The Program

The program is divided into two levels. Classroom activity
consists of lectures, demonstrations, audiovisual presentations
and exercises that provide practical working knowledge of
power engineering. Plant tours, engineering practicums,
workshops, power plant laboratory and troubleshooting
exercises are provided to reinforce theoretical concepts,
develop manual skills, and a familiarity with additional power
engineer techniques.

Applicants should have a good command of oral and written English; sufficient physical strength and stamina to meet the demands of the work; good hearing and eyesight, normal colour vision, manual dexterity and hand/eye coordination. In addition, applicants should have excellent theoretical and practical mathematical skills and mechanical aptitude. Previous power plant experience and related training are assets. Potential students with medical or physical difficulties should contact the Disability Resource Centre to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist at (604) 451-6963.

Grading

A minimum course passing grade is 60 per cent.

Program Length

Full-time, 40 weeks.

Tuition Fees 2001/2002 (subject to change)

\$1,408.50 for the 40-week program.

Books and Supplies 2001/2002

\$1,403 (general estimated cost and subject to change)

Entrance Requirements:

- English 12 or Communications 12, plus
- A valid Fourth Class Power Engineering Certificate, and
- Recent (within two years), successful completion of either the BCIT Power Engineering Technical program or the first year of a university engineering program, or
- Applicants who do not possess the above prerequisites but believe they have sufficient background to be successful in the program may request an individual assessment by the Power Engineering department.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Program Content - Power and Process Engineering

Courses	hours	credits
POWR 3301 Technical Communication 1	30	2.0
POWR 3302 Thermal Engineering 1	120	8.0
POWR 3303 Power Plant Theory 3	80	5.5
POWR 3304 Fluid Mechanics	60	4.0
POWR 3305 Power Plant Maintenance 3	30	2.0
POWR 3306 Metallurgy	40	2.5
POWR 3307 Computer Technology 1	60	4.0
POWR 3308 Engineering Mechanics	90	6.0
POWR 3309 Engineering Practicum 1	30	2.0
POWR 3320 Technical Electricity 3	60	4.0
POWR 4401 Technical Communication 2	20	1.5
POWR 4402 Thermal Engineering 2	100	7.0
POWR 4403 Power Plant Theory 4	80	5.5
POWR 4404 Plant Management	40	2.5
POWR 4405 Power Plant Maintenance 4	30	2.0
POWR 4406 Strength of Materials	60	4.0
POWR 4407 Computer Technology 2	60	4.0
POWR 4408 Heating/Ventilation Systems	60	4.0
POWR 4409 Engineering Laboratory	60	4.0
POWR 4410 Engineering Practicum 2	30	2.0
POWR 4420 Technical Electricity 4	60	4.0
Total	1200	80.0

Faculty and Staff

Trevor Williams, B.Sc., M.Sc. (Mech Eng.), P.Eng., Dean
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Advisory Committee Members

R. Richter, Manager Montenay Inc.
 J. MacKenzie, Colliers Macaulay Nicolls
 B. Norton, Fletcher Challenge
 M. Pilling, Molson Brewery
 B. Kadey, IUOE
 F. Golar, Ministry of Municipal Affairs
 C. Vaugeois, Colliers Macaulay Nicolls
 D. Hultman, Northwood Pulp and Timber
 M. Bishop, Ministry of Municipal Affairs



School of Process, Energy and Natural Resources



"The BCIT Fish, Wildlife and Recreation program provided a general background and hands-on experience. It provided the skills I need to work in my field of choice, skills I will use throughout my career."

~ Laurie Smith
BCIT

Fish, Wildlife and Recreation, 1998

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Administration

Marshall Heinekey, Dipl.T., B.Tech., Dipl.Adult Ed., MBA,
ASCT., Dean
Shameem Hameer, Administrative Assistant
Terry Suen, Operations Manager
Mylia Belec, Clerical Support

Geomatics

Bachelor of Technology Degree (Part-time)

With rapid changes in spatial data capture and management, BCIT's Bachelor of Technology in Geomatics/GIS degree provides excellent opportunities for career enhancement and professional growth. There are two program options to choose from – Surveying/Mapping and GIS. The first will appeal to graduate Surveying and Mapping technologists who wish to pursue Professional Accreditation as a B.C. Land Surveyor. The second option will appeal to graduates from many areas – for example Surveying and Mapping, Forestry, Civil, Environmental, and Mining – who wish to learn how to integrate GIS technology in their profession.

Job Opportunities

Graduates of the program may ultimately be employed as land surveyors, as managers of GIS and surveying and mapping operations, or as GIS analysts.

The Program

The program comprises six components: 12 credits of common technical core studies, 13 credits from either the GIS or Surveying and Mapping options, 9 credits of management courses, 2 credits of technical electives, 12 credits of liberal education and an industry project worth 12 credits.

Program Length

Courses will be offered through Part-time Studies at BCIT. These will be delivered as conventional night school courses, seminars and workshops, and by distance education. This will allow individuals to maintain full-time employment while working towards completing their degree. The rate of progress through the program will vary. Most individuals will likely take three to five years to complete their studies, but have up to six years to complete all the program requirements. It is also anticipated that an "accelerated mode" of study will be introduced which will allow participants to complete the majority of courses in one academic year, with the balance of their studies being completed when they have returned to the workforce.

Technology degree courses may be taken for professional development purposes or applied towards completion of the degree. A maximum of 6 credits may be applied towards the degree, for courses which are completed before a student is formally admitted as a degree candidate.

Accreditation

Recognition of this Bachelor of Technology degree as a qualification for advanced technical and management positions is anticipated from related professional groups and industry associations. Negotiations are also ongoing with such groups as the Western Canada Board of Examiners for Land Surveying for accreditation of the degree program. An agreement to exempt Surveying and Mapping option students from WCBELS examinations for specific courses will also be sought.

Entrance Requirements

The minimum entrance requirement is:

- A recognized Diploma of Technology, or equivalent in an engineering or science discipline, or a related field or a degree in Engineering, Science, Applied Science or related field.
- Two years relevant work experience.
- English 12 or equivalent. Students whose native language is not English and who have completed their degree/diploma at a post-secondary institution where English was not the language of instruction are required to satisfactorily complete a BCIT Communications Department English Language Competency Test.
- All participants will be required to meet with the program head to review the initial application for acceptance. Supplemental courses may be required in order to fulfil the educational background required for practice in the geomatics and GIS industry.

Foundation Courses

In order to prepare for the Degree courses, participants may be required to complete some or all of the following foundation courses prior to acceptance into the Degree program.

GIS Option Foundation Courses:		hrs/wk	Credits
CDCM	2270 Program Design in C	3.0	3.0
CDCM	2372 Database Applications	3.0	3.0
CDCM	3470 Data Structures in C	4.0	2.5
GIST	5108 Fundamentals of Mapping	3.0	3.0
GIST	6121 Applied Mathematics 2	4.0	2.0

Surveying & Mapping Option Foundation Courses:

CDCM	2732 Database Application	3.0	3.0
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Program Structure

1. Common Technical Core	12.0
Technical Courses (option)	13.0
Technical Electives	2.0
Management Courses	9.0
Industry Project	12.0
2. Liberal Education Component	12.0
Total	60.0

Program Content - Common Technical Core (12.0 credits)

		hrs/wk	Credits
GIST	7028 Desktop Geographics	18.0	1.0
GIST	7100 Fundamentals of GIS	36.0	2.0
GIST	7159 Mapping with Microstation	36.0	2.0
GIST	7130 Technical Topics In Computer Systems	36.0	2.0
GIST	8132 GIS Database systems	36.0	2.0
GIST	7142 Cartography	18.0	1.0
GIST	8118 Remote Sensing	36.0	2.0

Surveying & Mapping Option (13 credits)

GEOM	7307 Advanced Digital Mapping	36.0	2.0
GEOM	7330 Cadastral Surveys and Land Registration Systems	36.0	2.0
GEOM	7340 Advanced Residential Site Planning	36.0	2.0
GEOM	8310 Hydrographic and Oceanographic Surveying	36.0	2.0
GEOM	8320 Satellite Surveying Project Management	18.0	1.0
GEOM	8332 Survey Law and Land Use Planning	36.0	2.0
GEOM	8342 Advanced Topics in Adjustments and Statistical Testing	36.0	2.0

Geographic Information System Option (13 credits)

GIST	7128 ARC/INFO Level 1	36.0	2.0
GIST	8100 Technical Issues in GIS	36.0	2.0
GIST	8101 Selected Topics in GIS	36.0	2.0
GIST	8138 GIS Customization and Modelling	36.0	2.0
GIST	8108 GIS Digital Mapping	36.0	2.0
GIST	8128 ARC/INFO GIS Level 2	36.0	2.0
GIST	8212 GIS Customization 2	18.0	1.0

Technical Electives (2 credits)

Students will be required to select two credits of technical electives from within the geomatics programs or, on approval, technical courses from other Bachelor of Technology programs to enable students to specialize within their individual career objectives.

GIS Technical Electives

GIST	7201 Image Interpretation	18.0	1.0
GIST	7202 GIS Component Programming	18.0	1.0

Surveying and Mapping Technical Electives

GEOM	7205 Satellite Positioning for Resource Surveys	36.0	2.0
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Or

GEOM	7305 High Accuracy Satellite Positioning	36.0	2.0
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Or

GEOM	7105 Introduction to AutoCAD Land Development Desktop	36.0	2.0
GEOM	7115 Autodesk Survey	18.0	1.0
GEOM	7125 Autodesk Civil Design	18.0	1.0

Applied Management Electives (9.0 credits)

Students will be required to take 9 credits of applied management courses. All students are required to take BUSA 7250, Management Skills and Applications (3 credits) through the School of Business. An additional six credits of applied management courses can be taken from other Bachelor of Technology programs including Management, Construction Management, Environmental Engineering Technology and Technology Management. Pre-approval of course selection is required from your program head.

Industry Project (12.0 credits required)

All students seeking to graduate from the program must successfully complete an industry-sponsored project. The objective of the project is to allow students to apply specialty knowledge in a real-life situation, study or applied research activity in conjunction with an industry sponsor and an academic mentor. The project assignment should contain elements that are considered innovative, experimental or exploratory in nature. The participant will be responsible for securing an industry sponsor with expertise in the project area.

	hrs/wk	credits
GEOM 7230 Project Planning	36.0	2.0
GEOM 8230 Geomatics Project	18.0	10.0

Liberal Education Component (12.0 credits)

Mandatory courses:

LIBS	7001 Critical Reading and Writing	3.0
LIBS	7002 Applied Ethics	3.0

Elective courses:

All students will be required to achieve these credits in accordance with the BCIT policy on Liberal Education course requirements. Information regarding topic areas and/or eligibility for transfer credits may be obtained from the Registrar's office.

Faculty and Administrative Staff

Marsh Heinekey, MBA, Dean, Process, Energy and Natural Resources, Marshall_Heinekey@bcit.ca
 Ross Miller, M.Sc., Program Head (GIS), Ross_Miller@bcit.ca
 Ken Schuurman, P.Eng., Program Head (Survey/Mapping), Ken_Schuurman@bcit.ca

To apply, go to
www.bcit.ca and
click on the
Prospective Students
heading, then the
Full-time link.



Sessional Instructors

Brian Ballantyne, Ph.D.
 Joe Battie, B.Sc.
 Jonathan Candy, M.Sc.
 Michael Cherneff, M.A.
 Sheila Churchill, B.Sc.
 Carmen Heaver, B.Sc.
 Sally Hermansen, M.A.
 Mark Hurd-Rutter, Dipl., T.
 William Johnston, M. Sc.
 Karl Kliparchuk, M.Sc.
 Stuart MacRitchie, M.Sc.
 Ross Miller, M.Sc.
 John Ogundare, Ph.D.
 Ken Schuurman, B.Sc.
 Tony Webb, Ph.D.
 Joan Yau, Ph.D.

Advisory Committee Members Geomatics Degree

John Blair, McElhanney Consulting Services
 Rob Hare, Institute of Ocean Sciences
 Bert Hol, Hol & Associates
 William Johnstone, Spatial Vision Consulting
 Amin Kassam, BC Ministry of Environment, Lands and Parks
 Stuart MacRitchie, Triathlon Mapping Corp
 Kathleen Moore, Canadian Wildlife Service
 Peter Mueller, City of Surrey
 Stewart Nimmo, Orbis Directions Consulting Ltd.
 Robert Plummer, GIS/CAD Consultant
 Hans Troelsen, Corporation of Land Surveyors of
 Province of B.C.
 Mike Woods, Institute of Ocean Sciences (retired)

Biotechnology

The Biotechnology Program is currently under revision. Please contact Paul Barran, program head at 432-8324 for information on entrance requirements, curriculum and the admission process.

Chemical Sciences Technology

Two Year Diploma Program (Full-time)

Whether in the research laboratory, engineering office or industrial plant, chemical analysts and chemical process technologists are in great demand. Their skills find challenges on many fronts, from improving industrial processes to solving environmental pollution problems. Because chemical principles form the basis for most industrial processes and products, graduates of the Chemical Sciences program find employment in almost every major industrial and research activity in B.C.

Job Opportunities

A broad set of skills allows graduates to pursue employment from a wide array of opportunities in many industries. Graduates are employed as chemists and analysts in research facilities and commercial and industrial labs; engineering assistants or materials testing specialists in consulting firms; production supervisor trainees in production and recycling plants; analysts in environmental and chemical laboratories; assayers or mineral processing technicians in extractive metallurgy plants; technical service representatives for chemical and equipment supply companies; and process technologists in pulp mills.

The Program

This diploma program offers the student a solid background in scientific principles, technology and skills that can be applied to many industries. The first-year curriculum emphasizes applied chemistry, general laboratory procedures and testing, and introduces the student to materials, science and a wide range of industrial chemical processes. In the second year, all students will take additional common technology courses plus have the opportunity to apply engineering and chemical principles to a concentration in one of the following options:

Environmental Chemistry: Includes courses covering detailed topics in air, water and soil sampling and analysis, air pollution control, industrial wastewater treatment and remediation of contaminated sites.

Industrial Chemistry: Emphasizes organic and analytical chemistry, ore analysis, mineral and chemical process engineering.

Pulp and Paper: Includes a detailed study of the pulp and paper industry including the kraft and mechanical processes, paper making, laboratory testing of paper and environmental air, water and solid waste control.

Students may participate in an industry-sponsored project (practicum or directed studies) in the second year of the program. This may involve work experience activities at the industry sponsor's regular place of business.

All Chemical Sciences students receive some exposure to topics from each of the options. Enrolment into each second-year option may be limited to ensure optimal class sizes. Regardless of the option chosen, all graduates will possess sufficient knowledge and skills to pursue career opportunities over the wide range of industries covered by Chemical Sciences.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$770

Second year: \$630

(general estimated cost and subject to change).

Accreditation

The program is accredited by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

High school graduation. English 12. Math 12. Chemistry 11. (Physics 11 and Chemistry 12 are strongly recommended).

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school Counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Content - Chemical Sciences Technology

Level 1 (15 weeks)			Hours	Credits
CHEM	1101	Chemistry 1 for Chemical Sciences	6.0	6.0
CHSC	1100	Computer Applications for Chemical Sciences	1.0	1.0
CHSC	1103	Engineering Materials 1*	3.5	3.5
CHSC	1119	Environmental Science*	4.5	4.5
COMM	1135	Technical Communication 1	3.0	3.0
MATH	1411	Technical Mathematics for Chemical Sciences	5.0	5.0
MECH	1800	Interpretation of Engineering Drawing OPMT	2.0	2.0
PHYS	1141	Physics: Chemical Sciences 1	5.0	5.0

*denotes alternate week labs.

Level 2 (20 weeks)			Hours	Credits
CHEM	2201	Chemistry 2 for Chemical Sciences	6.0	8.0
CHEM	2204	Chemical Laboratory Techniques	3.0	4.0
CHSC	1202	Laboratory Workshop	2.0	2.0
CHSC	2203	Engineering Materials 2*	3.5	4.5
CHSC	2248	Industrial Chemical Processes*	3.5	4.5
COMM	2235	Technical Communication 2	3.0	4.0
MATH	2411	Calculus for Chemical Sciences (Term A)	5.0	3.5
MATH	2412	Statistics for Chemical Sciences (Term B)	5.0	3.5
PHYS	2141	Physics: Chemical Sciences 2	5.0	6.5

*denotes alternate week labs.

Option: Environmental Chemistry

Level 3 (15 weeks)			Hours	Credits
CHEM	3309	Organic Chemistry 1	6.0	6.0
CHEM	3310	Physical Chemistry	5.0	5.0
CHSC	3318	Chemical Analytical Techniques/Applications 1	6.0	6.0
CHSC	3320	Unit Project I	2.0	2.0
CHSC	3341	Unit Operations 1	6.0	6.0
MATH	3411	Numerical Methods for Chemical Sciences	5.0	5.0

*denotes alternate week labs.

Level 4 (20 weeks)			Hours	Credits
CHEM	4409	Organic Chemistry 2 for Chemical Sciences	6.0	8.0
CHEM	4416	Analytical Instrumentation	2.0	2.5
CHEM	4417	Chemical Analytical Techniques/Applications 2*	6.0	4.0
CHSC	3413	Environmental Analytical Methods	3.0	4.0
CHSC	3448	Industrial Processes and Materials	2.0	2.5
CHSC	4411	Pollution Science and Microbiology	6.0	8.0
CHSC	4412	Waste Management	3.0	4.0

continued next page

		Hours	Credits
CHSC	4418 Chemical Analytical Techniques/ Applications 3*	6.0	4.0
CHSC	4420 Unit Project 2	3.0	4.0

*denotes alternate week labs.

Option: Industrial Chemistry

Level 3 (15 weeks)

CHEM	3309 Organic Chemistry 1	6.0	6.0
CHEM	3310 Physical Chemistry	5.0	5.0
CHSC	3318 Chemical Analytical Techniques/ Applications 1	6.0	6.0
CHSC	3314 Mineral Processing 1*	3.5	3.5
CHSC	3341 Unit Operations 1	6.0	6.0
MATH	3411 Numerical Methods for Chemical Sciences	5.0	5.0

*denotes alternate week labs.

Level 4 (20 weeks)

CHEM	4409 Organic Chemistry 2 for Chemical Sciences	6.0	8.0
CHEM	4417 Chemical Analytical Techniques/Applications 2*	6.0	4.0
CHSC	3448 Industrial Processes and Materials	2.0	2.5
CHSC	4408 Ore Analysis	3.0	4.0
CHSC	4414 Mineral Processing 2*	3.5	4.5
CHSC	4418 Chemical Analytical Techniques/Applications 3*	6.0	4.0
CHSC	4441 Unit Operations 2	6.0	8.0
ELEX	2830 Process Measurement	2.0	2.5

*denotes alternate week labs.

Option: Pulp and Paper

Level 3 (15 weeks)

CHEM	3310 Physical Chemistry	5.0	5.0
CHSC	3318 Chemical Analytical Techniques/Applications 1	6.0	6.0
CHSC	3330 Pulp & Paper Process Control	2.0	2.0
CHSC	3341 Unit Operations 1	6.0	6.0
CHSC	3346 Pulp and Paper	6.0	6.0
MATH	3411 Numerical Methods for Chemical Sciences	5.0	5.0

Level 4(20 weeks)

CHEM	4417 Chemical Analytical Techniques/Applications 2*	6.0	4.0
CHSC	3413 Environmental Analytical Methods	3.0	4.0
CHSC	4418 Chemical Analytical Techniques/Applications 3*	6.0	4.0
CHSC	4420 Unit Project 2	3.0	4.0
CHSC	4441 Unit Operations 2	6.0	8.0
CHSC	4446 Pulp and Paper 2	6.0	8.0
ELEX	2830 Process Measurement	2.0	2.5
PETR	4403 Process Dynamics	3.0	4.0

*denotes alternate week labs.

Faculty and Staff

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P. Stoddart, Workers' Compensation Board
K. Stubbs, Greater Vancouver Regional District

Fish, Wildlife and Recreation (Renewable Resources)

Diploma Program

See Renewable Resources for program details.

Food Technology

Two-Year Diploma Program (Full-time)

Job Opportunities

Graduates are employed by small to medium sized companies as well as larger food processing firms. Beginning salaries vary according to the company. You can get a good idea of current salaries and job requirements from the classified sections of the major newspapers in your area. In B.C., employers often specify a BCIT diploma or a science degree in their job requirements. Students participate in an industry-sponsored project (practicum or directed studies) in the second year of the program. The industry project is an integral program component required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,405

Second year: \$1,235

(general estimated cost and subject to change).

Degree Transfer/Completion

Simon Fraser University grants up to two years credit towards a B.Sc. in Biological Sciences to graduates of this program. BCIT graduates wanting a degree in Food Science from the University of British Columbia are assessed on an individual basis by UBC.

Entrance Requirements

High school graduation. English 12. Math 12. Chemistry 11.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Content - Food Technology

***Note:** The Food Technology curriculum is currently under review. Courses offered may differ from the descriptions listed here.

Level 1 (15 weeks)		hrs/wk	credits
BIOT 1020	Introductory Microbiology	6.0	6.0
CHEM 1103	Chemistry 1 for Biological Sciences	6.0	6.0
COMM 1144	Communication 1 for Biot/Food	3.0	3.0
FOOD 1030	Biology	5.0	5.0
FOOD 1090	Introduction to Food Technology	2.0	2.0
MATH 1441	Technical Mathematics for BioSciences	6.0	6.0
PHYS 1145	Physics 1 for Food Technology	3.0	3.0

Level 2 (20 weeks)		hrs/wk	credits
CHEM 2203	Chemistry 2 for Biological Sciences	6.0	8.0
COMM 2244	Communication 2 for Biot/Food	3.0	4.0
FOOD 2010	Food Processing 1	6.0	8.0
FOOD 2020	Microbiology for Food Processing	6.0	8.0
MATH 2441	Statistics for Biological Sciences	5.0	6.5
PHYS 2145	Physics for Food Tech 2	4.0	5.5

Level 3 (15 weeks)

CHEM 3311	Instrumental Analytical Methods	5.0	5.0
FOOD 3010	Food Processing 2	5.0	5.0
FOOD 3030	Quality Control 1	4.0	4.0
FOOD 3040	Food Analysis 1	5.0	5.0
FOOD 3250	Sanitation for Food Processing	6.0	6.0
MATH 3441	Microcomputer Applications	3.0	3.0
OPMT 1343	Operations Management For Food Technology	3.0	3.0

Level 4 (20 weeks)

BUSA 1102	Management for Food Technology*	4.0	2.5
COMM 3444	Communication 3 for BIOT/FOOD*	4.0	2.5
ELEX 2825	Process Instrumentation for Food*	4.0	2.5
FOOD 4010	Food Processing 3	5.0	6.5
FOOD 4020	Process Systems for Food Technology	5.0	6.5
FOOD 4030	Quality Control 2	4.0	5.5
FOOD 4040	Food Analysis 2	5.0	6.5
FOOD 4390	Directed Studies for Food Technology (Practicum)	4.0	5.0

*denotes alternate week labs.

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Forestry (Renewable Resources)

Diploma Program

See Renewable Resources for program details.

Geographic Information Systems

Advanced Diploma Program (One-Year, Full-time or Part-time)

Geographic Information Systems (GIS) technology is used to manage and utilize geographic data, and is increasingly being recognized as an essential tool in such diverse fields as forest management, urban planning, engineering, municipal management and environmental studies.

The advanced diploma program in Geographic Information Systems is designed for students with a background in a relevant discipline or technology. The program is available in a full-time, nine-month program format, through Part-time Studies, or a combination of these.

The curriculum combines theory and practice and covers GIS principles, training in GIS software, technical issues in GIS, remote sensing, digital mapping and management issues in GIS. Students participate in an industry-sponsored project (practicum or directed studies) in the program. The industry project is an integral program component, which is required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

Entrance Requirements

Diploma of Technology or University/College Degree in a related field. Students must possess good communication and technical problem solving skills, a good disposition toward team work, fundamental computer literacy and computer programming skills. Applicants must meet BCIT's English language requirement. Applicants should submit a resume and a letter of intent explaining their reasons for taking the program. Applications should indicate clearly whether the program is to be taken on a full-time or part-time basis.

Students whose native language is not English and who have completed their degree/diploma at a post-secondary institution where English was not the language of instruction are required to satisfactorily complete a BCIT Communications department English Language Competency Test.

Program of Studies

The general course requirement for graduation from the program is a minimum of 50 credits. ADP courses are selected from the following categories:

Advanced Diploma Program (ADP)	
Technology Courses	27
Management	8
Projects	15
Total	50

Courses in these categories require a suitable background in the following areas: computer programming (C programming, file and data handling); mathematics (linear algebra, statistics); fundamentals of computer systems (mathematics for computing, operating systems, hardware and software technology, applications), fundamentals of mapping and databases.

Students lacking formal education or proven ability in these areas will be required to complete the following foundation technology courses or their equivalent.

Tuition Fees 2001/2002 (subject to change)

\$1,171.65 maximum per term.

Books and Supplies 2001/2002

\$1,060 (general estimated cost and subject to change).

Program Content - GIS Foundation Technology (17.5 credits)

		hrs/wk	credits
CDCM	2270 Program Design in C	3.0	3.0
CDCM	2372 Database Applications	3.0	3.0
CDCM	3470 Data Structures in C*	4.0	2.5
GIST	5108 Fundamentals of Mapping	3.0	3.0
GIST	5130 Technical Topics in Computer Systems	3.0	3.0
GIST	6121 Applied Mathematics 2*	4.0	3.0

Some of these foundation courses may be taken concurrently with ADP Core and Advanced Technology Courses; however, students should attempt to complete these courses before entering the program.

ADP Technology (27 credits required)

Core (15 credits)

GIST	5100 Fundamentals of GIS	3.0	3.0
GIST	5128 ARC/INFO GIS Level 1*	6.0	3.0
GIST	6100 Technical Issues in GIS*	4.0	3.0
GIST	6128 ARC/INFO GIS Level 2*	6.0	3.0
GIST	6132 GIS Database Systems*	4.0	3.0

Advanced Technology (12 credits)

GIST	6101 Selected Topics in GIS*	4.0	3.0
GIST	6102 Customization and Modeling*	4.0	3.0
GIST	6108 Digital Mapping*	4.0	3.0
GIST	6118 Remote Sensing*	4.0	3.0

Management

(8 credits minimum) required:

GIST	6110 Management Issues in GIS*	4.0	3.0
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Electives: (Suggested)

CDCM	5660 Graphic System Management*	3.0	2.0
GIST	6135 GIS System Management*	4.0	3.0

Students may also select Management course electives from other advanced diploma or degree programs, subject to program approval.

Project (1 credits)

GIST	5119	Technology Assessment	3.0	3.0
GIST	5120	Project Planning	3.0	3.0
GIST	6120	Project	6.5	9.0

* denotes half-term course

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Geomatics Technology (formerly Surveying)

Two-Year Diploma Program (Full-time)

The skills of the geomatics technologist are in demand in a large number of businesses and industries. Surveying and photogrammetry are essential to many phases of industrial and business development including construction, natural resource exploration and development, and mapping. Surveying techniques have become more sophisticated through the use of electronic devices and computers so that shape, size and location of objects or landmasses can be determined with precision and speed.

Job Opportunities

Surveying firms, consulting engineers, the oil and gas industry, government mapping, highway, planning and engineering departments and utility companies provide some of the job opportunities for Geomatics graduates. Employment may be found throughout Canada and around the world.

The Program

BCiT offers a full time two-year diploma and a part-time one-year certificate in Geomatics. The major geomatics program is the two-year course of study leading to a National Diploma in Geomatics. Students in this program acquire a solid background in applied math, physics, cartography, photogrammetry, plane and geodetic surveying as well as computer programming. Practical skills of note include; computer assisted mapping and drafting, field surveying, GPS, and total station data collection and transfer. Prospective students should have a genuine interest in mathematics, computers and earth sciences, and should enjoy a vigorous outdoor lifestyle.

Program Length

Two years, full-time for the Diploma program beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,080

Second year: \$490

(general estimated cost and subject to change).

Accreditation

The Geomatics Technology diploma program is accredited by the Applied Science Technologists and Technicians of British Columbia as a Technologist program. Full-time students may apply for student membership in ASTTBC. Graduates are eligible for Graduate Technologist Membership and may apply for registration as an Applied Science Technologist after completing a minimum of two years of relevant experience.

Degree Transfer/Completion

Following completion of the two-year diploma program, graduates are granted course credits at the University of Calgary in the Geomatics Engineering department, at the University of New Brunswick and at the Oregon Institute of Technology, and towards examinations set by the Western Canadian Board of Examiners leading to registration as a Professional Land Surveyor. The diploma program is recognized by the Washington Land Surveyors as two years credit toward professional certification.

Entrance Requirements

High school graduation. English 12. Math 12. Physics 11. Preference will be given to students achieving a grade of (C) or better in the entrance requirements. Applicants who have completed Earth Science 11 and Geology 12 are eligible to apply for course credit in BCIT course SURV 2263.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Content - Geomatics

Level 1 (15 weeks)		hrs/wk	credits
COMM 1135	Introduction to Technical Communication	3.0	3.0
MATH 1511	Technical Mathematics for Geomatics	7.0	7.0
PHYS 1151	Physics for Surveying 1	5.0	5.0
SURV 1161	Surveying Computations 1	3.0	3.0
SURV 1163	Introduction to Cad	3.0	3.0
SURV 1164	Field Surveying 1	8.0	8.0
SURV 1172	Computer Applications 1	2.0	2.0
Level 2A (10 weeks)			
COMM 2251	Technical Communication 2 Surveying	3.0	4.0
MATH 2511	Calculus for Surveying	7.0	9.5
PHYS 2151	Physics for Surveying 2	3.0	4.0
SURV 2261	Surveying Computations 2	3.0	4.0
SURV 2264	Field Surveying 2	8.0	10.5
SURV 2265	Surveying CAD 1	2.0	2.5
SURV 2267	Photogrammetry 1	2.0	1.5
SURV 2272	Computer Applications 2	2.0	2.5

Level 2B (10 weeks)		hrs/wk	credits
COMM 2251	Technical Communication Surveying	3.0	4.0
MATH 2511	Calculus for Surveying	7.0	9.5
PHYS 2151	Physics for Surveying 2	3.0	4.0
SURV 2261	Surveying Computations 2	3.0	4.0
SURV 2263	Earth Sciences	2.0	1.5
SURV 2264	Field Surveying 2	8.0	10.5
SURV 2265	Surveying CAD 1	2.0	2.5
SURV 2272	Computer Applications 2	2.0	2.5

Major: Surveying

Level 3 (15 weeks)			
MATH 3511	Matrix Methods for Surveying	4.0	4.0
SURV 3361	Surveying Computations 3	3.0	3.0
SURV 3362	Geodetic Surveying 1	3.0	3.0
SURV 3363	Mathematical Cartography	3.0	3.0
SURV 3364	Field Surveying 3	6.0	6.0
SURV 3365	Surveying CAD 2	3.0	3.0
SURV 3368	Introduction to Digital Mapping & Remote Sensing	2.0	2.0
SURV 3372	Computer Applications 3	2.0	2.0
SURV 3378	Mining Surveying	2.0	2.0
SURV 3576	Global Positioning System	3.0	3.0

Level 4A (10 weeks)

MATH 4511	Statistics for Surveying	6.0	4.0
SURV 4461	Surveying Computations 4	3.0	2.0
SURV 4462	Physical Geodesy	3.0	2.0
SURV 4464	Field Surveying 4	7.0	9.5
SURV 4472	Engineering Surveying	2.0	1.5
SURV 4473	Surveying Cad AutoCad	3.0	2.0
SURV 4478	Access Database	3.0	2.0
SURV 4663	Adjustment of Surveying Measurements	3.0	4.0

Level 4B (10 weeks)

SURV 3369	Hydrographic Surveying	3.0	2.0
SURV 4464	Field Surveying 4	7.0	9.5
SURV 4468	Cadastral Surveying	3.0	2.0
SURV 4469	Planning and Land Utilization	3.0	2.0
SURV 4474	Surveying Cad Microstation	3.0	2.0
SURV 4480	Land Information Systems	3.0	2.0
SURV 4562	Astronomy	3.0	2.0
SURV 4663	Adjustment of Surveying Measurements	3.0	4.0



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Mining

Two-Year Diploma Program (Full-time)

The Industry

Technologists have an important role to play in the exploration, development and extraction of mineral resources. Up-to-date technology such as computer applications are vital to B.C. and Canadian mining. Gross profits and total numbers employed indicate the mining industry still commands a major position in B.C. Copper, zinc, gold and coal production predominate. Industrial mineral production is expanding. Mining is a worldwide industry. The workplace varies from offices to tents, and mountains to cities.

Strong industry support exists. The advisory committee, composed mostly of industry representatives, meets quarterly to review the program. Field schools, guest lecturers, professional associations and conventions provide opportunities for the student to interface with the mining world.

The Future

As long as civilization needs metals, ceramics and building materials, graduates will enter a wide field of mining and related occupations: geology, geophysics, geochemistry, surveying, sampling, assaying, mine planning, environmental control, production supervision, services (e.g. water control, road construction), rock mechanics, diamond drilling, blasting, equipment sales and computer applications. Independence, initiative, and a sense of responsibility are important. Salaries and benefits are high.

Economics

BCIT mining students enjoy an unusually high level of student financial assistance. There are several entrance scholarships available.

The Program

The curriculum is current, practical, intensive, and broad-based. Graduates are career-oriented.

Field schools are an integral part of the mining curriculum. Field work, from one to seven days duration, reinforce academic studies in mine planning, extractive metallurgy and assaying, geology and exploration, blasting, geomechanics and surveying. An attendance record of at least 90 per cent is required of each student.

A Work Study Education Program

A work study education program in partnership with the mining industry commenced in September 1996. For more information, please contact the Mining Technology department at (604) 432-8323.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,585

Second year: \$1,035

(general estimated cost and subject to change).

Degree Transfer/Completion

There are good transfer arrangements with several universities and approximately 50 per cent of our students ultimately continue to engineering degrees.

Accreditation

The program is accredited by the Applied Science Technologists and Technicians of British Columbia.

Entrance Requirements

High school graduation, English 12, Math 12, Physics 11 and Chemistry 11. Completion of Earth Sciences 11 and Geology 12 is strongly recommended. Applicants who have completed Earth Sciences 11 and Geology 12 are eligible to apply for a BCIT course credit in MINE 1101.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The program also includes an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Content - Mining

Level 1 (15 weeks)		hrs/wk	credits
CHEM	1102 Chemistry 1 for Mining/Petroleum	6.0	6.0
COMM	1135 Technical Communication 1	3.0	3.0
MATH	1501 Technical Mathematics for Mining	5.0	5.0
MINE	1101 Introductory Geology	3.5	3.5
MINE	1102 Mining Exploration	2.0	2.0
MINE	1103 Introduction to AutoCAD	1.0	1.0
MINE	1108 Graphical Communication	2.0	2.0
PHYS	1147 Physics for Mining/Petroleum 1	6.0	6.0
SURV	1140 Surveying for Mining 1	3.0	3.0
Level 2 (20 weeks)			
CHEM	2202 Chemistry 2 for Mining/Petroleum	6.0	8.0
COMM	2236 Technical Communication 2	3.0	3.5
MATH	2501 Calculus for Mining	5.0	6.5
MINE	2101 Geomorphology	4.0	5.5
MINE	2102 Mining Methods	2.0	2.5
MINE	2108 Mine Drafting and Computer Graphics	2.0	2.5
MINE	2099 Mining Industry Experience		15.0
PHYS	2147 Physics for Mining/Petroleum 2	6.0	8.0
SURV	2240 Surveying for Mining 2	3.0	4.0

Level 3 (15 weeks)		hrs/wk	credits
CHSC	3305 Assaying	3.0	3.0
CHSC	3314 Mineral Processing	3.5	3.5
CHSC	3360 Environmental Applications	2.0	2.0
CIVL	1220 Statics and Strength of Materials	3.0	3.0
COMM	3350 Advanced Technical Communication for Mining	1.0	1.0
MATH	3501 Numerical Methods and Computing	5.0	5.0
MINE	3101 Structural Geology	3.5	3.5
MINE	3102 Blasting and Rock Mechanics	4.0	4.0
PHYS	3150 Mining Geophysics	3.0	3.0
SURV	3340 Surveying for Mining 3	3.0	3.0
Level 4 (20 weeks)			
CHSC	4405 Assaying 2	3.0	4.0
CHSC	4414 Mineral Processing	3.5	4.5
CIVL	2221 Strength of Materials*	3.0	2.0
CIVL	2222 Geotechnical for Mining*	3.0	2.0
CIVL	2223 Hydraulics	3.0	4.0
COMM	4450 Advanced Technical Communication for Mining	1.0	1.5
MATH	4501 Numerical Methods/Statistics	5.0	6.5
MINE	4101 Geology: Mineral Deposits	3.5	4.5
MINE	4102 Mine Planning	4.0	5.5
MINE	4360 Environmental Applications	2.0	2.0
SURV	4440 Surveying for Mining 4	3.0	4.5

*denotes half-time course.

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Petroleum and Natural Gas

Two-Year Diploma Program (Full-time)

Its large size and diversity make the oil and gas industry unique, both in its extremely wide range of occupational opportunities and in the many challenges it offers employees for learning and growing.

Job Opportunities

The petroleum technologist continues to be successful in the marketplace. There are many career choices for both men and women in industry and government, working in the office, plant and the field. There is unlimited potential for growth and success. Typical positions are in the following areas:

Exploration and Production: Geologic studies, seismic surveys, reservoir studies, well testing and servicing, and evaluation of oil and gas properties.

Transmission and Distribution: Operation and maintenance of pipelines, systems planning, corrosion studies and control, gas control and measurement.

Processing and Refining: Laboratory technologist, environmental control technologist, oil refining and gas processing operations.

Other areas include government regulatory agencies, research laboratories and petroleum products application and marketing. The need for trained personnel continues to grow.

The Program

Enables the graduate to successfully enter any of the major employment areas associated with the petroleum and natural gas industries. The first year covers topics related to petroleum geology, reservoir behaviour, gas and oil reservoir evaluation and production, an introduction to oil field economics, gas processing and basic process equipment design. Emphasis is given to the chemistry, physics and mathematics courses that are essential to the understanding and application of engineering principals studied throughout the program.

The second year covers topics related to pipeline transmission, natural gas distribution, fuels, reservoir engineering and economics, principals of oil refining, and an introduction to heavy oil and bitumen upgrading (Tar Sand Technology). The use of the computer for both technology (process control) and business applications is emphasized and encouraged throughout the course.

Classroom and laboratory instruction is supplemented by field trips to local technology related installations whenever possible. Students are required to successfully participate in and complete an industry/BCIT directed work experience project in their final term. This project includes participation in the work activities that would normally take place at a selected industry sponsor's place of business.

The industry project is an integral program component, which is required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

Program Length

Two years, full-time beginning in September each year.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

Books and Supplies 2001/2002

First year: \$1,280

Second year: \$950

(general estimated cost and subject to change).

Accreditation

This program is accredited by the Applied Science Technologists and Technicians of British Columbia.

Degree Transfer/Completion

Credit is given toward a petroleum engineering degree at selected U.S. universities. Credit is also given toward a chemical engineering degree at Lakehead University.

Entrance Requirements

High school graduation. English 12. Math 12. Physics 11 and Chemistry 11. Completion of Earth Sciences 11 and Geology 12 would be an asset. Exemptions from academic requirements may be made in the case of mature applicants with practical experience in the industry. Applicants applying under this category should include a letter with their application outlining their request and apply as early as possible.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Content - Petroleum and Natural Gas

Level 1 (15 weeks)			hrs/wk	credits
CHEM	1102	Chemistry 1 for Mining/Petroleum	6.0	6.0
CHSC	1106	Engineering Materials Petroleum*	4.0	3.5
COMM	1135	Technical Communication 1	3.0	3.0
MATH	1471	Technical Mathematics for Petroleum	5.0	5.0
PETR	1101	Petroleum Geology	4.0	4.0
PETR	1102	Properties of Reservoir Fluids	3.0	3.0
PHYS	1147	Physics for Mining/Petroleum	6.0	6.0
Level 2 (20 weeks)				
CHEM	2202	Chemistry 2 for Mining/Petroleum	6.0	8.0
COMM	2236	Technical Communication 2	3.0	3.5
COMP	1135	Computer Applications I	2.0	2.5
MATH	2471	Calculus for Petroleum	5.0	6.5
PETR	2201	Field Production of Oil and Gas	3.0	4.0
PETR	2202	Field Handling of Oil and Gas/Gas Processing	2.0	2.5
PHYS	2147	Physics for Mining/Petroleum 2	6.0	8.0
SURV	1128	Surveying for Petroleum	3.0	4.0
Level 3 (15 weeks)				
CHSC	3341	Unit Operations 1	6.0	6.0
CHSC	3351	Pollution Control	3.0	3.0
MATH	3471	Modeling and Dynamic Systems	5.0	5.0
PETR	1308	Fuels	2.0	2.0
PETR	3306	Reservoir Evaluation	4.0	4.0
PETR	3307	Pipeline Transmission	6.0	6.0
COMP	2135	Computer Applications II	3.0	3.0
PETR	3300	Petroleum Technology Sketching	2.0	2.0
Level 4 (20 weeks)				
CHEM	4415	Petroleum Chemistry	5.0	6.5
CHSC	4441	Unit Operations 2	6.0	8.0
MATH	4471	Statistics and Numerical Methods for Petroleum	5.0	6.5
PETR	2404	Computer Simulation and Control	2.0	2.5
PETR	4403	Process Dynamics	3.0	4.0
PETR	4406	Gas Processing & Oil Refining	5.0	6.5
PETR	4407	Gas Distribution/Utilization	4.0	5.5

*denotes half-term course.

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Renewable Resources Technology Forestry and Fish, Wildlife, & Recreation

Two-Year Diploma Program (Full-time)

Advanced Diploma in Renewable Resource Management (Co-Op Option)

British Columbia's greatest natural renewable resource is its forest land. The benefits that derive from intelligently planned use of this land are ecologically, and economically important. Wise use of the land and related resources is essential for the continued sustainability of many industries, communities, and the resources themselves. The Renewable Resources programs have been established to meet these needs. Training is offered in Forestry and Fish, Wildlife and Recreation.

Due to ongoing changes in resource management, course content is revised on an ongoing basis. Students should anticipate minor changes to the program outlined in the following pages.

Job Opportunities

Graduates in the Forestry program find employment in a variety of industrial, consulting, and government positions. Careers include those in fields of forest inventory, managing forest resources, ecosystem reconnaissance and mapping, forest engineering, preparing silvicultural plans and carrying out surveys, and forest health surveys.

The job opportunities for graduates in Fish, Wildlife and Recreation are principally in government agencies (i.e. local, regional, provincial and federal) and with private environmental consultants.

The Programs

Fieldwork is an important part of Renewable Resources programs. You will need to work independently, or as a member of a crew, in a wide variety of terrain and weather conditions and will need to wear raingear, approved footwear, and other appropriate field clothing.

When course credits are given, electives must be selected in consultation with the program head. Subject to availability of seats, admission to Renewable Resources Technology courses will be limited to students registered in the program.

Students participate in an industry-sponsored project (practicum or directed studies) in the second year. The industry project is an integral program component required for completion and certification. Students may be required to participate in work experience activities at the industry sponsor's regular place of business.

- Forestry covers forest management, botany, ecology and soils; photo interpretation and mapping; silviculture and reforestation; protection and fire management; measurements; engineering, logging production and utilization.

- Fish, Wildlife and Recreation (FWR) covers the management of fish, wildlife and wildland recreation and includes habitat ecology, environmental inventory techniques and environmental law with respect to these resources.

Advanced Diploma Program in Renewable Resource Management will appeal to those technologists and others who are seeking to improve their skills in integrated resource planning and management. The program also focuses on building teamwork and interpersonal skills, as well as problem solving and decision-making abilities in the resource sector. The aim of the program is to provide technologists and others with the knowledge, skills and attitudes for their future roles as project leaders, field supervisors or information coordinators.

Cooperative Education Option

Renewable Resources has a Cooperative Education program option available for both the Forestry and the Fish, Wildlife and Recreation programs. Cooperative Education involves enhancing the educational experience by integrating traditional academic studies with relevant work experience. The benefits of participation in the program will include skill development in a workplace environment and the potential enhancement of employment opportunities upon graduation. It is expected that the co-op experience will provide participants with training in tune with specific needs of employers.

The Cooperative Education program option will require students to spend an additional year in the technology to obtain an Advanced Diploma in Renewable Resource Management. ADP Co-op students are required to complete 30 credits of academic courses, and a minimum of two Co-op Work Terms working in their field of study. Each Co-op Work Term is approximately 12 to 16 weeks in length; the total number of hours is dependent upon the training opportunity. The table below shows how the Renewable Resources academic curriculum is integrated with the Co-op work terms.

Cooperative Education Timetable

Year	September - December	January - April	May - August
1	2 year Diploma Courses	2 year Diploma Courses	Co-op Work Term 1
2	2 year Diploma Courses	2 year Diploma Courses <i>Diploma of Technology</i>	Co-op Work Term 2
3	Co-op Work Term 3	Advanced Diploma Courses	Advanced Diploma Graduate

Students interested in pursuing the Advanced Diploma in Renewable Resource Management (Co-op Option) should approach their respective program head, or the Cooperative Education officer, for more information.

Accreditation

The program is accredited at the technologist level by the Applied Science Technologists and Technicians of B.C.

Entrance Requirements

Forestry Option

High School graduation. English 12(C+) Math 11(C+) two sciences at the Grade 11 or Grade 12 level or equivalent post secondary science courses with a minimum C+. One of the sciences must be from; physics, chemistry or biology. The second science may include geology, earth sciences, applied physics, recognised resource science 12, or geography.

A one-page letter, preferably hand-written, should be included with your application. The letter should describe why you desire a career in the field of Forestry. Appropriate work experience in the field of Resource Management may exempt a limited number of applicants from some academic prerequisites. Applicants who feel they fall into this category should include a detailed resume with their application and letter.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fish, Wildlife and Recreation Option

High school graduation. English 12(C). Math 11(C+). Biology 11(C). Any one additional science course at the grade 11 or 12 level. The science course may be chosen from the following: Biology, Chemistry, Physics or Applied Physics, Earth Science, Geology, or Science and Technology. The science course must have been completed with an achievement of (C) or higher. Chemistry is strongly recommended. A resume must accompany the application. Relevant work experience in natural resources strengthens an application. Due to the physical requirements of the Fish, Wildlife and Recreation program, good health is required. You may be required to obtain and submit a medical clearance prior to admission to the program.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

continued next page

Advanced Diploma in Renewable Resource Management (Co-op Option)

Students will be required to apply for, and be selected into the program. The entrance requirement is a diploma of Technology or university/college degree in a related field and a minimum of six months of industry experience. Students must possess English 12 or equivalent, good communication and technical problem solving skills, a good disposition toward teamwork, and fundamental computer literacy. The general course requirement for graduation from the advanced diploma program is a minimum of 60 credits; 30 academic credits plus 30 work term credits. Students currently studying in the Fish, Wildlife and Recreation or Forestry two-year diploma program in the BCIT Renewable Resources Technology who wish to apply to the Advanced Diploma Co-op option may do so at the end of academic term one.

Technology Entry (TE) Program

This full-time, day school program provides academic upgrading to students wishing to enrol in Engineering, Electronic and Health Science programs at BCIT.

The TE program provides courses in chemistry, communication, mathematics and physics that meet program prerequisites for selected programs at BCIT. The programs also include an introductory course in computer applications and a learning skills course. The TE program is supportive to those who require English language training.

For information about the TE program, please refer to page 61 of this calendar.

Program Length

Two years, full-time beginning in September each year. The Advanced Diploma in Renewable Resource Management (Co-op Option) is one year in length.

Tuition Fees 2001/2002 (subject to change)

\$4,686.60 for the two-year program.

The advanced diploma in Renewable Resource Management academic fees are \$1,171.15 maximum per academic term and \$377.50 per Co-op work term.

Note: An additional field trip fee of approximately \$150 may be incorporated into second year Fish, Wildlife and Recreation tuition, starting in September 2000.

Books and Supplies 2001/2002

Forestry

First year: \$1,435

Second year: \$900

Fish, Wildlife and Recreation

First year: \$1,175

Second year: \$1,300

(general estimated cost and subject to change).

Expenses

In addition to tuition fees, books, supplies and equipment, students will incur expenses for field trips and various certification courses such as first-aid. These expenses are approximately \$500 for first year and \$1000 for second year.

Program Content - Forestry

Level 1 (15 weeks)			hrs/wk	credits
COMM	1145	Technical Communication 1 for Renewable Resources	4.0	4.0
MATH	1451	Technical Mathematics for Renewable Resources	5.0	5.0
RENR	1105	Natural Resource Measurement 1	4.0	4.0
RENR	1110	Microcomputer Applications (Forestry)	3.0	3.0
RENR	1120	Photo Interpretation and Mapping 1	4.0	4.0
RENR	1150	Ecology, Plants, Soils 1	6.0	6.0
RENR	1166	Integrated Resource Management 1	2.0	2.0
Level 2 (20 weeks)				
COMM	2245	Technical Communication 2 for RENR	3.0	3.5
MATH	2453	Statistics for Renewable Resources	4.0	4.0
RENR	1117	Applied Ecology in BC (Forestry)	4.0	4.5
RENR	2106	Natural Resource Measurements 2 (Theory)	3.0	3.5
RENR	2107	Natural Resource Measurements 2 Practical	2.0	2.0
RENR	2135	Fire Management 1	3.0	3.5
RENR	2141	Air Photo and Digital Mapping	6.0	7.0
RENR	2166	Integrated Resource Management 2	1.0	1.0
RENR	2150	Ecology, Plants, Soils 2	6.0	7.0
Level 3 (15 weeks)				
COMM	3345	Technical Communication 3 for Forest Resources	2.0	2.0
RENR	3106	Natural Resource Measurements 3 Theory	3.0	3.0
RENR	3107	Natural Resource Measurements 3 Practical	4.0	4.0
RENR	3135	Fire Management 2	4.0	3.0
RENR	3145	Silviculture 1	4.0	3.5
RENR	3150	Forest Insects & Diseases 1	4.0	3.5
RENR	3160	Forest Engineering 1	6.5	6.5
RENR	3166	Computer Applications for Forestry	4.0	4.0
RENR	3180	Technical Project 1	2.0	1.0

Level 4 (20 weeks)			hrs/wk	credits
COMM 4445	Technical Communication 4 for Forest Resources		2.0	2.0
RENr 3175	Independent Studies* (a 2-week course)		60.0	4.0
RENr 3181	Technical Project 2		2.0	2.0
RENr 4107	Natural Resource Measurements 4		5.0	5.5
RENr 4145	Silviculture 2		7.0	7.0
RENr 4150	Forest Insects & Diseases 2		5.0	5.0
RENr 4160	Forest Engineering 2		6.5	6.5
RENr 4166	Applied Forest Management		5.0	5.5

*denotes half-term course

Program - Fish, Wildlife and Recreation

Level 1 (15 weeks)

COMM 1145	Introduction to Technical Communications		4.0	4.0
MATH 1451	Basic Technical Mathematics for Renewable Resources		5.0	5.0
FOOD 1241	Zoology 1 for FWR		2.0	2.0
RENr 1105	Natural Resource Measurements		4.0	4.0
RENr 1110	Microcomputer Applications		3.0	3.0
RENr 1120	Photo Interpretation and Mapping 1		4.0	4.0
RENr 1150	Ecology, Plants, Soils 1		6.0	6.0
RENr 1166	Integrated Resource Management 1		2.0	2.0

Level 2 (20 weeks)

COMM 2245	Technical Communication 2 for RENr		3.0	3.5
FOOD 2241	Zoology 2 for FWR		2.0	2.0
MATH 2453	Statistics for RENr		4.0	4.0
RENr 1116	Applied Ecology in BC (FWR)		4.0	4.5
RENr 2106	Natural Resource Measurements 2 (Theory)		3.5	3.0
RENr 2107	Natural Resource Measurements 2 Practical		2.0	2.0
RENr 2135	Fire Management 1		3.0	3.5
RENr 2141	Air Photo and Digital Mapping		6.0	7.0
RENr 2150	Ecology, Plants, Soils 2		6.0	7.0
RENr 2166	Integrated Resource Management 2		1.0	1.0

Level 3 (15 weeks)

COMM 3353	Advanced Technical Communication FWR		2.0	2.0
RENr 3190	Environmental Monitoring		3.0	3.0
RENr 3215	Recreational Land Management 1		7.0	7.0
RENr 3220	Wildlife Management 1		7.0	7.0
RENr 3225	Fish Management 1		7.0	7.0
RENr 3230	Projects 1 FWR		6.0	6.0

Level 4 (20 weeks)			hrs/wk	credits
COMM 4453	Public Information Techniques for FWR		3.0	3.5
RENr 2240	Environmental Law Enforcement		3.0	3.5
RENr 3175	Independent Studies (2 week course)		60.0	4.0
RENr 4215	Recreational Land Management 2		7.0	8.5
RENr 4220	Wildlife Management 2		7.0	8.5
RENr 4225	Fish Management 2		7.0	8.5
RENr 4230	Projects 2 FWR		5.0	6.0

*denotes half-term course.

Advanced Diploma in Renewable Resource Management (Co-Op Option)

Co-op Work Term Courses

RENr 2990	Co-op Work Term 1 to be completed after Level 2		15.0
RENr 3990	Co-op Work Term 2 to be completed after Level 4		15.0
RENr 4990	Co-op Work Term 3 to be completed after Level 4		15.0

Advanced Diploma Academic Courses

Course selections are subject to change as the curriculum is enhanced or refined.

Courses (20 weeks)

RENr 5001	Introduction to Entrepreneurship in the Resource Sector	30	2.0
RENr 5002	Forest Practices Auditing	15	1.0
RENr 5003	Forest Practices Auditing 2	15	1.0
RENr 5010	Integrated Resource Planning	15	1.0
RENr 5011	Integrated Resource Management Applications	15	1.0
RENr 5100	Riparian Area Management	15	1.0
RENr 5102	Project Management	15	1.0
RENr 5143	Problem Solving and Decision-Making	15	1.0
RENr 5166	Integrating Computer Applications in the Resource Management	30	2.0
RENr 5200	Planning for Urban Watersheds	15	1.0
RENr 5301	Multicultural and First Nations Awareness	30	2.0
RENr 5310	Integrated Resource Project	30	2.0
RENr 5311	Applied Research for Project	180	6.0
RENr 5780	Environmental Impact Assessment	15	1.0
RENr 5012	Natural Resource Policy and Administration 1	15	1.0
RENr 5013	Natural Resource Policy and Administration 2	15	1.0
RENr 5019	The Forest Industry	15	1.0
EENG 8780	Environmental Law 1	18	1.0
EENG 8782	Value Analysis and Environmental Management	18	1.0
EENG 8783	Risk Management	18	1.0
EENG 8784	Environmental Law 2	18	1.0

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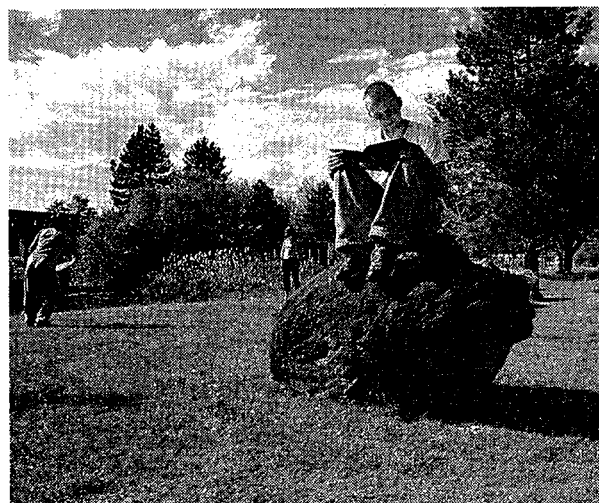
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Access Programs
bring you up to
speed. See page 60
for more details.

School of Transportation



"I'm very interested in the mechanical aspect of aviation, and the employment opportunities in the mechanical field are one of the highest of any industry. BCIT instructors have a lot of experience and exposure to the aviation industry."

*~ Karen Coulter
Helijet Airways
Aircraft Maintenance Engineering,
Category M, 1999*

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Aerospace and Technology Campus

The Aerospace and Technology campus is located at the Vancouver International Airport close to the south terminal. The 75,000 sq. foot hangar houses over 18 aircraft and 10 workshops which simulate an industry operation.

The Campus is close to the community of Richmond B.C., which has full shopping, entertainment and service facilities. Services at the campus include a student lounge, cafeteria, recreational area, and one of the largest aviation libraries in the province. The nearby Fraser River with its natural beauty and recreational possibilities add to the campus amenities.

The aerospace programmes at BCIT have a long history of developing the skilled personnel for the aviation industry. The aviation programs started over 40 years ago as a fledgling school with one program of 16 students and has now developed into six programs with over 300 students daily. During those years over 4000 job ready graduates have taken their place in the aviation industry.

The school is unique in that it is open all year and has continuous start dates for courses throughout the year. In addition the two-year AME M diploma course is conducted straight through without the traditional summer break. This allows students to accelerate their learning and enter industry sooner than any other college.

The programmes are regulated and accredited by Transport Canada and the Canadian Aviation Maintenance Council to ensure they meet and exceed national and international standards.

Aircraft Electronics Technician (Avionics)

Diploma of Technical Studies (Full Time)

Aircraft Electronics Technicians (Avionics) are responsible for the servicing, repair and modification of aircraft electronic systems and components. It is a job that includes removing and installing components, bench testing and troubleshooting complex electronic aircraft systems. Today's aircraft can be quite sophisticated with "fly by wire," auto flight, global positioning, satellite navigation, inflight entertainment, and automatic communication and receiving systems.

Job Opportunities

Employment opportunities are available across Canada in aviation electronic shops, helicopter operations, and large and small carriers. Other opportunities such as fixed-based airport equipment servicing are also available. Upon completion of approved training, graduates can expect to work in industry as apprentice for 18 months, and then as an avionics technicians.

The Program

This 47-week program is designed to follow a national/international set of standards and is approved by Transport Canada. It provides an in-depth knowledge of today's modern aircraft electronics, incorporating the electronics theory obtained in the Electronic Core program. You will learn the interpretation and compliance of Transport Canada regulations and airworthiness standards.

Graduates may be credited with 18 months experience towards the 48 months industry experience required by Transport Canada. The students will attend lectures approximately 50 per cent of the time, while gaining hands-on experience 50 per cent of the time. The course is conducted in a large hangar at the Vancouver International Airport. The campus has a well-equipped avionics shop and more than 18 aircraft, both fixed wing and rotary, to work on. The student will perform a variety of tasks from installing equipment on aircraft, to bench performance testing and troubleshooting both aircraft and avionics components.

Grading

Minimum course passing grade is 70 per cent for each course. All courses must be passed in order to successfully complete the program.

Program Length

Full-time, 47 weeks.

Normal Course Hours

0800-1530, Monday through Friday.

Tuition Fees (subject to change)

\$1,053.90 per term, for three terms.

Books and Supplies

\$703 (general estimated cost and subject to change).

Entrance Requirements

BCIT Electronics Common Core program or equivalent. High school graduation. English 12 or Communications 12. Academic Math 11 (C), (Math 12 recommended). BCIT pretest is acceptable for English only.

National Occupational Standards for Aircraft/Aviation Programs

The occupational standards and training standards for the 13 occupations in the aviation industry are currently under national review by a joint industry, government and school association known as C.A.M.C. (Canadian Aviation Maintenance Council). The results are expected to lead to more formal and recognizable national and international trade certification. BCIT is an integral part of these ongoing studies and improvements, and will ensure that any changes are reflected in our curriculum and training standards.

Applied Academics

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

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Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Industry Policies

- A security check will be required to work on airports
- Some sectors of the aviation industry screen for drug and alcohol use.
- Most aviation companies require grade 12 completion as a hiring policy.
- Excellent attendance is an important issue at most aviation companies.

Tool Box Loans

BCIT loans to students, free of charge, a set of aviation hand tools. A refundable deposit of \$100 will be charged and the cost of lost or damaged tools may be deducted from the deposit upon completion of the course.

Aviation Attendance Policy

Attendance policy for all Aviation programs differ from other BCIT programs and are regulated by Transport Canada and C.A.M.C.

Canadian Aviation Regulation 566 states:

"Students missing more than five per cent of the course curriculum through absence will not qualify for any credit under Transport Canada course approval, unless the lost time is made up through documented supplementary studies, which shall include theory, workshop and laboratory time, equivalent to that missed from the original program."

Program Content -

Aircraft Electronics Technician (Avionics)

Term 1 (16 weeks)	Hours	Credits
AVAV 1005 Introduction to Aircraft Maintenance (including Air Regs)	120	8.0
AVAV 1010 Familiarization of Aircraft Systems	120	8.0
AVAV 1015 Electrical Power Distribution	120	8.0
AVAV 1020 Aircraft Instruments and Auto Flight (A.F.C.S.)	120	8.0
Term 2 (17 weeks)		
AVAV 2010 Radio Communications – Theory	150	10.0
AVAV 2015 Avionics Installation – Practical	120	8.0
AVAV 2020 Avionics Systems – Theory (including electronic test equip)	240	16.0
Term 3 (14 weeks)		
AVAV 3005 Flight Line Maintenance Avionics (including Air Regs)	120	8.0
AVAV 3015 Communication, VHF/F.M., H.F. – Lab	90	6.0
AVAV 3020 Navigation, ADF, VOR ILS – Lab	90	6.0
AVAV 3025 Pulse OME, TXP, RAD ALT., RADAR – Lab	90	6.0
AVAV 3030 Avionics Techniques	30	2.0
Total	1410	94.0

Instructors

Doug Grant, A.M.E. dgrant@bcit.ca
Doug Smith, A.M.E. dsmith@bcit.ca

Aircraft Gas Turbine Technician

Certificate of Technical Studies (Full Time)

Turbine Engine technicians enjoy a very challenging occupation that requires a high degree of responsibility and skill. Technicians perform the disassembly, inspection, repair, assembly and testing of gas turbine engines in a clean shop environment with regular working hours. In this rapidly changing technological field, qualified technicians experience many opportunities for advanced training and continued career satisfaction.

The Aircraft Gas Turbine Engine Repair and Overhaul Technician program is a new program developed by BCIT, the Canadian Aviation Maintenance Council (C.A.M.C.) and the turbine engine overhaul industry. This program was designed to meet industry's need for basic training and technician certification within this field. Successful completion of this program, followed by a three year apprenticeship, qualifies candidates for Interprovincial Certification from C.A.M.C.

Job Opportunities

The men and women who enter this career path find employment in engine repair and overhaul facilities across Canada. These shops range in size from small family run businesses to large airlines. There is also a demand for individuals with this training in the aircraft component and propeller over-haul business, as well as pipeline pumping and stationary power generation facilities. Recent surveys indicate excellent job placement rates.

The Program

The Gas Turbine Technician program is conducted at BCIT's Aviation campus at the Vancouver International Airport. This program is a hands-on trades training program consisting of 40 per cent theory and 60 per cent practical. Students have access to a wide variety of gas turbine engines, extensive engine tooling and qualified instructors. Along with theory studies, students perform tasks ranging from the use of basic hand tools to complete disassembly, inspection and assembly of gas turbine engines. Intricate assembly procedures and extensive use of technical manuals require good manual dexterity and strong reading comprehension skills for successful completion of this program.

Grading

Minimum course passing grade is 70 per cent for each course. All courses must be passed in order to successfully complete the program.

Program Length

Full-time, 38 weeks, beginning in September of each year.

Normal Course Hours

0800-1530, Monday through Friday.

Tuition Fees (subject to change)

\$1,440.70 for the 38-week program.

Books and Supplies

\$885 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math. Also, applicants are recommended to have completed one of: Technical Education 11, General Mechanics 11, or Automotive Mechanics 11.

National Occupational Standards for Aircraft/Aviation Programs

The occupational standards and training standards for the 13 occupations in the aviation industry are currently under national review by a joint industry, government and school association known as C.A.M.C. (Canadian Aviation Maintenance Council). The results are expected to lead to more formal and recognizable national and international trade certification. BCIT is an integral part of these ongoing studies and improvements, and will ensure that any changes are reflected in our curriculum and training standards.

Applied Academics

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Trades Discovery for Women

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Fresh Start

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Industry Policies

- A security check will be required to work on airports
- Some sectors of the aviation industry screen for drug and alcohol use
- Most aviation companies require grade 12 completion as a hiring policy
- Excellent attendance is an important issue at most aviation companies.

Tool Box Loans

BCIT loans to students, free of charge, a set of aviation hand tools. A refundable deposit of \$100 will be charged and the cost of lost or damaged tools may be deducted from the deposit upon completion of the course.

Aviation Attendance Policy

Attendance policy for all Aviation programs differ from other BCIT programs and are regulated by Transport Canada and C.A.M.C.

Canadian Aviation Regulation 566 states:

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Program Content -

Aircraft Gas Turbine Technician

The program is broken into two terms which covers the following subject areas:

Term 1 (16 weeks)	Hours	Credits
AVGT 1001 Engine Shop	240	16.0
AVGT 1006 Turbine Engine Theory, Construction and Systems	240	16.0
Term 2 (22 weeks)		
AVGT 2002 Repair and Overhaul Practices I	240	16.0
AVGT 2004 Repair and Overhaul Practices II	240	16.0
AVGT 2010 Operation, Testing and Certification	180	12.0
Total	1140	76.0

Instructors

Brian Proulx, A.M.E. bproulx@bcit.ca
Grant Johnson, A.M.E. gjohnson@bcit.ca
Jerome Gau, SCA.jgau@bcit.ca

Aircraft Maintenance Engineer: Category M

Diploma of Technical Studies (Full Time)

Aircraft Maintenance Engineers (A.M.E.) are responsible for the release (certification) of an aeronautical product (aircraft), after maintenance or inspection. It is a responsible job that includes a variety of tasks from removing and installing components to troubleshooting complex systems. An A.M.E. is able to work on small aircraft, helicopters and large transport category aircraft. The larger aircraft are quite sophisticated in that they may possess many different electronic, electrical, pneumatic, hydraulic, mechanical and propulsion systems, and the A.M.E. must be able to maintain them.

Job Opportunities

Graduates from the A.M.E. "M" program have, for the last 40 years, found employment in Canadian and foreign aviation industry. First as an apprentice for 30 months, then as an A.M.E. Some graduates have gone on to become managers and owners of domestic and international aircraft maintenance establishments. Overall, through year 2005, aircraft mechanics—particularly those with work experience—are expected to have excellent job opportunities since the number of job openings is expected to exceed the supply of qualified applicants (re: U.S. Department of Labour, Bureau of Statistics, 1993). It is an exciting and rewarding industry with opportunity for travel and career development.

The Program

The program is designed to follow a national/international set of standards and is approved by Transport Canada. Graduates may be credited with 18 months experience towards the 48 months industry experience required by Transport Canada. The student will attend lectures approximately 40 per cent of the time, while gaining hands-on experience 60 per cent of the time. The course is conducted in a large, well equipped hangar at the Vancouver International Airport. The campus has a wide selection of tools/training aids, and more than 18 aircraft. The student will perform a variety of tasks, ranging from the use of basic hand tools through troubleshooting of an operable aircraft.

Grading

Minimum course passing grade is 70 per cent average for each course. All courses must be passed in order to successfully complete the program.

Program Length

Full-time, 16 months.

Normal Course Hours

0800-1530, Monday through Friday,
also 1130-1830 Monday through Friday.

Tuition Fees (subject to change)

\$1,053.90 per term.

Books and Supplies

\$750 for the 16-month program
(general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11. Applicants must also meet one of the following entrance requirements: Technical Education 11 (C+), General Mechanics 11 (C+), Automotive Mechanics 11 (C+), Physics 11 (Pass), BCIT Mechanical Aptitude Test. BCIT pretest is acceptable for English Math and Mechanical aptitude. Good colour vision and an interest in mechanics is recommended. Mature students may be given special consideration, subject to interview and testing by instructional staff.

National Occupational Standards for Aircraft/Aviation Programs

The occupational standards and training standards for the 13 occupations in the aviation industry are currently under national review by a joint industry, government and school association known as C.A.M.C. (Canadian Aviation Maintenance Council). The results are expected to lead to more formal and recognizable national and international trade certification. BCIT is an integral part of these ongoing studies and improvements, and will ensure that any changes are reflected in our curriculum and training standards.

Applied Academics

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Trades Discovery for Women

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Fresh Start

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Industry Policies

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- Some sectors of the aviation industry screen for drug and alcohol use.
- Most aviation companies require grade 12 completion as a hiring policy.
- Excellent attendance is an important issue at most aviation companies.

Tool Box Loans

BCIT loans to students, free of charge, a set of aviation hand tools. A refundable deposit of \$100 will be charged and the cost of lost or damaged tools may be deducted from the deposit upon completion of the course.

Aviation Attendance Policy

Attendance policy for all Aviation programs differ from other BCIT programs and are regulated by Transport Canada and C.A.M.C.

Canadian Aviation Regulation 566 states:

"Students missing more than five per cent of the course curriculum through absence will not qualify for any credit under Transport Canada course approval, unless the lost time is made up through documented supplementary studies, which shall include theory, workshop and laboratory time, equivalent to that missed from the original program."

Program Content -

Aircraft Maintenance Engineer: Category M

Term 1 (16 weeks)				Hours	Credits
AVAM	1104	General Aircraft Practices		120	8.0
AVAM	1108	Elementary Reciprocating Engines		150	10.0
AVAM	1109	Ignition Systems		60	4.0
AVAM	1110	Fuel Metering Systems		30	2.0
Term 2 (16 weeks)				Hours	Credits
AVAM	2207	Basic AC and DC Electricity		150	10.0
AVAM	2208	Power Generation and AC and DC Systems		90	6.0
AVAM	2210	Sheet Metal		90	6.0
AVAM	2211	Aircraft Systems 1 (Plumbing, Hydraulics, Landing Gear)		150	10.0
Term 3 (16 weeks)				Hours	Credits
AVAM	3300	Control Systems and Rigging		90	6.0
AVAM	3301	Rotary Wings		150	10.0
AVAM	3302	Propellers		60	4.0
AVAM	3303	Gas Turbines		150	10.0
AVAM	3304	Powerplant Systems		30	2.0

Term 4 (16 weeks)

AVAM	4400	Instruments	60	4.0
AVAM	4401	Aircraft Systems 2	120	8.0
AVAM	4403	Aircraft Maintenance, Inspection and Repair	210	14.0
AVAM	4404	Aircraft Maintenance Techniques and Procedures	30	2.0
AVAM	4412	Basic Avionics	60	4.0
Total			1920	128.0

Instructors

Larry Bell, A.M.E., lbell@bcit.ca
Trevor Castle, A.M.E., tcastle@bcit.ca
Cam Dryhurst, A.M.E., cdryhurs@bcit.ca
John Edwards, A.M.E., jedwards@bcit.ca
Robert Grasby, A.M.E., rgrasby@bcit.ca
Brian Lockwood, A.M.E., blockwoo@bcit.ca
Stephen Peszel, A.M.E., speszel@bcit.ca
Kal Tiwana, A.M.E., ktiwana@bcit.ca
David Upton, A.M.E., dupton@bcit.ca

Aircraft Mechanical Component Technician

Certificate of Technical Studies (Full Time)

Aircraft Mechanical Component Shop technicians are involved in the overhaul, repair, modification, inspection, testing and certification of aviation components of pneumatic, hydraulic, fuel, electrical, environmental and mechanical aircraft systems. Working in a shop environment, technicians are thoroughly familiar with the set-up and operation of tools and shop equipment as well as some semi-automatic processes. Possessing a high degree of manual dexterity, and a strong interest in mechanics, they work cooperatively with others and are able to follow directions precisely.

The Aircraft Mechanical Component Technician program is a new program developed by BCIT, the Canadian Aviation Maintenance Council (C.A.M.C.) and the component overhaul industry. This program is designed to meet the growing need for basic component overhaul training and certification within this field. The successful completion of this program is normally followed by a three-year apprenticeship.

Job Opportunities

The men and women who enter this career path can expect to find employment with companies who specialize in aircraft component overhaul. Approved Maintenance organizations (A.M.O.'s) involved in the manufacture and overhaul of airframe systems, as well as major airlines. As a C.A.M.C. developed course, the training and associated jobs skills provided are recognized anywhere in Canada. Recent trends indicate a strong demand for individuals trained in aviation component overhaul.

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The Program

The program is designed to follow the C.A.M.C. requirements for training in the field of component overhaul. As a C.A.M.C. developed course, students may be credited with eight months towards the 48-month requirement for C.A.M.C. certification. (C.A.M.C. membership and the appropriate supporting documentation are required to receive this certification.) Taught at the newly refurbished BCIT, Aerospace and Technology campus located on Vancouver International Airport's south side, the instruction consists of approximately 60 per cent class-room theory and 40 per cent hands-on practical training. Practical tasks involve: disassembly, inspection, repair and testing of hydraulic, pneumatic, mechanical, fuel, and electrical components. The Aerospace and Technology campus has a wide-range of tools and training aids available as well as a collection of 18 aircraft.

Grading

Minimum pass mark is 70 per cent. All courses must be passed in order to successfully complete the program.

Program Length

29 weeks full-time.

Normal Course Hours

0800-1530 Monday – Friday.

Tuition Fees (subject to change)

\$1,124.35 for the 29-week program.

Books and Supplies

\$615 (general estimated cost and subject to change).

Entrance Requirements

High School graduation. English 12 or Communications 12. Academic Math 11 with a (C) or better. BCIT pretest in Math and English acceptable.

National Occupational Standards for Aircraft/Aviation Programs

The occupational standards and training standards for the 13 occupations in the aviation industry are currently under national review by a joint industry, government and school association known as C.A.M.C. (Canadian Aviation Maintenance Council). The results are expected to lead to more formal and recognizable national and international trade certification. BCIT is an integral part of these ongoing studies and improvements, and will ensure that any changes are reflected in our curriculum and training standards.

Applied Academics

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For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Industry Policies

- A security check will be required to work on airports.
- Some sectors of the aviation industry screen for drug and alcohol use.
- Most aviation companies require grade 12 completion as a hiring policy.
- Excellent attendance is an important issue at most aviation companies.

Tool Box Loans

BCIT loans to students, free of charge, a set of aviation hand tools. A refundable deposit of \$100 will be charged and the cost of lost or damaged tools may be deducted from the deposit upon completion of the course.

Aviation Attendance Policy

Attendance policy for all Aviation programs differ from other BCIT programs and are regulated by Transport Canada and C.A.M.C.

Canadian Aviation Regulation 566 states:

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Program Content - Aircraft Mechanical Component Technician

Term 1 (16 weeks)	Hours	Credits
AVCO 1005 Introduction to Aircraft Maintenance	185	12.5
AVCO 1010 Familiarization to Aircraft Systems	165	11.0
AVCO 1015 Basic AC/DC Electricity	130	8.5
Term 2 (13 weeks)		
AVCO 2110 Air Regulations and Documents	30	2.0
AVCO 2120 Hydraulics, Fuel, Pneumatics Components	150	10.0
AVCO 2130 Landing Gear Systems	110	7.5
AVCO 2140 Flight and Dynamic Controls	100	6.5
Program Total	870	58.0

Instructor

Bob Rorison, A.M.E. brorison@bcit.ca

Aircraft Structures Manufacturing Technician

Associate Certificate of Trades Training (Full Time)

Course prepares graduates to enter the Aircraft Structures Manufacturing industry. Continued studies through an apprenticeship or Part-time Studies course could lead to a trade qualification and/or national recognition as a Structural Repair technician.

Job Opportunities

Available at aerospace manufacturers throughout Canada.

The Program

The program is designed in consultation with the aerospace manufacturers and the Industrial Training and Apprenticeship Commission. The pre-employment portion is conducted at BCIT's Aerospace and Technology campus at the Vancouver International Airport. Successful candidates may be considered for employment by local manufacturers and enter a Part-time Studies or apprenticeship training program.

Grading

A passing grade of 70 per cent in all subjects is required for successful completion of the program.

Program Length

Full-time, 16 weeks.

Normal Course Hours

08:00-5:30, Monday through Friday.

Tuition Fees (subject to change)

\$664.90 for the 16-week program.

Books and Supplies

\$578 (general estimated cost and subject to change).

Entrance Requirements

High school graduation.

Program Content - Aircraft Structures Manufacturing Technician

Term 1 (16 weeks)	Hours	Credits
AVST 1002 Fundamentals of Shop Practices and Aircraft Structures – Safety, Tools and Equipment, Technical Drawings, Technical Information, Basic Metallurgy, Aero Dynamics, Aircraft Structure, Components and Functions. (5 Weeks)	150	10.0
AVST 1007 Fundamentals of Aircraft Sheet Metal Construction – Sheet Metal Fabrications, Sealing, Corrosion Control, Heat Treatment. (8 Weeks)	240	16.0
AVSM 1001 Aero Structures – Processes, Jigs, Metal Forming. (3 Weeks)	90	6.0
Total	480	32.0

National Occupational Standards for Aircraft/Aviation Programs

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Industry Policies

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Tool Box Loans

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Aviation Attendance Policy

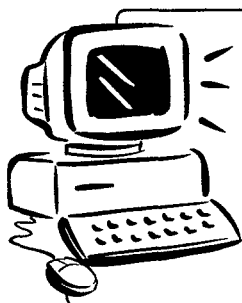
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Instructor

Ed Gunn, A.M.E., B. Ed. egunn@bcit.ca



To apply, go to
www.bcit.ca
and click on the
Prospective Students
heading, then the
Full-time link.

Aircraft Structures Technician

Certificate of Technical Studies (Full Time)

Structures technicians are responsible for the assessment, planning and implementation of aircraft structural fabrication and repairs. The structures technician is often an integral part of a repair crew including maintenance technicians, avionics technicians and professional engineers. They are expected to precisely follow aircraft fabrication and repair schemes for aluminium, titanium and stainless steel structures, as well as plastics and composites.

Job Opportunities

Graduates from this program have found employment in a variety of companies in the aerospace industry across Canada. They may be employed in helicopter or light aircraft repair, airline maintenance of aircraft and component manufacturing. Some graduates have gone on to manage or own shops.

The Program

The program was designed in consultation with industry advisors to meet the Canadian Aviation Maintenance Council (C.A.M.C.) training standards. The student will attend lectures approximately 40 per cent of the time, while gaining hands-on experience 60 per cent of the time. The course is conducted at BCIT's Aerospace and Technology Campus at the Vancouver International Airport. The campus has a wide selection of tools/training aids, and more than 18 aircraft. The student will perform a variety of tasks from basic shop procedures up to a complete repair or assembly of a component or an aircraft.

Grading

Minimum passing grade for each course is 70 per cent. Each course must be passed in order to successfully complete the program.

Program Length

Full-time, 37 weeks.

Normal Course Hours

0800-1530, Monday through Friday.

Tuition Fees

Level One: tuition \$664.90.
Level Two: tuition \$740.65.

Books and Supplies

\$697 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Academic Math 11 or Introduction to Math 11 or Math 11A or Aviation Trade Math. BCIT pretest is acceptable for English and Math. Some drafting is recommended. Mature students may be given special consideration, subject to an interview and testing by instructional staff.

National Occupational Standards for Aircraft/Aviation Programs

The occupational standards and training standards for the 13 trades in the aviation industry are currently under national review by a joint industry, government and school association known as C.A.M.C. (Canadian Aviation Maintenance Council). The results are expected to lead to more formal and recognizable national and international trade certification. BCIT is an integral part of these ongoing studies and improvements, and will ensure that any changes are reflected in our curriculum and training standards.

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For information about the Fresh Start program, please refer to page 62 of this calendar.

Industry Policies

- A security check will be required to work on airports.
- Some sectors of the aviation industry screen for drug and alcohol use.
- Most aviation companies require grade 12 completion as a hiring policy.
- Excellent attendance is an important issue at most aviation companies.

Tool Box Loans

BCIT loans to students, free of charge, a set of aviation hand tools. A refundable deposit of \$100 will be charged and the cost of lost or damaged tools may be deducted from the deposit upon completion of the course.

Aviation Attendance Policy

Attendance policy for all Aviation programs differ from other BCIT programs and are regulated by Transport Canada and C.A.M.C.

Canadian Aviation Regulation 566 states:

"Students missing more than five per cent of the course curriculum through absence will not qualify for any credit under Transport Canada course approval, unless the lost time is made up through documented supplementary studies, which shall include theory, workshop and laboratory time, equivalent to that missed from the original program."

Program Content - Aircraft Structures Technician

Level 1 (16 weeks)	Hours	Credits
AVST 1002 Fundamentals of Shop Practices and Aircraft Structures	150	10.0
AVST 1007 Fundamentals of Aircraft Sheet Metal Construction	240	16.0
AVST 1012 Adv Aircraft Sheet Metal Construction	90	6.0
Total Level 1	480	32.0
Level 2 (21 weeks)		
AVST 2001 Air Regulations	30	2.0
AVST 2006 Structural Damage/Assessment/Repair	330	22.0
AVST 2008 Aircraft Composite Fabrication	60	4.0
AVST 2011 Aircraft Composite Repairs	60	4.0
AVST 2016 Specialized Aircraft Processes/Practices	150	10.0
Total Level 2	630	42.0
Program Total	1110	74.0

Instructors

Malcolm Stirling, A.M.E., mstirling@bcit.ca
Len Aune, A.M.E., laune@bcit.ca

Airport Operations

This Program is under development – please check the BCIT Web site at www.bcit.ca, for updated information.

Until 1995, airports in Canada were operated and maintained by Transport Canada. Since the privatization of airports, job opportunities have become focused locally, as airport operations came under the domain of municipalities and private enterprise. It has become increasingly evident that airports require professionally trained personnel. The BCIT diploma program in Airport Operations is designed to meet today's unique and dynamic airport operation environment. In the next ten years this exciting industry is forecasted to double in capacity, and many opportunities for skilled entry-level airport operations personnel will become available.

Program

The two-year BCIT diploma program in Airport Operations, supported and approved by the aviation industry, provides students with a comprehensive, interdisciplinary program of study. The program is the only one of its kind in B.C. To keep it up-to-date, and of the highest calibre, the program has an industry advisory committee made up of airport and airline managers, and airport field staff from Canada's local regional and national airports.

Job Opportunities

Graduates are prepared for a wide range of entry-level positions at airport businesses, suppliers and airports. Coursework includes lectures, demonstrations, and applied training. Students will be assigned industry-based activities that will be completed at local and/or regional and national airports.

Motive Power Programs

Auto Collision Repair/Refinishing Auto Collision Repair Technician

Cooperative Trades Training Diploma Program (Full-time)

Job Opportunities

Training prepares students for entry-level employment in the automotive collision repair or refinishing trade.

Autobody repair and refinishing personnel are currently in short supply in British Columbia and graduates of the program have an excellent chance of finding employment. The major employers of autobody personnel are dealerships, privately owned service shops and franchised automotive service shops.

The Program

Basic theory and related information, along with hands-on shop practise, enable students to become proficient in autobody repair or autobody refinishing. At the end of a 32-week core program, students progress into intermediate and advanced levels of the collision repair or refinishing options.

Applicants must be in good physical condition and have good colour vision and freedom from respiratory problems; must be non-allergic to paint and thinners; and clean shaven as per WCB regulations. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Cooperative Education

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria as the program itself. While Co-op coordinators find the majority of job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be hard to find. It is then the responsibility of the student to work with the coordinator (and on his/her own) to find a meaningful work experience. For more information visit our cooperative training section on the Web.

The complete Cooperative Education policy including student, Institute and employer responsibilities, is available through the Cooperative Education office and the Registrar's office.

- Co-op Coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1 at the Burnaby campus.

Program Length

Total length of the program is 80 weeks, full-time, which includes two 16-week work terms.

Normal Course Hours

Level One: Auto Collision Core 0630-1445, Monday through Thursday.

Level Two/Three: Repair 0630-1445, Monday through Thursday.

Tuition Fees 2001/2002 (subject to change)

\$2,206.70 for the 80-week program.

Books, Supplies and Personal Protective Equipment 2001/2002

\$800. (general estimated cost and subject to change).

Program Length

Two years, full-time.

Level 1 - 16 weeks in school, 16 weeks co-op.

Level 2 - 16 weeks in school, 16 weeks co-op.

Level 3 - 16 weeks in school.

Entrance Requirements

High school graduation. English 12 (C). Also required is successful completion of the BCIT pre-test for English. Academic Math 11 (C+), BCIT pre-test for Math is acceptable for the Math requirement. A valid driver's license that is acceptable for use in B.C. is required. Applicants must also attend a personal interview with the department to determine their suitability for the program. Knowledge and/or background in the industry are an asset. An interview is granted only after all program requirements have been met. Potential students with medical or physical disabilities should contact the Disabilities Resource Centre to arrange an interview with the Institute's Rehabilitation specialist at (604) 451-6963.

Interviews

Interviews will be scheduled for the most suitable applicants, based upon full meeting of the prerequisites. As well as seeking further information from short-listed applicants, the interview explores comprehension, English fluency and organisation of thought and ideas.

Selection Process

Admission does not happen on a first come-first served basis. The process is competitive. Due to the large number of applicants and limited number of seats, top down selection is employed with the most suitable applicants invited to join the program. Some applicants may meet the minimum requirements for admission and not be invited to join the program.

Applied Academics

Applied Academics courses taught in B.C. High Schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Principles of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12. For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT. For information about the Fresh Start program, please refer to page 62 of this calendar.

Program Content - Auto Collision Repair

Level 1 - Auto Collision Repair Core			Hours	Credits
ABOD	1100	Autobody Repair/Refinishing Trade	9	0.5
ABOD	1101	Safe Work Practices	18	1.5
ABOD	1102	General Shop Practices	75	5.0
ABOD	1103	Welding	90	6.0
ABOD	1104	Rebuild Meth/Tech Shape Metals	154	10.0
ABOD	1105	Refinishing Techniques	74	5.0
ABOD	1106	Fitting Methods	60	4.0
ABOD	1990	Co-op 1	480	16.0
Total Level 1			960	48.0
Level 2 - Auto Collision Repair Intermediate				
ABOD	2200	Welding Equipment	30	2.0
ABOD	2201	Autobody Construction	10	0.5
ABOD	2202	Electrical Systems	12	0.5
ABOD	2203	Cooling Systems	6	0.5
ABOD	2204	Air Conditioning	18	1.5
ABOD	2205	Plastics and Composites	60	4.0
ABOD	2206	Sheet Metal Repairs	180	12.0
ABOD	2207	Refinishing	74.0	5.0
ABOD	2208	Fitting Methods	90.0	6.0
ABOD	2990	Co-op 2	480	16.0
Total Level 2			960	48.0
Level 3 - Auto Collision Repair Advanced				
ABOD	3402	Safe Work Practices	6	0.5
ABOD	3404	Shop Management and Appraisal	30	2.0
ABOD	3406	Service Body Components	130	8.0
ABOD	3408	Use Repair Systems	140	9.5
ABOD	3410	Apply Unibody Repair Techniques	60	4.0
ABOD	3412	Selected Repair	90	6.0
ABOD	3414	Trends in Technology	24	1.5
Total Level 3			480	32.0

Instructors

Kenny Herrewynen, Chief Instructor, kherrewy@bcit.ca
Randy Sandhu
Gordon Smith
John Sutherland

**Access Programs
bring you up to
speed. See page 60
for more details.**



Auto Collision Refinishing Technician

Cooperative Trades Training Diploma Program (Full-time)

Job Opportunities

Training prepares students for entry-level employment in the automotive collision repair or refinishing trade.

Autobody repair and refinishing personnel are currently in short supply in British Columbia and graduates of the program have an excellent chance of finding employment. The major employers of autobody personnel are dealerships, privately owned service shops and franchised automotive service shops.

The Program

Basic theory and related information, along with hands-on shop practice, enable students to become proficient in autobody repair or autobody refinishing. At the end of a 32-week core program, students progress into intermediate and advanced levels of the collision repair or refinishing options.

Applicants must be in good physical condition and have good colour vision and freedom from respiratory problems; must be non-allergic to paint and thinners; and clean shaven as per WCB regulations. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Cooperative Education

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria as the program itself. While Co-op coordinators find the majority of job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be hard to find. It is then the responsibility of the student to work with the coordinator (and on his/her own) to find a meaningful work experience. For more information visit our cooperative training section on the Web.

The complete Cooperative Education policy including student, Institute and employer responsibilities, is available through the Cooperative Education office and the Registrar's office.

- Co-op coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1 at the Burnaby campus.

Program Length

Total length of the program is 80 weeks, full-time, which includes two 16-week work terms.

Normal Course Hours

Level One: Auto Collision Core 0630-1445,
Monday through Thursday.

Level Two/Three: Repair 0630-1445, Monday through Thursday.

Tuition Fees 2001/2002

(subject to change)

\$2,206.70 for the 80-week program.

Books, Supplies and Personal Protective Equipment 2001/2002

\$800 (general estimated cost and subject to change).

Program Length

Two years, full-time.

Level 1 - 16 weeks in school, 16 weeks co-op.

Level 2 - 16 weeks in school, 16 weeks co-op.

Level 3 - 16 weeks in school.

Entrance Requirements

At the time of printing, the entrance requirements were under review – please check the BCIT Web site, at www.bcit.ca for updated information.

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math. A valid B.C. driver's license is required. Applicants must also attend a personal interview with the department to determine their suitability for the program. Good physical condition, freedom from respiratory problems and non-allergic to paint thinners, etc.

Interviews

Interviews will be scheduled for the most suitable applicants, based upon full meeting of the prerequisites. As well as seeking further information from short-listed applicants, the interview explores comprehension, English fluency and organisation of thought and ideas.

Selection Process

Admission does not happen on a first come-first served basis. The process is competitive. Due to the large number of applicants and limited number of seats, top down selection is employed with the most suitable applicants invited to join the program. Some applicants may meet the minimum requirements for admission and not be invited to join the program.

Applied Academics

Applied Academics courses taught in B.C. High Schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Principles of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this Calendar.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT

For information about the Fresh Start program, please refer to page 62 of this calendar.

Auto Collision Refinishing

Level 1 - Auto Collision Refinishing Core			Hours	Credits
ABOD 1100	Autobody Repair/ Refinishing Trade		9	0.5
ABOD 1101	Safe Work Practices		18	1.5
ABOD 1102	General Shop Practices		75	5.0
ABOD 1103	Welding		90	6.0
ABOD 1104	Rebuild Meth/Tech Shape Metals		154	10.0
ABOD 1105	Refinishing Techniques		74	5.0
ABOD 1106	Fitting Methods		60	4.0
ABOD 1990	Co-op 1		480	16.0
Total Level 1			960	48.0
Level 2 - Auto Collision Refinishing Intermediate				
ABOD 2209	Safe Work Practices		18.0	1.5
ABOD 2210	Plastics and Composites		60.0	4.0
ABOD 2211	Apply Corrosion Protection Systems		30.0	2.0
ABOD 2212	Refinishing Equipment		30.0	2.0
ABOD 2213	Surface Conditions		12.0	0.5
ABOD 2214	Surface Preparation		90.0	6.0
ABOD 2215	Masking Materials		18.0	1.0
ABOD 2216	Undercoat Systems		60.0	4.0
ABOD 2217	Topcoat Systems		60.0	4.0
ABOD 2218	Selected Repairs		80.0	5.5
ABOD 2219	Predelivery Techniques		22.0	1.5
ABOD 2990	Co-op 2		480.0	16.0
Total Level 2			960	48.5
Level 3 -				
Auto Collision Refinishing Advanced				
ABOD 3450	Safe Work Practices		90.0	6.0
ABOD 3456	Refinishing Equipment		66.0	4.5
ABOD 3460	Topcoat Systems		102.0	7.0
ABOD 3462	Selected Repairs		102.0	7.0
ABOD 3454	Preparation Systems		102.0	7.0
ABOD 3452	Shop Management and Appraisal		30.0	2.0
ABOD 3458	Trends in Technology		24.0	1.5
Total			516	35.0

Instructors

Kenny Herrewynen, Chief Instructor, kherrewy@bcit.bc.ca
Randy Sandhu
Gordon Smith
John Sutherland

Automotive Electronics Technician

Certificate of Trades Training (Full-time)

This program will take technicians through basic electrical diagnosis and repair to the latest state-of-the-art automotive electronics. Specific modules may be taken on a Part-time Studies day or evening basis.

Job Opportunities

There is a major need for automotive technicians to fully understand electrical and electronic systems in order to keep pace with the industry. Electronics are everywhere, from fuel, ignition and engine management to accessories, ABS braking, steering, air bag control and climate control systems.

Enhanced emission controls are also processed by on-board microcomputers.

This 20-week program will be of interest both for students who wish to continue from Automotive Mechanic ELTT and for technicians who require upgrading.

Job opportunities exist in the following categories:

- automotive service technician
- automotive electrical and tune-up technician
- automotive electrical (off vehicle repair)
- automotive transmission (specialist)
- air conditioning, heating and cooling (climate control specialist).

As electronics are now an integral part of almost all automobile subsystems, understanding them will go a long way in ensuring a placement in today's competitive job market.

Grading

Course passing grade is 64 per cent. An overall GPA of 70 per cent or better is required to successfully complete the program.

Program Length

Full-time, 20 weeks.

Normal Course Hours

1000-1700.

Tuition Fees 2001/2002 (subject to change)

\$705.50

Books and Supplies 2001/2002

\$558 (general estimated cost and subject to change).

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Entrance Requirements

- English 12 or Communications 12.
- Successful completion of Automotive Mechanic ELTT or
- Apprentice with minimum two years in the trade or
- Journeyed or T.Q. status (must provide license number) or
- Successful completion of a mechanical aptitude test through Ewan Sheard at (604) 451-6832, located in NE1-340
- A valid drivers license that is acceptable for use in B.C. is required.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content -

Automotive Electronics Technician

Courses	Hours	Credits
AUTO 2101 Electrical Fundamentals	30	2.0
AUTO 2102 Wiring Diagrams and Circuit Repair	18	1.0
AUTO 2103 Battery Operations and Testing	12	1.0
AUTO 2104 Starter Operation and Testing	18	1.0
AUTO 2105 Charging System Operation and Testing	24	1.5
AUTO 2106 Fuel Delivery and Carburetion	24	1.5
AUTO 2107 Ignition Tune-up	30	2.0
AUTO 2108 Emission Controls/AirCare	30	2.0
AUTO 2109 Electronic Engine Controls	36	2.5
AUTO 2110 Driveability System Diagnostics	18	1.0
AUTO 2111 Lab Scope Operation and Diagnosis	12	1.0
AUTO 2112 GM Throttle body and Port Fuel Injection	24	1.5
AUTO 2113 Ford Central and Electronic Fuel Injection	24	1.5

Courses	Hours	Credits
AUTO 2114 Chrysler Single and Multi-point Fuel Injection	24	1.5
AUTO 2115 Fuel Injection - European Imports	24	1.5
AUTO 2118 Fuel Injection - Asian Imports	24	1.5
AUTO 2120 Alternate Fuels - Systems and Tuning	24	1.5
AUTO 2121 OBD II	12	1.0
AUTO 2122 Electronic Automatic Transmissions	24	1.5
AUTO 2123 Anti-lock Brakes and Traction Control	24	1.5
AUTO 2126 Supplemental Inflatable Restraint Systems	12	1.0
AUTO 2136 Electronic Suspension and Steering	6	0.5
AUTO 2138 Air Conditioning Operation and Controls	36	2.5
AUTO 2139 Battery Powered Electric Vehicles	30	2.0
AUTO 2140 Hybrid Power Systems	30	2.0
AUTO 2141 Fuel Cell Power Systems	30	2.0
Total	600	39.5

Automotive Mechanic ELTT

Certificate of Trades Training (Full-time)

Automotive mechanics repair and test motor vehicles. They disassemble, inspect and assemble engines and accessories, cooling systems, transmissions and clutches, drive lines, braking and suspension systems. Automotive mechanics employ logic and deductive reasoning in diagnosing and troubleshooting vehicle mechanical and electrical/electronic systems.

Job Opportunities

Changes in automobiles of today are providing many new opportunities for individuals looking for a challenging career in this service industry. Employers are searching for young men and women with mechanical aptitude who are well motivated and willing to work and learn. Employment is found with local service stations, dealerships and chains of specialty repair shops as well as parts person and service writer careers. A typical career path involves starting as a trainee until an apprenticeship becomes available. Although employment opportunities are mixed at this point, a reasonably good percentage of graduates are still expected to be successful getting into the trades.

The Program

BCIT's ELTT program provides the basic knowledge and practical skills to meet the needs of both students and employers for entry into the automotive industry. Graduates will be able to pursue a career as a General Repair technician or choose to specialize in one of the many specializations that have emerged. Students may apply to the Ministry of Labour for credit towards their Apprentice Technical training, upon successful completion of the ELTT program. Successful completion of this program will enable students to enter the Automotive Electronics Technician program. This four-month course addresses the need for additional electrical/electronics training on today's sophisticated vehicles.

Automotive mechanic students must have a valid driver's license. Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

Minimum grade required to pass a course is 70 per cent. All courses must be passed in order to successfully complete the program.

Normal Course Hours

Automotive ELTT 0700-1345 (first shift); 1000-1645 (second shift), Monday through Friday, shifts are assigned to specific intake dates. Direct inquiries to Registration and Information at (604) 434-1610 or send an e-mail to services@bcit.ca.

T-TEP 0700-1345, Monday through Friday.

Tuition Fees 2001/2002

(subject to change)

\$1,227.60 for the 34-week full-time program in Burnaby. (off-campus \$1,182.60)

\$1,688.50 for the Toyota sponsored program (lab fee of \$250 included).

Books and Supplies 2001/2002

\$635 for both programs (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 (P) or Communications 12 (P). Academic Math 11 (C). BCIT pretest is acceptable for English and Math. A valid driver's license that is acceptable for use in B.C. is required.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter a complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content -

Option 1 Auto Mechanics

The Automotive ELTT standard program consists of the following course content and takes 34 weeks to complete.

Courses	Hours	Credits
AUTO 0010 Orientation	6	0.0
AUTO 1100 Use Safe Work Practices	36	2.0
AUTO 1101 Solve Mathematical Problems	24	1.5
AUTO 1102 Apply Science Concepts	24	1.5
AUTO 1103 Process Technical Information	12	1.0
AUTO 1104 Basic Measure/layout Hand Tools	30	2.0
AUTO 1105 Use Power Tools	12	1.0
AUTO 1106 Use Fasteners and Fittings	12	1.0
AUTO 1107 Lift Loads	12	1.0
AUTO 1108 Oxyacetylene Welding	18	1.0
AUTO 1109 Basic Hydraulic Systems	12	1.0
AUTO 1110 Mechanical Shop Equipment	12	1.0
AUTO 1111 Operate Gas Power Equipment	12	1.0
AUTO 1112 Describe Mechanics Trades	12	1.0
AUTO 1117 Perform Gas Engine Major Overhaul	126	8.5
AUTO 1119 Service Transmissions	96	6.5
AUTO 1120 Service Drive Lines and Drive Axles	36	2.5
AUTO 1122 Service Emission Control Systems	30	2.0
AUTO 1123 Prepare for Employment	21	1.5
AUTO 1130 Service Engine Support Systems	39	2.5
AUTO 1131 Service Electrical Systems	100	6.5
AUTO 1132 Service Ignition and Fuel Systems	86	6.0
AUTO 1141 Service Hydraulic Brake System	84	5.5
AUTO 1143 Service Wheels, Tires, Hubs and Bearings	30	2.0
AUTO 1146 Service Suspension Systems	54	3.5
AUTO 1149 Service Steering Systems	84	5.5
Total	1020	68.5

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Option 2 Auto Mechanic Toyota T-TEP

Toyota's Technical Education Program (T-TEP) is a Toyota Canada factory sponsored enriched program that adds additional Toyota specific courses to the existing Automotive ELTT Option 1 program. T-TEP is 40 weeks in duration including two work terms of two weeks each at a Toyota dealership.

Courses		Hours	Credits
AUTO 1100	Use safe work practices	36	2.0
AUTO 1101	Solve mathematical problems	24	1.5
AUTO 1102	Apply science concepts	24	1.5
AUTO 1103	Process technical information	12	1.0
AUTO 1104	Basic measure/layout hand tools	30	2.0
AUTO 1105	Use power tools	12	1.0
AUTO 1106	Use fasteners and fittings	12	1.0
AUTO 1108	Oxyacetylene welding	18	1.0
AUTO 1109	Basic hydraulic systems	12	1.0
AUTO 1113	Service Wheels Tires		
	Hubs Bearings	24	1.5
AUTO 1114	Service suspension systems	48	3.0
AUTO 1115	Service steering systems	78	5.0
AUTO 1116	Service hydraulic brake systems	78	5.0
AUTO 1117	Perform gas engine major overhaul	126	8.5
AUTO 1118	Service Engine Support Systems	51	3.5
AUTO 1120	Service drive lines and drive axles	36	2.5
AUTO 1121	Service Electrical Systems	174	11.0
AUTO 1122	Service emission control systems	30	2.0
AUTO 1124	Electronics Fuel Injection	20	1.5
AUTO 1125	Diesel Engine	12	1.0
AUTO 1126	Accessories and Components	18	1.0
AUTO 1127	Heating, Ventillation & Air Conditioning	18	1.0
AUTO 1128	Work Experience	120	8.0
AUTO 1129	Service Transmission	118	8.0
AUTO 1135	Use Mechanics Shop Equipment	24	1.5
AUTO 1140	Prepare for Employment	33	2.0
AUTO 1145	Pre-Delivery Inspection	12	1.0
Total		1200	80.0

Instructors

David Huesken, T.Q., I.P., I.D., dhuesken@bcit.ca
Vito Ialungo, T.Q., I.D., vialungo@bcit.ca
Robert MacGregor, T.Q., I.P., I.D., Chief Instructor, rmacgreg@bcit.ca
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Kelly McCutchin, T.Q., I.P., I.D., kmccutch@bcit.ca

Satellite Centres

Fabian Dododza, fdododza@bcit.ca
Sir Charles Tupper Centre
Sandy Sudom, T.Q., I.P., I.D., B.Ed., ssudom@bcit.ca
New Westminster Centre
Bryan Taylor, T.Q., I.P., btaylor@bcit.ca
Maple Ridge Centre
Gary Remenyk, T.Q., I.P., gremenyk@bcit.ca
Peace River - South (Dawson Creek) Centre

Automotive Service Technician

Two-Year Cooperative Trades Training Diploma Program (Full-time)

This specialized training program has been designed to meet the need for skilled technicians who can diagnose and repair the sophisticated systems in today's motor vehicles. It is also for those with an interest in automotive, but who aspire to management positions in the industry.

In addition, the automotive industry needs skilled administrative personnel who have technical as well as business training, to manage the growing automotive service business.

The Automotive Service Technician (AST) program answers both of these needs.

Why this Training Program?

Students come to BCIT for state-of-the-art training delivered by trained instructors in our first-class training facilities.

Employer Reaction to the Program

Because the local automotive industry employs AST students during the cooperative work terms, these students gain valuable practical experience and employers have a great opportunity to evaluate the worth of the program and the calibre of the trainees. Employers have expressed great interest in employing graduates of the AST program.

Salaries

Starting salaries for our graduates are in the range of \$8-12 per hour. AST graduates will go on to complete their apprenticeship training and, upon certification, they will earn approximately \$40,000 per year. Graduates can aspire to top industry positions with salaries in the \$60,000 plus range per year.

The Program

The AST program consists of three 18-week academic terms at BCIT where students will receive training common to both the technical and business aspects of the automotive industry. The first three academic terms will alternate with two, 18-week co-op work terms in an automotive repair facility.

On successful completion of the program, students will receive an Automotive Service Technician Diploma and qualify for credit towards all four levels of apprenticeship schooling and two years credit toward the four year apprenticeship time service requirement.

Cooperative Programs

This is a Cooperative Education program that combines academic terms with paid cooperative work terms. Cooperative Education is not an option but an integral part of this program, subject to the same successful performance criteria as the program itself. While Co-op coordinators assist with job placements for students, it must be recognized that during certain periods of the business cycle, job placements may be difficult to find. It is then the responsibility of the student to work with the coordinator (and on his/her own) to find a meaningful work experience. For more information visit our cooperative training section on the Web.

The complete Cooperative Education policy including student, institute and employer responsibilities is available through the Cooperative Education office and the Registrar's office.

- Co-op coordinator: (604) 432-8291
- General Inquiries: (604) 432-8634

The Cooperative Education office is located in Building NE1 at the Burnaby campus.

Program Length

Two years, full-time.

Level 1 - 18 weeks in school, 18 weeks co-op.

Level 2 - 18 weeks in school, 18 weeks co-op.

Level 3 - 18 weeks in school.

Normal Course Hours

0700-1830, Monday through Friday.

(subject to course scheduling)

Tuition Fees 2001/2002 (subject to change)

\$2,517.60 for the two-year program.

Books and Supplies 2001/2002

\$1,516 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math. A valid B.C. driver's license is required. Applicants must also attend a personal interview with the department to determine their suitability for the program. Knowledge and/or background in the industry are an asset. An interview is granted only after all program requirements have been met. Good physical condition, freedom from respiratory problems and non-allergic to paint thinners, etc.

Interviews

Interviews will be scheduled for the most suitable applicants, based upon full meeting of the prerequisites. As well as seeking further information from short-listed applicants, the interview explores comprehension, English fluency and organisation of thought and ideas.

Selection Process

Admission does not happen on a first come, first serve basis. The process is competitive. Due to the large number of applicants and limited number of seats, top down selection is employed with the most suitable applicants invited to join the program. Some applicants may meet the minimum requirements for admission and not be invited to join the program.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program. For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

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Program Content - Automotive Service Technician

Term 1		Hours	Credits
ASTP 1100	Math 1	39	2.5
ASTP 1101	Physics 1	39	2.5
ASTP 1102	Communications 1	39	2.5
ASTP 1103	Drafting 1	39	2.5
ASTP 1104	Shop Tools, Safety & Oxy/Acet	46	3.0
ASTP 1105	Wheel, Hubs & Tires	18	1.0
ASTP 1106	Frames & Suspension Systems	19	1.0
ASTP 1107	Steering Systems	50	3.5
ASTP 1108	Brake Systems	52	3.5
ASTP 1109	Intro to Electrical Systems	17	1.0
ASTP 1112	Maintenance & Inspection	32	2.0
ASTP 1114	General Shop		
	Administration & Practice	38	2.5
ASTP 1115	Master Student	30	2.0
ASTP 1990	Co-op 1	540	18.0
ASTP 2206	Drive Lines	15	1.0
ASTP 2207	Axles & Final Drives	20	1.5
ASTP 2212	Intro to Scan Tool	8	0.5
ASTP 3301	Customer Relations & Sales	39	2.5
Term 2		Hours	Credits
ASTP 1110	Clutches & Manual Transmissions	40	2.5
ASTP 2200	Math 2	39	2.5
ASTP 2201	Physics 2	39	2.5
ASTP 2204	Gasoline Engines	105	7.0
ASTP 2205	Diesel Engines	15	1.0
ASTP 2208	Automatic Transmissions	55	3.5
ASTP 2209	Transfer Cases	15	1.0
ASTP 2990	Co-op 2	540	18.0
ASTP 3302	Fuel Management Systems	62	4.0
ASTP 3307	Ignition Systems	30	2.0
ASTP 3308	Tune Up & Emissions	72	5.0
ASTP 3310	Accounting Essentials	39	2.5
ASTP 4414	Oil/Fuel Chemistry	39	2.5
Term 3			
ASTP 2202	Communications 2	39	2.5
ASTP 3304	Electrical Fundamentals	25	2.0
ASTP 3305	Starting Systems	20	1.5
ASTP 3306	Charging Systems	25	1.5
ASTP 3309	Air Conditioning	39	2.5
ASTP 3311	Automotive Computers	10	0.5
ASTP 3312	Alternate Fuel Controls	7	0.5
ASTP 3313	CFC/134a Retrofit	24	1.5
ASTP 4410	Business Fundamentals	39	2.5
ASTP 4411	Advanced Computer Controls	52	3.5
ASTP 4412	Electrical/Electronic Accessories	39	2.5
ASTP 4413	Alternate Fuels	39	2.5
ASTP 4415	Advanced Fuel		
	Management Systems	143	10.0
ASTP 4417	Applied Business Practices	39	2.5

Instructors

Robert MacGregor, T.Q., I.D., I.P., Chief Instructor,
rmacgreg@bcit.ca
Kelly McCutcheon, T.Q., I.P., I.D., kmccutche@bcit.ca
David Huesken, I.D., T.Q., I.P., dhuesken@bcit.ca
Mike Thomas, T.Q., I.D., I.P., mthomas@bcit.ca
Gary Remenyk, T.Q., I.P., Dawson Creek
gremenyk@pris.bc.ca

Commercial Transport Mechanic (Truck and Bus Mechanic)

Certificate of Trades Training (Full-time)

Commercial transport mechanics overhaul, recondition, repair and maintain highway trucks, buses, forklifts and refrigeration-equipped tractor trailers. Diagnostic troubleshooting is an important skill. Students learn to do tune-ups and general servicing of highway vehicles and disassembly/reassembly of various vehicle parts, such as engine, transmission, clutch, differential, suspension system and brakes.

Job Opportunities

Training prepares students for entry-level employment as commercial transport mechanics. Upon successful completion of the program, students may seek employment as apprentices. Graduates of this program are encouraged to seek formal apprenticeships in the industry.

The Program

Basic theory and related information, along with hands-on shop practise enable students to become proficient in basic mechanical maintenance of commercial transport and passenger vehicles.

Because some heavy lifting is involved, good physical condition is desirable. Students must have a valid driver's license. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

A minimum grade of 70 per cent is required in each end of line test to pass each course. All courses must be passed in order to successfully complete the program.

Program Length

Full-time, 30 weeks.

Normal Course Hours

0700-1345, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,087.00 for the 30-week full-time program.

Books and Supplies 2001/2002

\$724 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12. For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter and complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content -

Commercial Transport Mechanic

Courses	Hours	Credits
CTMX 1200 Use Safe Work Practices	40	2.5
CTMX 1202 Commercial Transport Repair Trade	6	0.5
CTMX 1204 Process Technical Information	45	3.0
CTMX 1206 Use Hand Tools/Shop Equipment	45	3.0
CTMX 1208 Lift Loads	24	1.5
CTMX 1210 Use Fastenings and Fittings	20	1.0
CTMX 1212 Cut/Weld/Braze/Solder Metal	30	2.0
CTMX 1214 Service Air Operated Equipment	30	2.0
CTMX 1216 Service Winches and Aux Equipment	14	1.0
CTMX 1218 Service Brake Systems	108	7.0
CTMX 1220 Service Hydraulic Systems	70	5.0
CTMX 1222 Overhaul Diesel Engines	90	6.0
CTMX 1224 Use Lubricants and Fluids	6	0.5
CTMX 1226 Service Engine Support Systems	36	2.5
CTMX 1228 Service Gas/Alternate Fuel Systems	19	1.0
CTMX 1230 Service Diesel Fuel Systems	9	0.5
CTMX 1232 Service Electric/Electronic Systems	112	7.5
CTMX 1234 Service Drive Axels/Lines	40	2.5
CTMX 1236 Service Standard Transmissions	36	2.5
CTMX 1238 Prepare for Employment	12	1.0
CTMX 1240 Service Bearings and Seals	10	0.5
CTMX 1242 Tires/Wheels/Suspensions/Steering	74	5.0
CTMX 1244 Solve Mathematical Problems	12	1.0
CTMX 1246 Apply Science Concepts	12	1.0
Total	900	60.0

Instructors

Peter Congdon, I.D., Com.Trans. I.P., Auto I.P.,
Chief Instructor, pcongdon@bcit.ca
Douglas Schmelzel, I.D., Com.Trans. T.Q., H.D. I.P.
Larry Strong, I.D., Auto. I.P., Com.Trans., I.P.
Gerry Warne, Com.Trans. I.P.
Keith Whitter, I.D., Com.Trans. T.Q., Auto I.P.

Diesel Electronics

Certificate of Trades Training (Full-time)

The diesel engine electronic technician will work in one of three trades, diesel engine mechanics, commercial transport mechanics or heavy duty mechanics. Electronic fuel control is used on diesel engines used in all of these trades.

A diesel engine electronic technician must have the skills to diagnose and troubleshoot problems with electronic fuel systems on today's modern diesel engines as well as have a good understanding of other electronic systems used on trucks and equipment.

Job Opportunities

Graduates of this program will gain skills in diesel electronics that will assist them in seeking employment in the commercial transport mechanics, heavy duty mechanics and diesel engine mechanics industries.

The Program

Electrical and electronic theory along with hands-on use of diagnostic tools and troubleshooting manuals enable students to become competent in the repair, troubleshooting and diagnosis of electronic fuel systems for diesel engines.

Grading

Minimum passing grade in each course is 70 per cent. An overall average of 70 per cent is required to successfully complete the program.

Program Length

Full-time, 10 weeks.

Normal Course Hours

0700-1345, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$354.00 for the 10-week full-time program.

Books and Supplies 2001/2002

\$386 (general estimated cost and subject to change).

Entrance Requirements

(The entrance requirements are currently under review – please check the BCIT Web site at www.bcit.ca for updated information).

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High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math. Applicants must possess: Trade Qualifications (T.Q.) or Interprovincial (I.P.) in either Heavy Duty Mechanics, Commercial Transport Mechanics, or Diesel Mechanics, or Commercial Transport Level 111 or Heavy Duty level IV, or one of ELTT Diesel Mechanics, ELTT Commercial Transport or ELTT Heavy Duty Mechanics.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

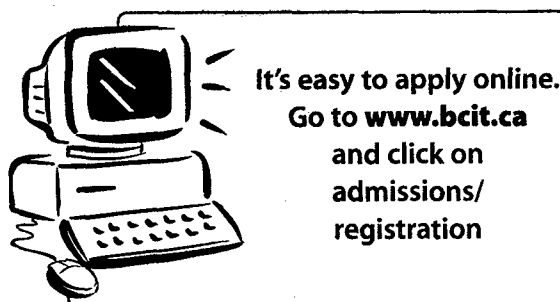
For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Program Content - Diesel Electronics

Courses	Hours	Credits
DELX 2100 Electrical Advanced I	60	4.0
DELX 2101 Electrical Advanced II	60	4.0
DELX 2102 Detroit Diesel Electronic Control	60	4.0
DELX 2103 Caterpillar Electronic Control	60	4.0
DELX 2104 Cummins Electronics Control	60	4.0
Total	300	20.0

Instructor

Daren Germaine, I.D., Com. Trans. I.P.



Diesel Engine Mechanic

Certificate of Trades Training (Full-time)

The diesel engine mechanic repairs, maintains and rebuilds diesel engines that power a wide variety of mobile and stationary machinery. Students learn to disassemble, rebuild and reassemble diesel engines; replace working parts such as pistons, rings, bearings, gears, valves and bushings; rebuild engine blocks, cylinder heads, sub assemblies and components; repair fuel, electrical and cooling support systems.

Job Opportunities

Students are prepared for entry-level employment as diesel engine mechanics. Upon successful completion of the program, students may seek employment as apprentices. This program meets the entrance requirements of the BCIT Marine Engineering program.

Diesel engine mechanics are required wherever diesel engines are found in industry: railways, bus and truck lines, the marine industry, repair garages, logging and mining camps, and dealerships. Many opportunities exist in this trade. However, graduates should be prepared to work out of town in entry-level jobs in industry until trainee positions become available.

The Program

Basic theory and related information, along with hands-on shop practice enable students to become proficient in basic diesel engine maintenance and overhaul procedures.

Because some heavy lifting is involved, good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

Minimum passing grade in each course is 70 per cent.

Program Length

Full-time, 42 weeks, beginning in September each year.

Normal Course Hours

0700-1345, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,508.80 for the 42-week full-time program.

Books and Supplies 2001/2002

\$717 (general estimated cost and subject to change).

Entrance Requirement:

Grade 12 graduation, Technical and Professional Communications 12 (P) or English 12 (P), Principles of Mathematics 11 (C), Introductory Mathematics 11 (C), Applications of Mathematics 11 (C), or approved equivalents. BCIT pretest will meet English and Math requirements.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter a complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to 62 of this calendar.

Program Content - Diesel Engine Mechanic

Courses	Hours	Credits
DEMX 1100 Describe Mechanical Trades	6	0.5
DEMX 1101 Solve Mathematical Problems	30	2.0
DEMX 1102 Describe and Use Safe Work Practices	30	2.0
DEMX 1103 Technical Communications	12	1.0
DEMX 1104 Apply Science Concepts	30	2.0
DEMX 1106 Start, Run, Move, Shut Down Selected Equipment	30	2.0
DEMX 1107 Describe/Use Mechanic's Hand and Measuring Tools	12	1.0
DEMX 1108 Describe/Use Mechanics Power Tools	18	1.0
DEMX 1109 Describe/Service Hydraulic Systems	18	1.0
DEMX 1110 Oxyacetylene Welding	18	1.0
DEMX 1111 Arc Welding	12	1.0
DEMX 1112 Lifting and Blocking	24	1.5
DEMX 1113 Describe/Overhaul Internal Combustion Engines	60	4.0
DEMX 1114 Describe/Service Engine Support Systems	30	2.0
DEMX 1115 Service Cylinder Block Assemblies	150	10.0
DEMX 1116 Service Engine Support Systems	138	9.0

Courses	Hours	Credits
DEMX 1117 Service Electrical Systems and Components	150	10.0
DEMX 1118 Service Emission Control Problems	60	4.0
DEMX 1119 Describe Diesel Fuel Systems	30	2.0
DEMX 1120 Service Diesel Fuel Engines	150	10.0
DEMX 1121 Troubleshoot Diesel Engines	120	8.0
DEMX 1122 Marine Gear	30	2.0
DEMX 1123 Prepare for Employment	12	1.0
DEMX 1124 Diesel Electronic Fuel Systems	90	6.0
Total	1260	84.0

Instructors

Russell Oye, Com.Trans. I.P.

Roger Young, Com.Trans. I.P., I.D.

Heavy Duty Mechanic

Certificate of Trades Training (Full-time)

The heavy duty mechanic repairs and tests heavy duty machines such as tractors, crawlers, loaders, graders, cranes, shovels and trucks. The work ranges from simple daily maintenance checks to servicing hydraulic systems, air brakes and winches, blades and accessories.

Today's heavy duty mechanic not only knows how to use service manuals, tools and equipment to the best advantage, but also employs logic and deductive reasoning in diagnosing and troubleshooting.

Job Opportunities

Training prepares students for entry-level employment as heavy duty mechanics. Upon successful completion of the program, students may seek employment as apprentices. There are employment opportunities in the Lower Mainland and throughout B.C. However, they may have to work at an unskilled job in the industry until an apprenticeship becomes available.

The Program

Basic theory and related information, along with hands-on shop practise enable students to become competent in basic heavy duty mechanical maintenance and repair.

Heavy duty mechanics should have a valid driver's license. Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

A minimum course grade of 70 per cent is required in each end of line test to pass each course. All courses must be passed in order to successfully complete the program.

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Program Length

Full-time, 30 weeks.

Normal Course Hours

0700-1345, Monday through Friday.

Tuition Fees 2001/2002

(subject to change)

\$1,087.00 for the 30-week full-time program.

Books and Supplies 2001/2002

\$519 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

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For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.



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Program Content - Heavy Duty Mechanic

Courses		Hours	Credits
HDMX 1200	Use Safe Work Practices	30	2.0
HDMX 1201	Describe Mechanical Trades	10	0.5
HDMX 1202	Process Technical Information	60	4.0
HDMX 1203	Use Hand Tools and Shop Equip	60	4.0
HDMX 1204	Lift Loads	30	2.0
HDMX 1205	Use Fastenings and Fittings	40	2.5
HDMX 1206	Cut/Weld/Braze and Solder Mtls	30	2.0
HDMX 1207	Operate Powered Equipment	30	2.0
HDMX 1208	Service Winches/Working Attach	30	2.0
HDMX 1209	Service Brake Systems	30	2.0
HDMX 1210	Service Hydraulic Systems	30	2.0
HDMX 1211	Overhaul Diesel Engines	60	4.0
Courses			
HDMX 1212	Select Lubricants and Fluids	20	1.5
HDMX 1213	Service Engine Support Systems	30	2.0
HDMX 1214	Gas and Alternate Fuel Systems	30	2.0
HDMX 1215	Service Diesel Fuel Systems	20	1.5
HDMX 1216	Service Elec/Electronic Systems	60	4.0
HDMX 1217	Service Drive Axles and Lines	60	4.0
HDMX 1218	Service Std Transmission Lines	30	2.0
HDMX 1219	Service Automatic/Powershift	30	2.0
HDMX 1285	Service Bearings and Seals	30	2.0
HDMX 1221	Service Track Type Equipment	60	4.0
HDMX 1222	Service Wheel Type Equipment	90	6.0
Total		900	60.0

Instructors

Helena Balaban, I.D., H.D.I.P.T.Q.

Philip Janzen, I.D., H.D.I.P.

Douglas Schmelzel, H.D.I.P., Com. Trans. T.Q., I.D.

Edward Wilk, I.D., H.D.I.P.

Inboard/Outboard Mechanic

Certificate of Trades Training (Full-time)

The inboard/outboard mechanic works primarily on gasoline engines in the marine pleasure craft industry. A mechanic must know all aspects of repair to outboard motors, inboard and inboard/outboard engines, and stern-drive units.

Mechanics will be required to do tune-ups and electrical troubleshooting, disassemble and overhaul complete units and/or components, make steering and shift adjustments, check gauges and instruments, and may install accessories such as radio-telephones and depth-sounders. Depending on the employer, a mechanic may need to be skilled in working with boat trailers as well as boats and boat rigging, and the maintenance and repair of outdrives, transmissions and engines.

Job Opportunities

Students are prepared for entry-level employment as inboard/outboard marine mechanics. Upon successful completion of the program, students may seek employment as apprentices. Opportunities in this trade exist both in and out of town with dealers, marinas, fishing lodges and resorts. Most of these businesses are not unionized but apprenticeships are common in this trade.

The Program

This program is delivered in an individual study format. Basic theory and related information along with hands-on shop practise enable students to become competent in basic inboard/outboard repair and maintenance.

Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

Minimum course passing grade is 80 per cent.

Program Length

Full-time, 34 weeks, with intakes every two months starting in February.

Normal Course Hours

0700-1400, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,227.60 for the 34-week full-time program.

Books and Supplies 2001/2002

\$507 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter a complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Inboard/Outboard Mechanic

Courses		Hours	Credits
CORE 1100	Use Safe Work Practices	30	2.0
CORE 1101	Solve Mathematical Problems	24	1.5
CORE 1102	Apply Science Concepts	12	1.0
CORE 1103	Use Hand and Shop Tools	30	2.0
CORE 1104	Use Fasteners and Fittings	20	1.5
CORE 1105	Use Resources Related to the Trade	30	2.0
Courses			
CORE 1106	Service Internal Combustion Engines	30	2.0
CORE 1107	Apply Principles of Lubrication	22	1.5
CORE 1108	Perform Welding, Cutting and Brazing	30	2.0
CORE 1109	Basic Electrical Systems	30	2.0
CORE 1110	Prepare for Employment	12	1.0
IOMX 1101	Describe the Mechanics Trade	3	0.5
IOMX 1112	Lift Loads	12	1.0
IOMX 1113	Service Outboard Engines	90	6.0
IOMX 1114	Service Inboard Engines	48	3.0
IOMX 1115	Engine Support Systems	72	5.0
IOMX 1117	Marine Electrical Systems	145	9.5
IOMX 1118	Inboard/Outboard Power Systems	147	10.0
IOMX 1119	Remote Control Systems	24	1.5
IOMX 1120	Tilt and Trim Systems	48	3.0
IOMX 1121	Tune-ups and Rebuilds	84	5.5
IOMX 1122	Outboard and In/Outboard Instl	77	5.0
Total		1020	68.5

Instructors

Todd Conkey, T.Q.

Jeff Mica, Chief Instructor, I.D., T.Q.

Motorcycle Mechanic

Certificate of Trades Training (Full-time)

Motorcycle mechanics are involved with all aspects of motorcycle, ATV and related equipment service and repair. They are required to perform operations such as new unit assembly and full service, top end and transmission rebuilds, electrical component repair and chassis, wheel, suspension, final drive and accessory service.

Job Opportunities

Training prepares students for entry-level employment as motorcycle service technicians.

The industry demands qualified technicians due to the increasing sophistication of equipment. Most positions for graduates are as mechanics in service departments at franchised motorcycle dealers. Graduate students have proven to be valued employees. Many progress to service management positions. Some are involved in their own service and repair businesses. Upon successful completion of the course, students may seek employment as apprentices.

The Program

This program is delivered in an individual study format. Basic theory and related information along with hands-on shop practice will enable students to work in the motorcycle service industry.

Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

Minimum grade required to pass a course is 80 per cent.

Program Length

Full-time, 34 weeks, with intakes every two months starting in February.

Normal Course Hours

0700-1400, Monday through Friday.

Total Tuition 2001/2002 (subject to changes)

\$1,227.60 for the 34-week full-time program.

Books and Supplies 2001/2002

\$515 (general estimated cost and subject to change).

Entrance Requirement

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter a complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Motorcycle Mechanic

Courses	Hours	Credits
CORE 1100 Use Safe Work Practices	30	2.0
CORE 1101 Solve Mathematical Problems	24	1.5
CORE 1102 Apply Science Concepts	12	1.0
CORE 1103 Use Hand and Shop Tools	30	2.0
CORE 1104 Use Fasteners and Fittings	20	1.5
CORE 1105 Use Resources Related to the Trade	30	2.0
Courses		
CORE 1106 Service Internal Combustion Engines	30	2.0
CORE 1107 Apply Principles of Lubrication	22	1.5
CORE 1108 Welding, Cutting and Brazing	30	2.0
CORE 1109 Basic Electrical Systems	30	2.0
CORE 1110 Prepare for Employment	12	1.0
MCMX 1112 Two and Four Cycle Top End Service	78	5.0
MCMX 1114 Power Transmissions	90	6.0
MCMX 1116 Electrical Systems	90	6.0
MCMX 1117 Fuel Delivery Systems	75	5.0
MCMX 1118 Final Drive Service	24	1.5
MCMX 1119 Brake Systems	27	2.0
MCMX 1120 Wheels and Tires	30	2.0
MCMX 1121 Frame and Suspension Systems	36	2.5
MCMX 1122 Selected Service Procedures	300	19.5
Total	1020	68.0

Instructors

Brian Hanna, I.D., C.Q.

Dwight Osterhout, T.Q.

Power Equipment Mechanic

Certificate of Trades Training (Full-time)

Power Equipment mechanics must be very versatile due to the wide variety of equipment they must service. Typical equipment serviced or repaired by Power Equipment mechanics include: compressors, water pumps, chainsaws, ATV's, snowmobiles, personal watercraft, and lawn and garden equipment. Power Equipment mechanics are involved in all aspects of equipment service including new unit preparation to complete rebuilding of equipment.

Job Opportunities

Successful completion of this program prepares students for entry-level employment as a power equipment mechanic. Training prepares students for entry-level employment in retail outlets, service centres, equipment rental shops, or to become self-employed. Job opportunities are available throughout the province. Mechanics with experience in a wide variety of equipment are always in demand.

The Program

This program is delivered in an individual study format. Basic theory and related information along with hands-on shop practice will enable students to become competent to work in the power equipment industry.

Good physical condition is desirable. Potential students with medical or physical difficulties should contact the Educational Resource Centre for Students with Disabilities to arrange an interview (telephone interview if out of town) with the Institute's Rehabilitation specialist, (604) 451-6963.

Grading

Minimum grade required to pass a course is 80 per cent.

Program Length

Full-time, 34 weeks, with intakes every two months, starting in February.

Normal Course Hours

0700-1400, Monday through Friday.

Tuition Fees 2001/2002 (subject to change)

\$1,227.60 for the 34-week program.

Books and Supplies 2001/2002

\$598 (general estimated cost and subject to change).

Entrance Requirements

High school graduation. English 12 or Communications 12. Any Math course at the grade 11 level (Accounting 11 is NOT acceptable). BCIT pretest is acceptable for English and Math.

Note: Applied Academics courses taught in B.C. high schools are acceptable as entrance requirements for BCIT programs. Applied Academics courses include: Technical and Professional Communications 12, Applications of Math 11 and 12, Applications of Physics 11 and 12, Information Technology 11 and 12.

For information on specific Applied Academics course equivalencies as they relate to entrance requirements for your chosen program, please contact your high school counsellor or BCIT Registration and Information at (604) 434-1610.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT.

For information about the Fresh Start program, please refer to page 62 of this calendar.

Trades Discovery for Women

This full-time program is designed to prepare participants to successfully enter a complete a Trades Training program.

For information about the Trades Discovery for Women program, please refer to page 62 of this calendar.

Program Content - Power Equipment Mechanic

Courses	Hours	Credits
CORE 1100 Use Safe Work Practices	30	2.0
CORE 1101 Solve Mathematical Problems	24	1.5
CORE 1102 Apply Science Concepts	12	1.0
CORE 1103 Use Hand and Shop Tools	30	2.0
CORE 1104 Use Fasteners and Fittings	20	1.5
CORE 1105 Use Resources Related to the Trade	30	2.0
Courses		
CORE 1106 Service Internal Combustion Engines	30	2.0
CORE 1107 Apply Principles of Lubrication	22	1.5
CORE 1108 Welding, Cutting and Brazing	30	2.0
CORE 1109 Basic Electrical Systems	30	2.0
CORE 1110 Prepare for Employment	12	1.0
PEMX 1110 Service Four Stroke Engines	60	4.0
PEMX 1111 Service Two Stroke Engines	60	4.0
PEMX 1112 Maintain and Repair Fuel Systems	60	4.0
PEMX 1113 Maintain and Repair Cooling Systems	11	1.0
PEMX 1114 Repair Electrical Systems	60	4.0
PEMX 1115 Repair Charging Systems, Electrical Motors	58	4.0
PEMX 1116 Repair Power Transfer Systems	90	6.0
PEMX 1117 Repair Chassis and Brake Systems	45	3.0
PEMX 1118 Selected Service Procedures	306	20.5
Total	1020	68.0

Instructors

Steve Sampson, T.Q.

Pacific Marine Training Campus

The Pacific Marine Training campus (PMTC) is situated near the Lonsdale Quay on the North Shore of Vancouver Harbour. Students enjoy easy access to public transportation, shopping facilities, recreational centres, restaurants and all of the other necessities of student life. The location also provides an unobstructed view of the harbour, and well-established, vital links with the many varied and diverse elements of the shipping industry. This architecturally-modern facility comfortably accommodates classrooms, various laboratories, machine shops, a student lounge and cafeteria, library, administration offices, an indoor training tank and a 35 metre pier extending into Vancouver's harbour.

PMTC offers a wide variety of courses and programs in navigation, marine engineering, seamanship, maritime logistics and port operations. Our exciting, new diploma programs in *Marine Engineering and Nautical Sciences* offer students the opportunity to go to sea for six month periods, between academic terms. Regular courses are offered between September and June, and some special courses are offered during the summer months. PMTC will give sufficient notice also develop and conduct specialized contract courses tailored to meet the needs of any company or government agency. For further information please contact the associate dean at (604) 453-4122.

PMTC, in cooperation with the Justice Institute of B.C., also offers training in marine fire fighting at the Fire and Safety Training Centre (FSTC) in Maple Ridge, B.C. Facilities at the JIBC-FSTC include a ship mock-up, railway tank cars, a variety of fire fighting training pads, a smoke house, pumper truck, road trailers, oil and chemical spill simulation, classrooms and support facilities.

Employment Opportunities in the Marine Industry

The diverse Canadian and international marine industry offers many challenging and rewarding career opportunities. Qualified men and women may expect to find employment in one of the following sectors of the marine industry:

- The shipping industry worldwide currently faces a marine engineer and deck officer shortage. As the current generation of sea-going officers retire, employment opportunities for graduates of accredited cadet diploma programs are extensive.
- The Canadian managed merchant fleet consists of several hundred vessels. A fleet of bulk carriers operates on the Great Lakes and internationally. Tankers, general cargo ships, passenger vessels and ferries constitute the remainder of the commercial shipping, with several domiciled international operating fleets. There is also an extensive tug and barge operation, especially on the B.C. Coast.

- Offshore fishing has been an important part of the marine industry. Fishing fleets require competent personnel with comprehensive knowledge of navigation, radar operation, stability and safety.
- Oil and gas exploration is expanding as Canada strives to reach its goal of energy self-sufficiency. Offshore drill ships and platforms, supply vessels, survey ships and pipe-laying equipment are involved in these operations.
- The federal fleet includes Department of Fisheries and Oceans/Canadian Coast Guard vessels, Defence Auxiliaries and Public Works vessels. These vessels are responsible for providing search and rescue services, maintaining aids to navigation (buoys, lights, etc.), supporting ships in ice-congested waters, laying and repairing cables, controlling pollution and cleaning up spills.
- Land-based career opportunities also exist in the marine shipping business community including, for example, shipping agencies, stevedores, freight forwarders, and ship and cargo brokers. (For further information about courses related to this sector of the industry please refer to the Maritime Logistics and Port Operations Certificate program in the Part-time Studies Flyer or online at www.bcit.ca).

Transport Canada Marine Engineering, Nautical and Seamanship Certificates

Transport Canada issues certificates of competency to *commercial Shipmasters, Mates, and Marine Engineers* to indicate that they are qualified to act in a specified capacity on a ship. The primary function is to prepare students for the examinations leading to the issuance of these certificates. The examinations are conducted by examiners appointed by the Ministry of Transport. It is the responsibility of the student to arrange examinations with the Regional Ship Safety branch of Transport Canada. Students are advised to do this early, since examination facilities are limited.

The examiners require proof of previous service in ships at sea before accepting a candidate for examination. As soon as sea service starts, an accurate record should be maintained. Where articles of agreement are required, the record would normally be found in the entries in the Seaman's Discharge Book. On ships where the crew is not signed on articles, testimonials of service should be obtained. These should give the name and tonnage of the ship, the dates during which the service occurred, the capacity in which the person served, and the geographical area in which the ship operated. Each testimonial must be signed by the Master or a responsible person employed by the company owning or operating the ship.

Information regarding sea service requirements may be obtained by contacting either the Nautical Examiner, or the Marine Engineer Examiner, at one of the following Transport Canada Ship Safety branches:

District Surveyor Transport Canada Ship Safety

Suite 620-800 Burrard Street
Vancouver, B.C. V6Z 2J8
Telephone: (604) 666-0834

District Surveyor Transport Canada Ship Safety

501-1230 Government Street
Victoria, B.C. V8W 1Y3
Telephone: (250) 363-0299

District Surveyor Transport Canada Ship Safety

Room 101-A, 60 Front Street
Nanaimo, B.C. V9R 5H7
Telephone: (250) 754-0244

District Surveyor Transport Canada Ship Safety

Seal Cove Coast Guard Base
P.O. Box 3670
Prince Rupert, B.C. V8J 3R1
Telephone: (250) 627-0340

Students with no previous sea-service, who are considering a career in the marine industry, should contact the Marine Certification Advisor at PMTC. For students who have no sea experience, we offer the following programs and courses: Bridge Watchman, Marine Engineering Diploma, Nautical sciences Diploma and Marine Emergency Duties.

Students intending to pursue a career at sea should undergo a medical examination and a colour perception test. Candidates should obtain a copy of the general application form from a Transport Canada Ship Safety Office, and make the necessary arrangements with a general practitioner or eye specialist for an examination.

Admission Restrictions

BCIT will accept applications for admission from prospective students only if they meet the following requirements:

- a. they are of Canadian citizens, or
- b. hold status granted by the Canada Employment and Immigration Commission as permanent residents (landed immigrants), proof of which must be submitted, or
- c. hold a valid Student Authorization issued by Canada Immigration, proof of which must be submitted. Visa students will be admitted to a program or course only if space is available and a Canadian student is not displaced.

PMTC's registration department will enrol a person in a course leading to Transport Canada examinations only when the person qualifies for entrance to the examination. Transport Canada requires proof of previous service in ships at sea and proof of nationality (the candidate must be a Canadian citizen, British subject, or a Permanent Resident of Canada) before accepting a candidate for examinations. To register in a course, an applicant must have also completed any required prerequisites. International students are advised to contact the Registration office for more information about foreign student application requirements.

Marine Engineering Programs and Courses

Marine Engineering

Diploma of Technical Studies (Full-time)

(The program curriculum is currently under review and may change. Please check the BCIT Web site at www.bcit.ca for updated information).

Cooperative Program (42-months, Full-time/18-months of Sea-time)

The marine industry in Canada and the rest of the world depends on the services of internationally certificated Marine Engineers. These professionals are trained in the running and maintenance of the propulsion plant and other machinery systems found in all ocean-going ships. A Marine Engineer is responsible for the efficient operation and maintenance of the vessel's propulsion, electrical and auxiliary systems. The main activities of the Marine Engineer include daily watch-keeping, repairs to the machinery systems and planning and performing long-term machinery maintenance schedules. Marine Engineers carry out these duties in full compliance with international standards with regards to operational safety and ocean pollution prevention.

The Program

The diploma of Technical Studies Marine Engineering is a co-operative officer cadet program that provides students with a solid background in the principles of construction, operation and maintenance of diesel engine propulsion plants on ships. Cadets participating in the program will first be selected by BCIT for academic suitability followed by an interview with participating shipping companies to ensure company employment requirements. Cadets will be required to support themselves financially while studying at BCIT, but will receive a stipend while serving at sea; their living, travel and other expenses will be covered by the host shipping company.

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This four year program combines a hands-on Diesel Engine Mechanic program, followed by first aid and marine emergency duties (MED) training in the first year. The first of three six-month periods of sea time with sponsoring shipping companies commences upon completion of first year. Between each academic term are two further six month periods of sea service. Before embarking on the third period of sea service, those cadets that meet the academic and sea service requirements will qualify for their fourth Class Canadian Marine Engineer Certificate of Competency. It is anticipated the cadet will then be given the opportunity to serve as an assistant, or in charge of engine room watch.

Program Length

Four years.

Program Fees (subject to change)

Fees are estimates only.

Year One	\$2,530.90
Year Two	\$1,682.37
Year Three	\$1,861.81
Year Four	\$1,278.40
Total	\$7,353.48*

Books and Supplies (subject to change)

Estimated at \$700 per year. Cadets must equip themselves with drawing instruments, a scientific calculator and such other materials as they may require. They must also provide themselves with uniform, coveralls, hearing protection, safety goggles and boots for use in the shops.

Accreditation

This program meets the standards set out for Marine Engineer Certification as set out by Transport Canada.

Entrance Requirements

1. Grade 12 graduation. Technical and Professional Communications 12 (P) or English 12 (P). Principles of Mathematics 11(C), Introductory Mathematics (C), Applications of Mathematics (C), or approved equivalent. BCIT pretest will meet English and Math requirements.
2. The candidate must successfully pass, to Transport Canada standards, a medical, hearing, and eyesight test. This test must be conducted by a Transport Canada approved Doctor. Information regarding how to arrange for this test will be forwarded after an application form has been received by the BCIT Admissions department. Please note that you are responsible for any fee charge by the Doctor for conducting this test and providing BCIT with official results.
3. Candidates will be required to sign a waiver as a condition of acceptance.

4. Once candidates have provided the BCIT Admissions department with the information outlined in 1, 2, and 3 above, they will have their name entered onto a "complete" list. This list plus the candidates' application form, transcripts, and medical test results, will then be circulated to BCIT's participating cooperative shipping company partners who will select, or reject, those applicants as meet the corporate profile of the shipping company. A specific shipping company may require medical tests at a higher level than those required by Transport Canada. Acceptance by a shipping company is a condition of acceptance into the Marine Engineering program.

Notes

Once admitted to the program, all students will be required to write the Trades pre-entry testing to ascertain levels of competence and areas that may require assistance. Physics 11 or Chemistry 11 is recommended.

Graduation

Officer cadets will receive a diploma of Technical Studies, Marine Engineering from BCIT upon graduation. At this time they will write their Fourth Class Engineering Knowledge and Oral Examinations set by Transport Canada and, if successful, will receive their Canadian Fourth Class Marine Engineer Certificate of Competency.

Program Content - Marine Engineering

(The program curriculum is currently under review and may change. Please check the BCIT Web site at www.bcit.ca for updated information).

First Year: (66 weeks)

Courses	Hours	Credits
DEMX 1100 Describe Mechanical Trades	6	0.5
DEMX 1101 Solve Mathematical Problems	30	2.0
DEMX 1102 Describe and Use Safe Work Practices	30	2.0
DEMX 1103 Technical Communications	10	1.0
DEMX 1104 Apply Science Concepts	30	2.0
DEMX 1106 Start Run Move Shut Down Equipment	30	2.0
DEMX 1107 Mechanic's Hand and Measuring Tools	12	1.0
DEMX 1108 Mechanic's Power Tools	18	1.0
DEMX 1109 Service Hydraulic Systems	18	1.0
DEMX 1110 Oxyacetylene Welding	18	1.0
DEMX 1111 Arc Welding	12	1.0
DEMX 1112 Lifting and Blocking	24	1.5
DEMX 1113 Internal Combustion Engines	60	4.0
DEMX 1115 Service Cylinder Block Assemblies	120	8.0
DEMX 1116 Service Engine Support Systems	138	9.0
DEMX 1117 Electrical Systems/Components	120	8.0
DEMX 1118 Emission Control Problems	60	4.0
DEMX 1119 Describe Diesel Fuel Systems	30	2.0
DEMX 1120 Service Diesel Fuel Systems	120	8.0
DEMX 1121 Troubleshoot Diesel Engines	90	6.0

Courses		Hours	Credits
DEMX 1122	Marine Gear	30	2.0
DEMX 1123	Prepare for Employment	12	1.0
DEMX 1125	Engine Support Systems	30	2.0
MEDI 1000	Marine Emergency A-1 Basic Safety*	18	1.0
MEDI 1020	MED B-1 Survival Craft*	32.5	2.0
MEDI 2020	MED B-2 Marine Fire Fighting*	32.5	2.0
MEOC 1170	Computer Aided Drafting	30	2.0
MSSM 1050	Basic First Aid	16	1.0
NAUT 1170	Applied Sciences (Maritime)	60	4.0
MEOC 1990	Cooperative Training (approx 26 weeks) ¹	910	26.0

* These courses will be offered at the Pacific Marine Training Campus (North Vancouver) and the Justice Institute of B.C Fire and Safety Training Centre (Maple Ridge).

¹This is an estimate only. Students are required to complete the hours assigned to them by the shipping company.

Second Year (46 weeks):

MEOC 1100	Applied Mechanics 1	81	5.5
MEOC 1110	Materials	45	3.0
MEOC 1130	Electrotechnology 1	81	5.5
MEOC 1150	Thermodynamics 1	60	4.0
MEOC 1180	Marine Power Systems 1	69	4.5
MEOC 2990	Co-op 1 (approx. 26 weeks)	910	30.5
MERS 1050	Propulsion Plant Simulator 1	30	2.0
NAUT 1130	Applied Mathematics 1 (Marine)	75	5.0
NAUT 1113	Naval Architecture 1	99	6.5
TRWC 1100	Applied Communications (Maritime)	30	2.0
MEOC 1990	Cooperative Training (approx 26 weeks) ¹	910.0	26.0

¹This is an estimate only. Students are required to complete the hours assigned to them by the shipping company.

Third Year (46 weeks):

MEDI 1040	Marine Emergency Duties C	19.5	1.0
MEDI 1060	Marine Emergency Duties D	13	1.0
MENG 3990	Co-op 1 (approx. 26 wks) ¹	910	30.5
MEOC 1120	Refrigeration & Air Conditioning 1	24	1.5
MEOC 1140	Automation & Controls 1	72	5.0
MEOC 2100	Applied Mechanics 2	72	5.0
MEOC 2110	Materials 2	36	2.5
MEOC 2130	Electrotechnology 2	84	5.5
MEOC 2150	Thermodynamics 2	54	3.5
MEOC 2180	Marine Power Systems 2	63	4.0
MERS 2050	Propulsion Plant Simulator 2	30	2.0
NAUT 1090	Management/International Safety Management	54	3.5
NAUT 2113	Naval Architecture 2	90	6.0
MEOC 3990	Cooperative Training 3 (approx 26 weeks) ¹	910.0	26.0

¹This is an estimate only. Students are required to complete the hours assigned to them by the shipping company.

Fourth Year (20 weeks):		Hours	Credits
MEOC 1180	Marine Power Systems 3	66	4.0
MEOC 2120	Refrigeration & Air Conditioning 2	30	2.0
MEOC 2140	Automation & Controls 2	81	5.5
MEOC 2150	Thermodynamics 3	60	4.0
MEOC 2160	Blueprint Reading 1	39	2.5
MEOC 3100	Applied Mechanics 3	81	5.5
MEOC 3113	Naval Architecture 3	81	5.5
MEOC 3130	Electrotechnology 3	81	5.5
MERS 3050	Propulsion Plant Simulator 3	30	2.0
NAUT 2090	Management/International Safety Management 1	90	6.0

Marine Engineering Courses

The Pacific Marine Training campus offers a variety of programs that prepare students for Transport Canada examinations. Each program consists of a number of courses preparing students to write examinations leading to Certificates of Competency issued by Transport Canada.

- Fourth Class Marine Engineer
- Third Class Marine Engineer
- Second Class Marine Engineer
- First Class Marine Engineer.

In addition, each grade of certification is subdivided into three types:

- Steam Certificate: for use on a ship propelled by steam engines
- Motor Certificate: for use on a ship propelled by diesel engines or gas turbines
- Combined Certificate: for use on a ship propelled by steam engines, diesel engines or gas turbines.

Throughout the following program and course descriptions, prerequisites and sea service requirements for the final Transport Canada oral examination are provided. These are for general information purposes only, and are not intended to replace the specific Transport Canada regulations governing prerequisites and sea service requirements, as set out in the Regulations Respecting the Examination of Marine Engineers.

It is the responsibility of the student to obtain specific information regarding these regulations from the District Surveyor at the nearest Transport Canada Marine Engineering Examination Centre. All decisions regarding eligibility and assessment of sea service are made by the Transport Canada Examiner.

Students planning to do the final oral examinations for Transport Canada Certificates of Competency must also hold the appropriate level of Marine Emergency Duties (MED) training and Standard First Aid Certification as required by Transport Canada regulations. MED courses are not included with any of the Marine Engineering programs, and it is the responsibility of the student to determine the necessary MED training requirements, and provide proof of completion to the Transport Canada Examination Centre.

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All candidates for Marine Engineering Certificates of Competency are also required to complete Propulsion Plant Simulator Training prior to obtaining their certificate. Marine Engineer Officers currently holding Certificates of Competency may obtain a Continued Proficiency Certificate (CPC) only after providing proof of Simulator Training, or by successfully challenging the Transport Canada assessment exercise. Please refer to the section titled Propulsion Plant Simulator Training for more information.

Some of the Marine Engineering courses have been accredited with Transport Canada, which means that successful completion of course material will exempt students from the Transport Canada examination. Students must elect the accreditation option on the first day of class, so it is recommended that those students interested in the accreditation option contact the chief instructor prior to registration.

Note: Marine Engineering department recommendation – although the programs may be completed in a modular format, it is strongly recommended that the Engineering Knowledge courses be done only after all other subjects in that level have been completed.

Marine Engineer Fourth Class

Prepares participants for all Transport Canada examinations leading to the Fourth Class Marine Engineer Certificate of Competency, which qualifies the holder to act as a watch-keeping engineer in a ship of any power on any voyage. The examination for this grade of certificate is held in three parts in the case of a Steam or Motor Certificate, and in four parts in the case of a Combined Certificate.

Entrance Requirements

None.

Admission/Registration Procedures

Please contact the PMTC Registration office at (604) 453-4111 or fax (604) 985-2862.

Sea Service Requirement

36 months "qualifying time," which must include six months sea time.

Note: Applicants for the Transport Canada final oral examination leading to the Fourth Class Marine Engineer Certificate of Competency must also complete:

- MERS 1000 Propulsion Plant Simulator Level I
- MEDI 1000 (MED) A-1, MEDI 1020 B-1, MEDI 2020 B-2
- MEDI 3000 C/D Marine Emergency Duties
- MSSM 1050 Standard First Aid or valid Standard First Aid certificate.

These are not included in the Fourth Class program and must be enrolled in separately if required.

Program Content

MENG 4000 Engineering Knowledge: General Marine Engineering Principles and Practice

Engineering Knowledge: Marine Internal Combustion Machinery

Engineering Knowledge: Marine Steam Machinery

Please contact the Registration office at (604) 453-4111 for more information on Marine Engineer Fourth Class.

Marine Engineer Third Class

Prepares students for all Transport Canada examinations leading to the Third Class Marine Engineer Certificate, which qualifies the holder to act as a watchkeeping engineer in any ship of any power on any voyage. In addition, the holder may act as a Chief Engineer on ships sailing with limited power on certain voyages.

Third Class Math and Applied Mechanics, Thermodynamics and Electrotechnology subjects are now offered as accredited courses. A student electing the accredited course study option will now follow a schedule, which, on successful completion, will provide exemption from Transport Canada examinations. Successful completion is contingent upon maintaining a passing grade in course work, lab work, interim tests, and the final examination. At the beginning of the course, students must elect their choice of the accredited course of study, or preparation for Transport Canada examinations.

Program Length

32 weeks.

Entrance Requirements

Fourth Class Marine Engineer Certificate of Competency (required for both accredited and Transport Canada examination study programs).

Admission/Registration

Please contact the PMTC Registration office at (604) 453-4111 or fax (604) 985-2862.

Sea Service Requirement

12 months sea service is required before writing the Engineering Knowledge examinations at the Transport Canada Examination Centre.

Note: Applicants for the Transport Canada final oral examination for the Third Class Marine Engineer Certificate of Competency must have completed:

- MERS 2000 Propulsion Plant Simulator Level I (level II is also required for a "STCW Chief Engineer Endorsement")
- MEDI 3000 Marine Emergency Duties (MED) C, and D
- MSSM 1050 Standard First Aid or valid Standard First Aid Certificate.

These are not included in the Third Class program, and must be enrolled in separately if required.

Program Content

		Hours	Credits
MENG 3103	Mathematics and Applied Mechanics	240	16.0
MENG 3101	Electrotechnology	180	12.0
MENG 3001	Engineering Knowledge: General Marine Engineering Principles and Practice	240	16.0
MENG 3002	Engineering Knowledge: Marine Internal Combustion Machinery	50	10.0
	Engineering Knowledge: Marine Steam Machinery *		

*Due to low demand, PMTC does not currently offer this course. However, steam auxiliary machinery is addressed in the Engineering Knowledge: General course (MENG 3001).

Marine Engineer Second Class

This program prepares participants for all Transport Canada examinations leading to the Second Class Marine Engineer Certificate of Competency, which qualifies the holder to act as a second engineer in a ship of any power on any voyage, or as a Chief Engineer in a ship of moderate power on any voyage.

Note: Every student registered for Applied Mechanics, Thermodynamics, Electro-technology or Naval Architecture must take a mathematics evaluation test before commencing study in these courses. A student who fails the test must take a mathematics upgrading course concurrently with instruction in the modules. A student who fails the test with a very low percentage must take a mathematics upgrading course before commencing instruction in these modules.

Program Length

39 weeks.

Entrance Requirements

Third Class Marine Engineer Certificate of Competency.

Admissions/Registration

Please contact the Registration office at (604) 453-4111 or fax (604) 985-2862.

Sea Service Requirement

12 months.

Note: Applicants for the Transport Canada final oral examination for the Second Class Marine Engineer Certificate of Competency must have completed:

- MERS 2000 Propulsion Plant Simulator Level II
- MEDI 3000 Marine Emergency Duties (MED) C, and D
- MSSM 1050 Standard First Aid or valid Standard First Aid Certificate.

These are not included in the Second Class program, and must be enrolled separately if required.

Program Content

		Hours	Credits
MENG 2102	Drafting	180	12.0
MENG 2103	Applied Mechanics	240	16.0
MENG 2100	Thermodynamics	240	16.0
MENG 2101	Electrotechnology	270	18.0
MENG 2104	Naval Architecture	240	16.0
MENG 2001	Engineering Knowledge: General Marine Engineering Principles and Practice	240	16.0
MENG 2002	Engineering Knowledge: Marine Internal Combustion Machinery	150	10.0
	Engineering Knowledge: Marine Steam Machinery*		

*Due to low demand, PMTC does not currently offer this course. Any student interested in this subject should contact the chief instructor, Marine Engineering.

Marine Engineer First Class

Prepares participants for all Transport Canada examinations for the First Class Marine Engineer Certificate of Competency, which qualifies the holder to act as a chief engineer in any ship of any power on any voyage.

Note: Every student registered for the modules of Applied Mechanics, Thermodynamics, Electrotechnology, or Stability and Ship Construction must take a mathematics evaluation test before commencing study in this program. A student who fails the test must take a mathematics upgrading course concurrently with instruction in the program. A student who fails the test with a very low percentage must take a mathematics upgrading course before commencing instruction in the program.

Program Length

31 weeks.

Entrance Requirements

Second Class Marine Engineer Certificate of Competency

Sea Service Requirement

18 months.

Additional Requirements

Applicants for the Transport Canada final oral examination for the First Class Marine Engineer Certificate of Competency must have completed:

- MERS 2000 Propulsion Plant Simulator level II
- MEDI 3000 Marine Emergency Duties (MED) C, and D
- MSSM 1050 Standard First Aid Certificate or valid Standard First Aid Certificate.

These are not included in the First Class Marine Engineer program, and must be enrolled separately if required.

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Program Content

		Hours	Credits
MENG 1103	Applied Mechanics	240	16.0
MENG 1100	Thermodynamics	240	16.0
MENG 2101	Electrotechnology	270	16.0
MENG 1104	Naval Architecture	240	16.0
MENG 1001	Engineering Knowledge: General Marine Engineering Principles and Practice	240	16.0
MENG 1002	Engineering Knowledge: Marine Internal Combustion Machinery	150	10.0

Propulsion Plant Simulator Training

For Marine Engineer Certificates of Competency must complete *Simulator Training* and successfully pass the Transport Canada assessment exercise. Marine Engineer Officers currently holding Certificates of Competency who require a Continued Proficiency Certificate (CPC) may take a challenge assessment exercise on the Simulator in lieu of the training program. At least 12 hours of familiarization on the Simulator will be required before a candidate may attempt the challenge examination. A 24-hour "Continued Proficiency Certificate" course (which includes this assessment exercise) is available for those who require it. For individuals who are upgrading from Second Class to First Class Engineer, and do not currently hold a Level I certificate, a 24-hour "Familiarization" course is required prior to the Level II course.

MERS 1000 Propulsion Plant Simulator Level I Watchkeeper and Control Room Operator

This is a required course for those candidates applying for Fourth Class, Third Class, and Chief Engineer of Motor Driven Fishing Vessel (CEMDFV) Certificates of Competency. The course provides instruction and basic training in propulsion plant operation and watch-standing. Emphasis will be on watch-standing procedures associated with main engine, and subsystems, for both slow and medium speed engines.

Course Length

80 hours 5.0 credits

Entrance Requirements

Six months seetime.

MERS 2000 Propulsion Plant Simulator Level II Plant Managers

Presents this required course for those individuals applying for Marine Engineer Second Class, and First Class Certificates of Competency, and for Third Class Marine Engineers who apply for a "Chief Engineer Endorsement" (see Ship Safety Notice 7/95, and "Rules for Third Class Candidates from Transport Canada Ship Safety Offices".) The Level II course is designed for advanced plant operations and diagnostic training, to provide advanced coverage of condition monitoring and trending. The course will also demonstrate the effects of degrading equipment conditions, variations in ambients, fuel characteristics, and ship sailing conditions on propulsion plant performance and fuel consumption. The course will also focus on gathering data from plant printouts, and observation of operating conditions during a simulator exercise. Student evaluation will be based on performance in the simulator, and completion of written work in conjunction with the simulations, and successful completion of assessment exercises.

Course Length

80 hours 5.0 credits

Entrance Requirements

Marine Engine Room Simulator Level I, or 24-hour "Familiarization" course.

MERS 0100 Propulsion Plant Simulator "Familiarization"

Introduces students to the diesel simulator, its systems, and operation. The course is structured to provide familiarization with diesel engine setup, operation, and system studies. The course is similar to the Continued Proficiency Certificate (CPC) course but does not include the assessment exercise.

Course Length

24 hours 2.0 credits

Entrance Requirements

Six months seetime.

MERS 3000 Propulsion Plant Simulator "Continued Proficiency Certificate"

For candidates in need of a Continued Proficiency Certificate, or those individuals needing to renew their existing CPC. The course includes familiarization on the computer workstations and the systems that are modelled in the operational simulator. The course also includes a series of evaluated exercises in the operational simulator and on the workstations which comprise the challenge assessment exercise identified in Ship Safety Bulletin 07/95.

Course Length

24 hours 2.0 credits

Entrance Requirements

Six months seetime

Nautical Sciences Programs and Courses

The Pacific Marine Training campus offers a variety of preparatory courses leading to Transport Canada examinations for certification of masters and mates of commercial and fishing vessels. Each program contains a number of courses, which comprise the material on which the candidate will be examined by Transport Canada. Descriptions of the courses follow on page 283. For Simulated Electronic Navigation (SEN) and Automatic Radar Plotting Aids (ARPA) course descriptions, please see the section on Electronic Navigation.

PMTC is currently seeking accreditation of some courses. Successful completion of accredited modules will exempt a student from Transport Canada examinations for that subject. If accreditation is granted by Transport Canada, the duration of some courses may be affected.

Note: Throughout the program descriptions, prerequisites and sea service requirements are provided. These are for general information purposes only, and are not intended to replace the specific Transport Canada regulations governing prerequisites and sea service requirements.

It is the responsibility of the student to obtain specific information regarding these regulations from the nearest Transport Canada Nautical Examination Centre. All decisions regarding eligibility and assessment of sea service are determined by the Transport Canada Examiner.

Nautical Sciences

Diploma of Technical Studies Cooperative Program (42-month, Full-time/18-months of Sea-time)

The Program

The Nautical Sciences Diploma is a co-operative officer cadet program. Cadets participating in the program will be selected by BCIT for academic suitability and then interviewed by participating shipping companies to ensure the applicant meets the company's employment requirements. Cadets will be required to support themselves financially while studying at BCIT, but will receive a stipend while serving at sea; their living, travel and other expenses will be covered by the host shipping company. Graduates from the program will be awarded a diploma of Technical Studies, Nautical Sciences from BCIT. Canadian citizens and Canadian landed immigrants will also, upon completion of all prerequisites, receive a Watchkeeping Mate Unrestricted Certificate of Competency, as issued by Transport Canada.

The program provides officer cadets with a good background in the principles and operation of modern vessels ranging from super tankers, through cruise ships, bulk carriers, cargo ships and support vessels. The cadet will cover aspects of Navigation, Naval Architecture, Seamanship, Cargoes and Stowage, Safety and Communications.

This is a 42-month program. The first term in first year covers basic seamanship, marine emergency training (MED), first aid training, and radio and satellite communications. Following this, cadets will serve the first of their six month periods of sea training with their sponsoring company. Upon return to PMTC, cadets will begin the first of three academic semesters. Sandwiched between these semesters are two further six month periods of sea service. Before embarking on the third period of sea service, those cadets meeting the academic and sea service requirements will qualify for their Fourth Class Canadian Certificate of Competency (Watchkeeping Mate Unrestricted). It is anticipated the cadets will then be given opportunities to serve as an officer in charge of a navigating watch. During their co-operative training at sea, cadets will be required to undertake assigned project work while serving with their sponsoring company.

Program Length

Four years.

Program Tuition (subject to change)

Year 1	\$2,268.25
Year 2	\$1,264.00
Year 3	\$1,666.85
Year 4	\$1,300.90
Total	\$6,500.00*

Books and Supplies (subject to change)

\$3,000.00 (\$750.00 per year) for four year program including uniforms.

Equipment: Cadets must equip themselves with drawing instruments, a scientific calculator and such other materials as they may require. They must provide themselves with uniforms, coveralls and safety goggles. Cadets will be required to wear the approved uniform whenever on campus, or involved in campus activities. Coveralls will be worn for practical project work.

Entrance Requirements

1. Grade 12 graduation. Technical and Professional Communications 12 (P) or English 12 (P). Principles of Mathematics 11 (C), Introductory Math 11 (C), Applications of Mathematics (C), or approved equivalents. BCIT pretest will meet English and Math requirements. (Physics 11 or Chemistry 11 is recommended).

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2. The candidate must successfully pass, to Transport Canada standards, a medical, hearing, and eyesight test. This test must be conducted by a Transport Canada approved Doctor. Information regarding how to arrange for this test will be forwarded after an application form has been received by the BCIT Admissions department. Please note that you are responsible for any fee charge by the Doctor for conducting this test and providing BCIT with official results.
3. Once candidates have provided the BCIT Admissions department with the information outlined in 1 and 2 above, they will have their name entered onto a "complete" list. This list plus the candidates' application forms, transcripts, and medical test results, will then be circulated to BCIT's participating co-operative shipping company partners who will select, or reject, those applicants as meet the corporate profile of the shipping company. A specific shipping company may require medical tests at a higher level than those required by Transport Canada. Acceptance by a shipping company is a condition of acceptance into the program.
4. Candidates will be required to sign a waiver as a condition of acceptance. This will be forwarded to the candidate after they have met the requirements outlined in 1 and 2.

Note: Once admitted to the program, all students will be required to write the Trades pre-entry testing to ascertain level of competence in areas that may require remedial assistance. Physics 11 or Chemistry 11 is recommended.

Graduation

A Diploma in Technical Studies Nautical Sciences upon graduation from the program. At this time graduates will sit an oral examination set by Transport Canada and, if successful, will receive their Canadian Fourth Class Certificate of Competency (Watchkeeping Mate Unrestricted).

Accreditation

This program meets the standards for Nautical Sciences as set out by Transport Canada.

Fresh Start

This full-time technical literacy program provides academic upgrading in an applied setting for students wishing to enter a trades/technical program at BCIT. For information about the Fresh Start program please refer to page 62 of this calendar.

Program Content:

Year 1		Hours	Credits
GMDS 1000	Global Maritime Distress And Safety System	60	4
MEDI 1000	Marine Emergency Duties A1	19.5	2
MEDI 1020	Marine Emergency Duties B1	32.5	2
MEDI 2020	Marine Emergency Duties B2	32.5	2
MSSM 1050	Basic First Aid	16	1
MSSM 1100	Seamanship 1	140	9
NAUT 1012	Signals	30	2
NAUT 1061	Collision Regulations – Navigation Safety	30	2

Year 1		Hours	Credits
NAUT 1100	Navigation 1	90	6
NAUT 1151	General Ship Knowledge 1	150	10
NAUT 1170	Applied Sciences (Maritime) ²	60	4
NAUT 1990	Cooperative Training 1 ¹	780	26

¹This is an estimate only. Students are required to complete the hours assigned to them by the shipping company.

² This course is currently under review.

Year 2		Hours	Credits
ENAV 1000	Simulated Electronic Navigation SEN IA	120	8.0
ENAV 1050	Simulated Electronic Navigation SEN IB	78	5.0
NAUT 1110	Meteorology 1	30	2.0
NAUT 1113	Naval Architecture 1	99	6.5
NAUT 1120	Marine Cargo 1	30	2.0
NAUT 1130	Applied Math 1 (Maritime)	75	5.0
NAUT 1140	Engineering Knowledge 1	30	1.0
NAUT 2100	Navigation 1	108	7.0
NAUT 2990	Cooperative Training 2 ¹	780	26.0
TRWC 1100	Applied Communications (Maritime)	30	2.0

¹This is an estimate only. Students are required to complete the hours assigned to them by the shipping company.

Year 3		Hours	Credits
MEDI 1040	Marine Emergency Duties C	19.5	1.0
MEDI 1060	Marine Emergency Duties D	13.0	1.0
MSSM 2100	Seamanship 2	30	2.0
NAUT 1090	Management/ISM 1	54	3.5
NAUT 1160	Applied Computer Studies 1 (Maritime)	100	6.6
NAUT 2110	Meteorology 2	45	3.0
NAUT 2113	Naval Architecture 2	90	6.0
NAUT 2120	Marine Cargo 2	51	3.5
NAUT 3100	Navigation 3	210	14
NAUT 3990	Cooperative Training 3 ¹	780	26

¹This is an estimate only. Students are required to complete the hours assigned to them by the shipping company.

Year 4		Hours	Credits
ENAV 2000	Simulated Electronic Navigation SEN II	90	6.0
MSSM 3000	Bridge Resource Management	30	2
MSSM 3100	Seamanship 3	30	2.0
NAUT 1150	Electricity (Marine)	60	4.0
NAUT 2090	Management / ISM 2	90	6.0
NAUT 2130	Applied Mathematics 2 (Maritime) ³⁰	30	2.0
NAUT 2140	Engineering Knowledge 2	30	2.0
NAUT 2160	Applied Computer Studies 2 (Maritime)	100	6.50
NAUT 3100	Navigation 3	165	11.0
NAUT 3113	Naval Architecture 3	81	5.5

Fishing Industry Programs

Fishing Master Class IV

Prepares candidates for Transport Canada examinations which lead to the issuance of the Fishing Master IV Certificate of Competency, which qualifies the holder to act as Master of a fishing vessel less than 100 gross registered tons within Home Trade 2 limits.

Program Length

Seven weeks.

Entrance Requirements

None.

Sea Service Requirements

12 months.

Program Content

Courses		Hours	Credits
NAUT 0020	020 Navigating Instruments	60	4.0
NAUT 0040	040 Chartwork and Pilotage	90	6.0
NAUT 0061	061 Navigation Safety	30	2.0
NAUT 0166	166 General Seamanship	30	2.0

Note: Entrance to the final Transport Canada examination is conditional on the candidate producing the following certificates:

- Marine Emergency Duties A-1
- Restricted Radio Operator's Certificate
- Standard First Aid.

The MED A-1, Radio Operator's Certificate, and Standard First Aid are not included, and must be enrolled in separately.

Course offering is subject to enrolment. The course may be amalgamated with Fishing Master III. For details of course availability and / or requirements, please contact PMTC registration at (604) 453-4111.

Fishing Master Class III

Prepares the participant for Transport Canada examinations leading to the issuance of the Fishing Master III Certificate of Competency, which qualifies the holder to act in the capacity of Master of any fishing vessel within Home Trade 2 limits.

Program Length

12 weeks.

Entrance Requirements

None.

Sea Service Requirement

24 months.

Course Content

		Hours	Credits
NAUT	0011 011 Communications	30	2.0
NAUT	0020 020 Navigating Instruments	60	4.0
NAUT	0041 041 Chartwork and Pilotage	150	10.0
NAUT	0061 061 Navigation Safety	30	2.0
NAUT	0157 157 General Ship Knowledge	60	4.0
NAUT	0167 167 General Seamanship	30	2.0

Note: Entrance to the final Transport Canada examination is conditional on the candidate producing the following certificates:

- MED I 1000 Marine Emergency Duties A-1
- Restricted Radio Operator's Certificate
- MSSM 1050 Standard First Aid

Note: The MED A-1, Radio Operator's Certificate, and Standard First Aid are not included with this program, and must be enrolled separately.

Fishing Master Class I and II

Due to insufficient demand, PMTC does not currently offer any programs to prepare candidates for the Transport Canada examinations leading to the issuance of the Fishing Master I and II Certificates of Competency. However, some assistance is available at PMTC. Some modules required for FM I and FM II are offered within the Command Endorsement and ON II programs. Qualified candidates should contact the Marine Certification advisor for additional information.

Global Maritime Distress and Safety System (GMDSS)

GMDSS 1000 The GMDSS was developed by the International Maritime Organization (IMO) and put in force on February 1, 1992 under the Safety of Life at Sea (SOLAS) Convention amendments. The basic concept of this system is to allow search and rescue authorities ashore - as well as those on board a vessel in the immediate vicinity of any ship in distress - to be rapidly alerted to the distress incident, allowing for a coordinated search and rescue operation to commence with a minimum delay. The GMDSS also provides for urgency and safety communications and dissemination of maritime safety information, including navigational and meteorological warnings.

The radio equipment for the GMDSS that a vessel must carry is defined according to the area of ship operation, and includes the following: VHF/MF/HF Digital Selective Calling (DSC). Navtex. Satellite Emergency Position-Indicating Radio Beacons (EPIRB). Search and Rescue Radar Transponders (SART). Satellite communication equipment: INMARSAT A and C-Ship to Earth Station (SES). two-way hand-held VHF Radiotelephone.

To bring the Canadian certificates in line with changes in the international requirements, Industry Canada (formerly Department of Communications), in collaboration with Transport Canada, has established the following marine radio-communication certificates:

1. First Class Radio Electronic Certificate
2. General Operator's Certificate (GOC)
3. Restricted Operator's Certificate (ROC).

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2. General Operator's Certificate (GOC)
3. Restricted Operator's Certificate (ROC).

The first certificate is reserved for professional electronics and marine radio operators while the remaining two are applicable to ship's personnel. Generally speaking, ships that are fitted with VHF radiotelephones must carry persons who hold a Restricted Operator's certificate, and ships that are fitted with MF or MF/HF radiotelephones, or Ship to Earth Stations (SES), must carry persons who hold General Operator's Certificate.

The introduction of GMDSS into commercial shipping is now mandatory on all newly constructed vessels over 300 tons on international voyages, and will become mandatory on all vessels over 300 tons. Most internationally operating companies are currently demanding that deck and often engineer officers must hold a GMDSS General Operators Certificate (GOC) as a condition of employment.

This course will teach students maritime mobile and satellite services, basic equipment of a ship station practical use of the basic equipment of a ship station, procedures and practical operation of the GMDSS system, distress, urgency and safety communications procedures and operational skills and procedures for general communications and the theory and practice of general communications procedures.

Course Certification

Graduates will receive a General Operators Certificate (GOC) issued by Industry Canada. Examination will be offered by PMTC to standards approved by Industry Canada and the European Communications Electronic Postal Telegraph (CEPT) which are the standards currently required by international ship operators.

Program Length

Two weeks 60 hours 4.0 credits

Entrance Requirements

Candidates for the GMDSS certification should be deck, engine room officers, or senior rating with extensive bridge experience. It is essential that candidates are familiar with computers and have keyboarding skills.

Watchkeeping Mate Restricted (WKMR)

Prepares participants for all Transport Canada examinations leading to the Watchkeeping Mate Restricted Certificate of Competency which qualifies the holder to carry out duties as a second mate of any vessel within Local Trade voyage limits, or first mate of a vessel not exceeding 350 tons, or a tug of any size, within Local Trade voyage limits.

The WKM (Unrestricted) Certificate of Competency requires the additional 051 Astro-Navigation examination, and will qualify the holder to carry out duties as third mate of any vessel, second mate of any vessel working within Intermediate Trade limits, or first mate of any vessel not exceeding 350 tons, or a tug of any size working within Intermediate Trade limits.

Program Length

21 weeks.

Entrance Requirements

None.

Sea Service Requirement

24 months.

Program Content

			Hours	Credits
NAUT	0012	Communication	30	2.0
NAUT	0041	041 Chartwork	150	10.0
NAUT	0061	Navigation Safety	30	2.0
ENAV	1000	Simulated Electronic Navigation I -Part A (SEN IA)	120	8.0
ENAV	1050	Simulated Electronic Navigation I -Part B (SEN IB)	120	8.0
NAUT	0151	151 General Ship Knowledge	180	12.0
NAUT	0161	161 General Seamanship	30	2.0

Note: When applying for the final oral Transport Canada examination for the WKM certificate, an applicant must submit:

- valid SIM 1
- proof of completion of Marine Emergency Duties training MED A-1, B-1, B-2, and C
- proof of completion of Standard First Aid
- a Restricted Operator's certificate

First Aid, MED, and 051 Astro Navigation courses are not included in the Watchkeeping Mate program but they are offered by PMTC. Students are advised to complete the First Aid and MED requirements before the start of the WKM program. A course for students preparing for the Restricted Operator's Certificate Exam is also available. Please contact the Registration office, or the Watchkeeping Mate instructor for more information.

Students planning a career on foreign-going vessels must take the 051 Astro-Navigation module also, which is not a part of the WKM program.

Master, 350 GT

Prepares the holder of the WKMR Certificate for Command Endorsement examinations, which qualifies the holder to act as a Master of a vessel not exceeding 350 tons gross tonnage (within the Local Trade limits), or of a tug of any size.

Program Length

Seven weeks.

Entrance Requirements

Watchkeeping Mate Restricted Certificate of Competency.

Sea Service Requirement

36 months. Twelve months must be served as an officer in charge of a watch on vessels of at least five (5) gross tons making local or minor water voyages, while in possession of a certificate as Watchkeeping Mate Restricted.

Program Content

		Hours	Credits
NAUT	0073 072 Meteorology	120	8.0
NAUT	0092 090 Industrial Safety and Ship Management	60	4.0
NAUT	0160 160 General Seamanship	30	2.0

Note: Applicants for the final Transport Canada examination leading to the endorsement must also show proof of completion of:

- Simulated Electronic Navigation (SEN) II, and SIM 2
- MED C
- MED D
- valid Standard First Aid.

These are not included with the Command Endorsement program, and must be enrolled separately.

First Mate, Intermediate Trade

Prepares the participant for the Transport Canada examinations leading to the issuance of the First Mate Intermediate Trade Certificate of Competency, which qualifies the holder to act in the capacity of a Second Mate on a Foreign Going vessel or a First Mate on a Intermediate Trade vessel.

Program Length

25 weeks.

Entrance Requirements

Watchkeeping Mate Restricted Certificate of Competency.

Sea Service Requirement

12 months in charge of a watch while in possession of a Watchkeeping Mate Certificate.

Program Content

		Hours	Credits
NAUT	0051 051 Astro-Navigation	330	22.0
NAUT	0091 091 Industrial Safety and Ship Management	60	4.0
NAUT	0113 112/113 Stability	240	16.0
NAUT	0122 122 Ship Construction and Cargo	90	6.0

In addition, students are required to pass examinations in:

- 132 Mechanical Engineering
- 162 General Seamanship

Some assistance is available for preparation for these examinations. Please contact course instructor for more information.

Note: Applicants for the final Transport Canada examination for the First Mate Intermediate Trade Certificate of Competency must also show proof of:

- valid Simulated Electronic Navigation (SEN IA and SEN IB) and SIM 1 exam
- MED part C
- MED part D
- valid Standard First Aid.

Note: These are not included with the ON II program, and students must enrol separately if required.

Master, Intermediate Trade

Prepares the participant for Transport Canada examinations leading to the issuance of the Master Intermediate Trade Certificate of Competency, which qualifies the holder to act in the capacity of a First Mate on a Foreign Going vessel or a Master on a Intermediate Trade vessel.

Program Length

21 weeks.

Entrance Requirements

First Mate Intermediate Trade Certificate of Competency.

Sea Service Requirement

12 months while holding a First Mate Intermediate Trade Certificate of Competency.

Program Content

		Hours	Credits
NAUT	0052 052 Astro-Navigation and Electronic Navigation	300	20.0
NAUT	0062 062 Navigation Safety	30	2.0
NAUT	0073 073 Meteorology	120	8.0
NAUT	0092 092 Industrial Safety and Ship Management	60	4.0
NAUT	0123 123 Cargo	90	6.0
NAUT	0133 133 Construction and Engineering Knowledge	150	10.0
NAUT	0163 163 General Seamanship	30	2.0

Note: Applicants for the final examinations leading to the Master Intermediate Trade Certificate of Competency must also show proof of the following:

- Valid Simulated Electronic Navigation ENAV 2000 (SEN) II, and SIM 2.
- MED part D (contact the Registration office at (604) 453-4111 for information about this course.)
- MSSM 1050 Standard First Aid or valid Standard First Aid certificate.

These are not included with the Master Intermediate Trade course and must be enrolled separately. Courses are only offered subject to sufficient enrolment. Please contact the PMTC Registration office for details at (604) 453-4111.

Master Mariner

PMTC does not currently offer a program for students preparing for the Transport Canada examinations leading to the Master Mariner Certificate of Competency. However, the following subject areas are available in co-operation with the Marine Engineering section:

- MENG 2104 114 Naval Architecture
- MENG 3001 134 Engineering Knowledge

Entrance Requirements

Master Intermediate Trade Certificate of Competency.

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Sea Service Requirement

12 months in charge of the watch while holding an Master Intermediate Trade Certificate of Competency.

Facilities are available for self study for the 093 Ship Management, 023 Electronics, and the 163 General Seamanship examinations. Qualified candidates should contact the Marine Certification Advisor for more information.

Applicants for the final examination leading to the Master Mariner Certificate of Competency must also show proof of:

- Valid Simulated Electronic Navigation ENAV 2000 (SEN) II, and SIM 2
- MED D (contact the Registration office at (604) 453-4111 for information about this course).
- MSSM 1050 Standard First Aid or valid Standard First Aid certificate

Master Limited, over 60 GRT, Minor Waters

Note: For under 60 GRT see part-time studies flyer - course number NAUT 0475

Prepares the participant for Transport Canada examinations leading to the issuance of a Master Minor Waters Certificate of Competency, which qualifies the holder to act in the capacity of a Master of vessels on the Minor Waters of Canada, (the lakes and rivers of Canada, excluding the Great Lakes and Lake Winnipeg).

Program Length

15 weeks.

Entrance Requirements

None.

Sea Service Requirement

Six months watchkeeping service on related waters while holding WKMR, First Mate Limited.

Program Content

	Hours	Credits
NAUT 0041 040 Chartwork	150	10.0
NAUT 0061 062 Navigation Safety	30	2.0
NAUT 0011 011 Communication	30	2.0
ENAV 1000 SEN I Part A	120	8.0
ENAV 1050 SEN I Part B	72	5.0
NAUT 0161 161 General Seamanship	30	2.0

Note: Candidates for the examinations must present the following certificates:

- Restricted Radio Operator's Certificate
- Marine Emergency Duties: MED A-1, B-1, B-2, C, and D
- Standard First Aid.

These are not included with the Master Limited, over 60 ton program, and must be enrolled separately.

Transport Canada Module Descriptions for Nautical and Fishing Certification

The following list is not a syllabus, but does provide a general description of some of the topics covered within each of the Transport Canada modules (examinations).

011 Communications - Introduces international code flags; single letter signals; use of the International Code of Signals to code and decode messages in flag, Morse and voice communications.

012 Communications - Covers Morse code using a flashing light or sound signals; recognition of all international code flags; coding and decoding; communication practice and procedure.

020 Navigating Instruments - Presents the use of radar, Decca and Loran; use of operator's manuals; recognition of errors; limitations of the equipment.

040 Chartwork and Pilotage - Explores reading a chart; light and sound signals; plotting a course allowing for wind and tide; notices to Mariners and chart corrections; determining compass errors; determining the ship's position by basic methods.

041 Chartwork and Pilotage - Teaches students to determine the ship's position by advanced methods, and plotting courses allowing for wind, tide, and current; use of navigational charts and publications; navigation within confined waters; bridge practices and procedures.

051 Astro-Navigation - Introduces parallel, plane and Mercator sailing; calculation of great circle routes; position lines by celestial navigation methods; theory and mechanics of the sextant; practical use of sextant and chronometer.

052 Astro and Electronic Navigation - Covers the satellite, Decca and Loran navigation systems; the use of the inertial navigation system; explanation of the radar set and the echo sounder; the correction of errors found in various navigation systems; the earth's magnetic field, the magnetic compass and corrections of errors; the gyro compass and correction of errors.

061 Navigation Safety - Teaches interpreting and applying the International Regulations for Preventing Collisions at Sea; their Canadian Modifications; and the recommended Code of Navigation Practices and Procedures.

062 Navigation Safety - Presents a detailed study of multi-ship traffic situations and the applicability of the traffic regulations in collision avoidance.

072 Meteorology - Explores the effect of pressure difference on wind speed and direction; the relationship between temperature, humidity and fog; elementary frontal theory; the major air masses and their distribution; association of cloud formation with atmospheric conditions; sea states and major surface currents; revolving storms.

073 Meteorology - Presents all materials covered in Meteorology 072 with the addition of material on routing of ships to obtain the greatest advantage from predicted weather conditions and the analysis and plotting of weather information.

090 Industrial Safety and Ship Management - Explores the Canada Shipping Act; Pilotage Act; legislation and regulations regarding safety, response to emergencies, quarantine, and oil pollution prevention; customs procedures; marine insurance contracts; agents; stability for small boats.

091 Industrial Safety and Ship Management - Covers legislation and regulations regarding the rights, privileges, and obligations of crew; inspection, testing, and maintenance of cargo gear; safe working practices; prevention of oil pollution; crew organization for emergencies.

092 Industrial Safety and Ship Management - Explores the Canada Shipping Act; Pilotage Act; safety regulations; response to emergencies; oil pollution prevention; Regulations covering ship operation, insurance, bills of lading, customs procedures, Canadian Labour Code, health provisions and food, quarantine and deviation; the Criminal Code as it affects shipmasters, agents, salvage, obligations of the master in the event of disaster.

112 Stability - Teaches calculation of the forces contributing to the stability of a ship; effect of adding, moving, or removing weight; the free surface effect and its danger in a listed ship; use of the ship's assigned loadline and stability data to maintain safe operating conditions.

113 Stability - Covers all material in Stability 112, but also includes the mathematical treatment of intentional and unintentional flooding of compartments, and the application of Simpson's Rules.

122 Ship Construction and Cargo - Presents construction and maintenance of the steel ship, including the arrangement of the main hull members, and the construction of the bow and stern of the ship; loading, carriage and discharge of cargo; Cargo Codes and stowage plans; compilation of defect lists; preparation for dry-docking and surveys.

123 Cargo - Explores the application of Cargo Codes; stowage of bulk grain and timber deck cargoes; the carriage of containers; refrigerated cargo; livestock as cargo; carriage of bulk liquids and gases; the particular aspects of loading the major types of ships, including OBO, RO-RO, VLCC, large ferries and container ships.

132 Mechanical Engineering - Covers the arrangement of bilge, ballast and cargo piping systems; arrangement and operation of fire detection and extinguishing systems; tank content and draught measurement; arrangement of deck machinery; reciprocating pumps and rotary pumps.

133 Construction and Engineering Knowledge - Introduces hull construction methods, including the watertight bulkhead, and strengthening the forward and aft ends of a ship; engine room layouts for steam propulsion and diesel propulsion, including electrical transmission of main propulsion power; elementary hydraulic, pneumatic and electrical control systems; stresses caused by cargo, ballast and the sea; the conditions of assignment of a loadline; preparation of simple repair specifications.

151 General Ship Knowledge - Presents the basics of ship construction; common ship types; fundamentals of ship stability; cargo handling arrangements; basics of loading and discharging various cargoes; strengths of ropes, wires and chains; regulations regarding prevention of accidents and pollution.

157 General Ship Knowledge - Covers the basics of fishing vessel construction; stability of fishing vessels in various conditions of loading; the effect of free surface, suspended weights and external ice formation; strength of rope, wire and chain; pollution prevention procedures; use of the International Code of Safety for Fishermen.

160 General Seamanship - Introduces Collision Regulations; Navigating Practices and Procedures Code; Rules of the Road for the Great Lakes; duties and responsibilities of the master, including: ship handling with fixed or variable-pitch propeller(s) in normal conditions, heavy weather conditions, and in situations of distress; search and rescue operations; dry-docking procedures; crew organization.

161 General Seamanship - Explores Collision Regulations; Code of Navigating Practices and Procedures; Rules of the Road for the Great Lakes; practical bridge organization; duties and responsibilities of the officer of the watch in port, at sea, at anchor, and in emergencies; standing orders; ship anchors, mooring and mooring lines; rigging of ships and booms; and manoeuvring characteristics of merchant vessels.

162 General Seamanship - Introduces Collision Regulations; Code of Navigating Practices and Procedures; Rules of the Road for the Great Lakes; all aspects of the duties of a mate acting as second-in-command of a ship, including: care and maintenance of deck machinery; manoeuvres in confined waters; anchoring; towing and mooring ships; preparation of cargo gear for loading; overhaul of cargo gear; elimination of mechanical errors in a sextant; organization for emergencies.

163 General Seamanship - Explores Collision Regulations; Code of Navigating Practices and Procedures; Rules of the Road for the Great Lakes; all aspects of the duties of the master of a ship in the North American continental trade, including: ship handling in normal conditions, heavy weather conditions and in situations of distress; search and rescue procedures; precautions to be taken to safeguard the structure of a ship entering dry dock; organization of the ship's crew for normal duty and emergency duty.

166 General Seamanship - Presents safe working practices on fishing vessels; the practical considerations of boat handling in heavy weather; the maintenance of a deck log; pollution prevention; reading, taking and applying compass bearings; Master's responsibilities in an emergency.

167 General Seamanship - Covers all material in General Seamanship 166 plus preparation of a fishing vessel for survey and inspection; weather reports and weather systems; Collision Regulations.

Seamanship Programs and Courses

MSSM 0500 Fast Rescue Craft

In accordance with the guidelines established by the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (SCTW 95) and recommendations and the Resolution of the International Maritime Organization, all ships must have at least two trained crews for each fast rescue craft on board the vessel. This course offers theoretical and practical training using a fast rescue craft, which meets these standards. Upon completion of the course, participants will be able to demonstrate an acceptable level of proficiency in the handling and taking charge of a Fast Rescue Craft in emergency situations. This course is also open to anyone who may be involved in other types of rescue operations (RCMP, volunteer rescue organizations, etc.)

Course Length

5 days.

Course Location

Pacific Marine Training campus.

Prerequisites

MEDI 2000 Marine Emergency Duties B-1 Survival Craft course. Prerequisites may be waived for those students who are not required to meet the STCW regulations; but some boat-handling experience is required.

Course Content

The operation and safety factors of Fast Rescue Craft (FRC)
Fast and slow speed operations
Launching and recovery of the FRC
Righting the FRC
Open water rescues
Running alongside another vessel (pacing)
Conducting searches and using search patterns
Rescues near hazards
Heavy weather operations
Towing a disabled craft

MSSM 3000 Bridge Resource Management

The International Maritime Organization (IMO), through the International Convention on Standards of Training and Watchkeeping for Seafarers, 1978 as amended in 1995 (STCW) provides in Chapter VIII, Part 3-1 of the non-mandatory "Code B" guidance on keeping a navigational watch suggests that shipping companies take initiatives to implement the Bridge Resource Management (BRM) on their vessels.

The Bridge Resource Management (BRM) course will provide Masters and Navigating officers an awareness of good operating practices. They will learn to regularly use sound and proper procedures to ensure the safety of the ship, its personnel and cargo. As well students will study environmental protection practices. Much of the course will be taught using case studies of recent incidents.

Course Length

Five days.

Entrance Requirements

An appropriate Certificate of Competency such as Watchkeeping Mate, Mate Intermediate Waters (ON II), Master Intermediate Waters (ON I), Master Mariner.

Bridge Watchman

The Bridge Watchman program is intended for persons wishing to enter into a career in the marine industry. The program will provide standards for safe working procedures, and the knowledge and skills required to enable a new seaperson to prepare for certification as a Bridge Watchman. The program provides knowledge and skills to enter the marine industry, covering rope work wire rope, and chain work performed on board a ship; deck work related to securing a vessel, handling cargo, and maintenance; theoretical knowledge of regulations and requirements of the marine environment; maritime communications equipment and procedures; knowledge and skills to assist the Officer of the Watch with navigational tasks; Workplace Hazardous Materials Information system; and approximately 1 week practical training. No previous experience is necessary.

Program Length

13 weeks.

Program content

		Hours	Credits
MSSM 1030	Bridge Watchman	360	24.0
MEDI 1000	Marine Emergency Duties A-1		
	Basic Safety	19.5	1.0
MSSM 1050	Standard First Aid	16	1.0

Tuition Fees

\$1,014.20 for the 13-week full-time program

Books and Supplies

\$432.00 (general estimated cost and subject to change).

Entrance Requirements

Proof of 16 years of age and completion of Grade 10. Good health and physical fitness required. A medical certificate from a Transport Canada approved physician to verify medical requirements to the level required for certificated deck personnel. Detailed information, and a list of accredited doctors is available on request/application.

Accreditation

Upon successful completion of the program the following training certificates will be issued:

- BCIT Statement of Completion of MSSM 1030 Bridge Watchman
- BCIT Recognition of Training in Workplace Hazardous Materials Information System
- Transport Canada EXN-24 Certification for Marine Emergency Duties A-1: Basic Safety
- Industry Canada Restricted Operator Certificate (radio)
- St. John Ambulance Certification for Standard First Aid.

Successful students will also be eligible for four months sea time remission.

Please note: to achieve full Transport Canada certification students must complete an additional 2 months of sea time, and two additional Marine Emergency Duties courses: MED B-1 – Survival Craft, and MED B-2 – Marine Fire Fighting.

Marine Emergency Duties

All Marine Emergency Duties (MED) training provided at PMTC is approved by Transport Canada. It also meets the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, and the Resolution of the International Maritime Organization (IMO) for basic training in personal survival, operation of life saving equipment and marine fire fighting.

For information regarding MED training requirements for marine certification, it is recommended that you contact the Transport Canada, Ship Safety Branch. In the Vancouver area the telephone number is (604) 666-0834.

The Pacific Marine Training campus co-operates with the Justice Institute of B.C. to conduct some parts of the MED training at the Fire and Safety Training Centre (JIBC-FTSC) in Maple Ridge, B.C.

Importance Notice Regarding MED Training

Training in marine fire fighting, and in the use of lifeboats and liferafts, requires a student to engage in moderately strenuous physical activity. For example, a student must carry equipment and fight a fire while wearing a self-contained breathing apparatus, and a student must single-handedly right a large capsized liferaft while in water seven feet deep (in the training tank). None of these activities is beyond the capability of an active person in a reasonably good state of health. To ensure that every student is aware of the physical activity involved in the course, at the beginning of the course, PMTC will require each student to sign a declaration. A student who does not sign the declaration will not be permitted to continue in the course. The declaration is as follows:

"On the understanding that the physical activities described by the instructor as being necessary for the completion of the course are well within the capability of an active person in ordinary physical condition, I declare that to the best of my knowledge there is no reason why I should not take part fully in those activities."

MEDI 1000 Marine Emergency Duties

A-1: Basic Safety Course

Provides mariners with a basic understanding of: the hazards associated with the marine environment and their own vessel; the prevention of shipboard incidents (including fires); raising and reacting to alarms; fire, and abandonment situations; the skills necessary for survival and rescue. It is strongly recommended that all seafarers complete this course within six months of first going to sea. This course is designed for new entrants to the marine industry, and for personnel who have not received any formal training in marine emergency situations.

Course Length

Three days 19.5 hours 1 credit

Course Location

Day 1 - PMTC, North Vancouver
Day 2 - JIBC-FSTC, Maple Ridge
Day 3 - PMTC, North Vancouver

Entrance Requirements

None.

Course Content

Hazards and Emergencies - Introduces safe practices and procedures; fire and explosions; structural failure; foundering and grounding; cargo emergencies; man overboard situations; medical emergencies.

Fire Fighting - Presents heat and radiation feedback; fuels and oxygen; fire classes; fire spread and its control; fire extinguishers; personal protection and backup.

Emergency Response - Covers emergency organization; emergency signals and muster; duties in an emergency.

Lifesaving Appliances - Covers donning and wearing lifejackets; donning and wearing immersion suits; use of lifebuoys; lifeboats and liferafts; launching systems; launching, manoeuvring and boarding a liferaft; righting a capsized liferaft.

Survival - Explores human behaviour under survival conditions; discipline and morale; shelter and hypothermia; dehydration and lack of food; clearing a ship in survival craft; lookout and gathering of other survivors; swimming in a group; HELP position.

Rescue - Introduces Emergency Position Indicating Radio Beacon (EPIRB); daylight signalling devices and flares; rescue sling, basket, net, litter.

MEDI 2000 Marine Emergency Duties A-2: Small Vessel Safety Course

Teaches small craft operators and their crew about hazards associated with the marine environment; prevention of accidents and fires; fighting shipboard fires; abandoning ship; survival and rescue; maintaining a state of readiness for an emergency. This course is designed for officers and crew of small commercial vessels (up to 40 tons gross tonnage). It is also recommended for pleasure craft operators.

Course Length

Four days 26 hours 2.0 credits

Course Location

Day 1 - PMTC, North Vancouver

Day 2 - JIBC-FSTC, Maple Ridge

Day 3 and 4 - PMTC, North Vancouver

Entrance Requirements

None.

Course Content

Hazards and Emergencies - Introduces safe practices and procedures; fire and explosion; structural failure; foundering and grounding; cargo emergencies; man overboard situations; medical emergencies.

Emergency Response - Explores emergency organization and response planning; emergency signals and muster; duties in emergency parties; drill and training sessions; preparing a safety manual.

Fire Fighting - Covers heat and radiation feedback; fuels and oxygen; fire classes; fire hazards and personal protection; fire spread and its control; fire fighting outfit and equipment; fire extinguishers: construction, inspection, maintenance; fixed fire fighting systems: inspection and maintenance; assessment of fire situations; attack on fire; post fire action; fire protection in port.

Lifesaving Appliances - Presents donning and wearing a lifejacket and immersion suit; lifebuoys, lifeboats and liferafts: construction, inspection, maintenance; launching systems; launching, boarding and manoeuvring liferafts and lifeboats, marshalling liferafts; righting a capsized liferaft.

Survival and Rescue - Introduces human behaviour under survival conditions; discipline and morale; hypothermia, dehydration and lack of food; organization and leadership techniques; rescue equipment and signalling devices; preparation and conduct of search and rescue equipment and signalling devices; preparation and conduct of search and rescue; Search and Rescue (SAR) in Canada; rescue coordination centres; Master's responsibility.

MEDI 1020 Marine Emergency Duties B-1: Survival Craft Course

Students learn orderly abandonment of a vessel in an emergency situation; clearing the vessel; proper and effective use of equipment; co-ordinating survival activities during rescue operation. Lifeboats, lifeboat launching systems, practical boatwork, liferafts and raftsmanship, abandonment and survival and rescue will be covered.

Course Length

Five days 32.5 hours 2 credits

Course Location

PMTC, North Vancouver.

Entrance Requirements

- MEDI 1000 Marine Emergency Duties A-1 or
- MEDI 2000 Marine Emergency Duties A-2
- It is recommended that trainees acquire a minimum of three months sea time before enrolling in this course.

MEDI 2020 Marine Emergency Duties B-2: Marine Fire Fighting Course

Presents the knowledge and skills necessary to contain and extinguish shipboard fires; to be aware of fire hazards; to implement fire prevention measures; and to use equipment properly and effectively.

Course Length

Five days 32.5 hours 2 credits

Course Location

JIBC-FSTC, Maple Ridge.

Entrance Requirements

- MEDI 1000 Marine Emergency Duties A-1 or
- MEDI 2000 Marine Emergency Duties A-2.
- It is recommended that trainees acquire a minimum of three months sea time before enrolling in this course.

Course Content

Marine Fire Theory - Teaches the theory of fire; classes of fire; stages of fire; techniques of fire fighting; duties of team members.

Marine Fire Safety and Prevention - Explores systematic attack methods; fire prevention techniques; crew training and fire drills.

Protective Gear and Rescue Techniques - Introduces protective clothing and equipment; techniques of ventilation; planning a search and rescue operation; methods of handling casualties.

Fire Extinguishing Equipment and Agents - Covers fixed systems; portable extinguishers (dry chemical, water, foam, carbon dioxide); use of portable extinguishers on pan fires; use of foam equipment; use of hoses and nozzles; practice the extinguishing of round tank and T-pit fires.

Ship Construction and Arrangement - Covers Class A, B, and C divisions; various types of hatches, manual and automatic doors; identify ship ventilation control systems and their operation.

On Board Control Measures - Introduces fire fighting techniques; pre-planning of emergency response; duties of the team leader; duties of the team member; full-scale field exercises; review and planning for onboard fire prevention, and fire fighting strategies.

MEDI 3000 Marine Emergency Duties C and D: Officer Certification Course

This new course is a combination of MEDI 1040 and MEDI 1060. During the first three days of the course, students will learn to: competently and confidently inspect and maintain all emergency equipment; maintain fixed fire detection and extinguishing systems; respond professionally to an emergency; keep a log of salient events during an emergency; control passengers and untrained personnel during an emergency; respond professionally to a distress call and execute a search and rescue of survivors; conduct formal onboard familiarization and training sessions. In the two following days, students are taught how to ensure that junior officers, key personnel and emergency response teams are properly prepared and organized to deal with any emergency situation; assess damage to the vessel, evaluate degree of danger and coordinate the response to minimize the effect of the damage; coordinate response to an emergency situation on their own vessel (and to other vessels) in distress. This course is designed for candidates for senior certificates of competency required for both deck and engine room positions. This course is designed for Deck and Engineer junior officers of commercial vessels. Note: Individuals that have completed MEDI 1040 Marine Emergency Duties C: Officer Certification and require MEDI 1060 Marine Emergency Duties D: Senior officer are advised to call the Registration office at (604) 453-4111 to receive information on MEDI 1060 future offerings.

Course Length

5 days 32.5 hours 2 credits

Course Location

Day 1, 2, 4 and 5 - PMTC, North Vancouver
Day 3 - JIBC-FSTC, Maple Ridge

Entrance Requirements

- MEDI 1020 Marine Emergency Duties B-1 and
- MEDI 2020 Marine Emergency Duties B-2.
- MSSM 1050 Standard First Aid - In co-operation with St. John Ambulance, PMTC offers Safety Oriented First Aid at the Standard Level.

Course Length

2 days 16 hours 1 credit

Entrance Requirements

None.

Course Content

This comprehensive modular course includes workbook readings; audiovisual presentations; practical exercises; and examinations. Please note that the workbook assignment must be completed prior to attendance in class, so students are required to register at least one week in advance. Topics include: principles of first aid and safety, general anatomy and physiology, artificial respiration, wounds and bleeding, dressing and bandages, poisoning, choking, shock and unconsciousness, fractures, medical conditions, head and spinal injuries, burns, cardiopulmonary resuscitation, child and infant resuscitation, heart attack and stroke, eye injuries and casualty management.

Tanker Safety Courses

A person in charge of transfer of petroleum products must hold either a Supervisor of Oil Transfer Operations (SOTO) certificate, or a Petroleum Tanker Endorsement certificate.

MSSM 2000 Supervisor of Oil Transfer Operations (SOTO) Part C

Presents safe supervision for the transfer of crude and refined oils from (a) between barge and facility, and (b) barge to barge/ other vessel. Course will cover: pipeline layouts and theory, pumps and pump theory, general vessel maintenance, cargo planning and calculations, general paperwork and operations transfers when not alongside, pollution prevention regulations and environment response communications.

To be eligible for the Transport Canada SOTO certificate, (EXN-24), the candidate must complete parts A, B, and C. It shall be understood that Part C of the SOTO certification is specifically designed for existing certificated personnel presently serving in the industry, and new personnel who have successfully completed Parts A and B.

Course Length

Five days 2.0 credits

Course Location

All days at PMTC with the exception of one field trip day (to be arranged during the week).

continued next page

Entrance Requirements

It is the responsibility of the student to ensure they meet with the Transport Canada requirements:

- SOTO Part A - Basic Training or
- equivalent training/ certification (Bargemaster) as approved by Transport Canada and
- SOTO Part B - three months operational and supervised experience approved by Transport Canada, and
- MEDI 1000 Marine Emergency Duties (MED) A-1
- MEDI 2020 Marine Emergency Duties (MED) B-2 and
- completion of Industry Canada ROC examination and proof of medical fitness.

MSSM 2050 Advanced Petroleum Tanker Safety Course (APTSC)

Presents ship's officers with a comprehensive training package with an emphasis on the principles involved in the safe loading, transportation, and discharging of bulk petroleum cargoes. Theoretical and practical aspects of ship operation will also focus on improving the safety and health of personnel. Consideration will be given to crude, product, and combination carriers, including coastal tank vessels. Informal discussion is encouraged to facilitate an exchange of views between ship's officers engaged in different tanker trades. The course is presented by qualified Masters and Engineers, and in conjunction with shore personnel experienced in the areas of health and welfare. Successful participants will qualify for the appropriate level of Transport Canada Petroleum Tanker Endorsement. This course is approved by Transport Canada, and meets the requirements of the International Convention on Standards of Training, Certification, and Watchkeeping (STCW) for seafarers, and the resolution of the International Maritime Organization (IMO) for advanced tanker training, and the proper use of emergency equipment.

Course Length

Eight days - 48 hours - 3.0 credits

Course Location

Days 1, 2, 3 and 5 will be conducted at PMTC.
Day 4 will be conducted at Justice Institute of B.C. Fire and Safety Training Centre, Maple Ridge.

Entrance Requirements

Transport Canada Certificate of Competency valid Marine Emergency Duties (MED) B-2. It is the responsibility of the student to ensure that they comply with Transport Canada requirements.

Tanker Sea Service Requirement

Endorsement Level I: none
Endorsement Level II: 9 months

Simulated Electronic Navigation Courses

Electronic Navigation Courses

PMTC uses radar and electronic navigational aids simulators to train students in navigation and collision avoidance. The variety of programs available in this field enable the student to understand the principles and operation of electronic navigational equipment, its capabilities and its limitations. Students will learn how to apply these principles in practice, to navigate safely and effectively, avoiding collisions and groundings.

PMTC has a well-established reputation for the quality of its radar simulator courses. They have been available at PMTC since 1975, when the first Solatron simulator was acquired. This equipment has since been periodically upgraded, and in September 1993 the installation of new blind pilotage simulators now provides students with a state of the art training facility.

PMTC's simulators allow coastline generation. Navigational aids, such as GPS, Loran C, Decca Navigator and Radio Direction Finder are available for position fixing. The student has total control of wheel and engine, to undertake realistic navigational and anti-collision exercises in restricted visibility. VHF is provided for radio communication between ships, and with shore stations. The latest Automatic Radar Plotting Aids (ARPA) are also available for enhanced training. All exercises are automatically recorded to facilitate subsequent analysis and discussion during debriefing sessions.

ENAV 1000 Simulated Electronic Navigation I (SEN I):

Part A - Navigating Instruments

Introduces navigating instruments for junior bridge officers. Students acquire basic knowledge of navigating instruments through an introduction to navigating instruments such as radar (analog and ARPA), radio direction finder, Decca, Loran, Omega, Satnav, GPS, Echosounder, etc. Students study the following topics: use of controls; derivation of information; data correction and use of data in position fixing and collision avoidance; recognition of false information and malfunctions; radar plotting techniques.

This is a Transport Canada approved course and is a prerequisite for the ENAV 1050 SEN I part B: Basic Radar Simulator course. PMTC is authorized to issue a Transport Canada Training Certificate upon successful completion of this course.

Course Length

Four weeks. 120 hours - 8 credits

Prerequisites

The 041 Chartwork and 061 Navigation Safety courses must be successfully completed prior to the SEN I. Student must also hold an Industry Canada Restricted Operator's Certificate (ROC). It is the responsibility of the students to ensure they comply with Transport Canada regulations.

Sea Service Requirement

18 months.

ENAV 1050 Simulated Electronic Navigation I (SEN I):

Part B - Basic Radar Simulator Course

In practical exercises on a radar simulator, students learn to navigate in coastal and open waters, near and within traffic separation schemes using radar (analog and ARPA) and other electronic navigational aids, and while in compliance with Collision Regulations, to take collision avoidance action in restricted visibility in relatively simple encounters. This is a Transport Canada approved practical exercise course and is required for the Watchkeeping Mate Certificate of Competency. PMTC is authorized to issue a Transport Canada Training Certificate upon successful completion of the course. Following the last day of the course, a practical examination (SIM 1) is conducted by a Transport Canada examiner.

Course Length

13 days (includes 1 day for SIM 1 examination).
78 hours 5 credits

Entrance Requirements

ENAV 1000 SEN I Part A.

ENAV 2000 Simulated Electronic Navigation II (SEN II): Advanced Radar Simulator Course

Teaches students to navigate safely and plot effectively using all available navigational aids, including analog radar, ECDIS, and ARPA, in: open waters, confined and/or congested waters, and within or near traffic separation schemes. Students are trained to navigate safely and effectively using: the principles of passage planning, parallel index techniques and ship manoeuvring data; to respond to distress calls; to organize search and rescue operations. Allows participants to perform and supervise individual bridge duties as Master in charge of a vessel. This is a Transport Canada approved course, and is a requirement for any certificate of competency with command validity. PMTC is authorized to issue a Transport Canada Training Certificate upon successful completion of the course. On the last day of the course, a practical examination (SIM 2) is conducted by a Transport Canada examiner.

Course Length

15 days (includes one day for SIM 2 examination).
90 hours 6 credits

Entrance Requirements

SEN I parts A and B. Industry Canada ROC Certificate. It is the responsibility of the student to ensure they comply with Transport Canada requirements.

ENAV 3000 Automatic Radar Plotting Aids (ARPA)

Provides specialized training in use of ARPA. Students learn to navigate safely and effectively using radar/ARPA within confined and/or congested waters, and within or near traffic separation schemes. It is a Transport Canada approved course, and is a requirement for any bridge watchkeeping officer navigating a vessel equipped with ARPA radar. PMTC is authorized to issue a Transport Canada Training Certificate upon successful completion of the course.

Course Length

Five days.

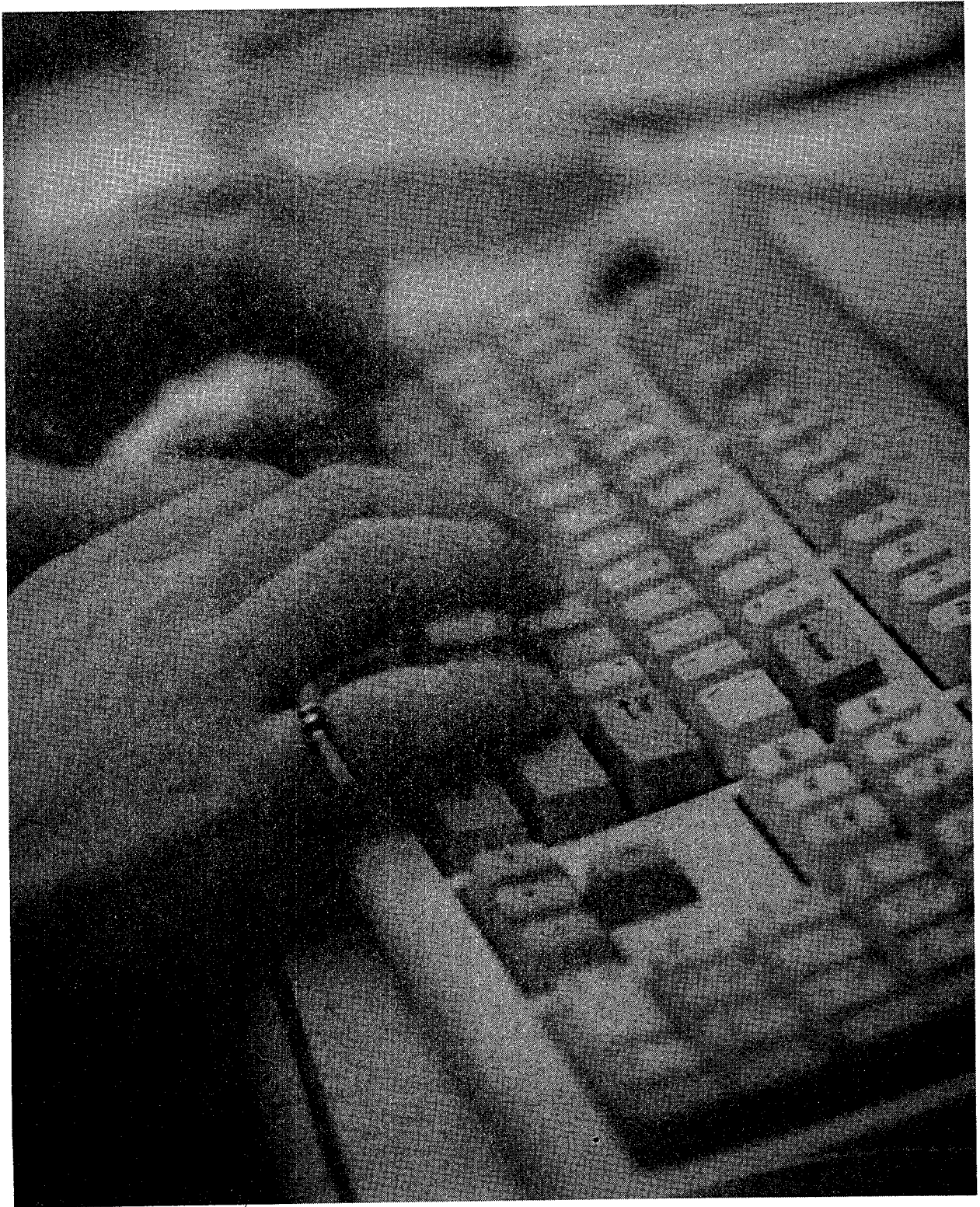
Entrance Requirements

ENAV 1000 SEN I Part A
ENAV 1050 SEN I Part B

Faculty

Ioan Costrut, Master Mariner
Rod Dunbar, Master Mariner
Philip Durell, Master Mariner, B.Sc. (Hons), M.C.I.T.
Louis D'Mello, I.I.M.S., Master Mariner, Instr. Dip.
Mike Davison, B.Sc., DMS, P.Eng.
Richard Goeller, Master Mariner
Eamon Hayden, B.Ed.,
Rod Hesp, Master Mariner
Tak Ho
Vadim Mikhailov, 1st Class Engineer
Thom Noack
Brian Noronha, 1st Class Engineer, Motor
Russell Oye, T.Q. I.P.
Manik Rudrakumar, F.R.Met.S., F.N.I., Master Mariner, Instr. Dip.
Sam Susanthan, Master Mariner





Course Descriptions

Architectural & Building Engineering

BLDG 1000 Building Drafting

Presents drawing as a tool for communication. Covers architectural drafting techniques and lettering; drawing development with emphasis on line technique and quality and graphic conventions; drawing systems orthographic drawings and 3D drawings; presents drawing process in terms of project development and delivery.

BLDG 1050 Construction Materials/Processes 1

Covers job site materials, methods and planning. Students work through exercises based on materials and methods included in master format divisions 1, 2, 3. The role of the WCB, in job site safety, scheduling basics, is also included.

BLDG 1200 Building Construction 1

Covers fundamentals of building construction in terms of material selection and detail assembly for housing projects. Examination of typical systems of wood and concrete construction for the purpose of preparing working drawings. Emphasis on part nine of the B.C. Building Code. Possible guest speakers and field trips.

BLDG 1405 CADD for Building

Presents microcomputer-based CADD using AutoCAD software (latest version). Includes an introduction to CADD machine components, architectural working drawings, log-on procedures and display. An introduction to autoread functions is included.

BLDG 2000 Planning

Introduces methodology of the design process as an approach to creative problem solving. Covers basic principles of site planning and residential design, with respect to spatial, functional, environmental and contextual issues. Topics include impact of site slope, climatic factors, zoning by-law regulations and context on building/site design; residential design with an emphasis on space planning and internal functional relationships. Prerequisite: BLDG 1000.

BLDG 2050 Construction Materials/Processes 2

This is the second part of a two-part course which introduces the student to basic materials and methods used in construction. It acquaints the student with physical and chemical properties, the manufacturing processes of various materials and how this affects their implementation in the construction project.

BLDG 2200 Building Construction 2

Continuation of BLDG 1200 covers interior and exterior construction detailing. Introduction to post and beam construction, manufactured housing, and lightweight metal structures used in housing projects. Brief examination of reinforced concrete structures used in low-rise construction. Preparation of working drawings. Field trip to wood research laboratory (Forintek Canada). Prerequisite: BLDG 1200.

BLDG 2250 Construction Contracts 1

Covers the fundamentals of contracts; parties to construction contracts; basic types of construction contracts; relationship between information and risk; standard forms of construction contracts used in Canada and elsewhere; appropriate documentation and related issues. Prerequisites: BLDG 1050, BLDG 1200 and COMM 1140.

BLDG 2300 Construction Estimating 1

Covers general theories of measurement and pricing of construction work. Introduces recognition of work, specific methods of measurement, estimating forms and common techniques. Sources of cost data and bidding procedures are examined. Prerequisite: BLDG 1200.

BLDG 2405 CADD Applications for Building

Continuation of BLDG 1405. Covers CAD applications to perform tasks associated with construction and architectural drafting. An industry approved CAD program (currently AutoCAD) is used to allow the student to gain hands-on experience. Topics include advanced editing functions, complex entity creation, dimensioning, block transfers and plotting. Prerequisite: BLDG 1405.

BLDG 2450 Computer Applications for Building

Presents computers as management devices; aspects of programming, operating, and networking. Demonstrations of practical applications in Architectural & Building Engineering Technology; hands-on practice and research assignments related to the topic.

BLDG 3000 Architectural Option 1

Short history of contemporary architecture and building; conceptualization and planning, theory, aesthetics and structure as integral parts of design; space planning, retrofit design; residential design; introduction to model building. Prerequisite: Completion of first-year program.

BLDG 3050 Economics-Construction Operations Option 1

Covers economic factors affecting the construction industry, principles of land development, rights and limitations of land ownership, valuation techniques of real property, cost control and planning, elemental analysis, cash flow analysis feasibility analysis, of land development. Prerequisite: Completion of first-year program.

BLDG 3100 Building Science Option 1

Covers principles of investigating the effects air, moisture, wind and so on, have on the building envelope; techniques of quantifying performance levels of building components through use of computer modeling; the application of this course extends from design to construction and post construction work such as building management, diagnosis and remediation. This course includes field trips. Prerequisite: Completion of first-year program.

BLDG 3200 Building Construction 3

Examines typical building construction systems and assemblies including concrete, pre-cast concrete, roofing, windows, store front, and interior finishes. Emphasis on the particular technical and procedural concerns in the development of working drawings in the context of construction contract documents. Guest lecturers and field trips supplement formal lecture and lab activities. Prerequisites: BLDG 2200 and BLDG 2405.

BLDG 3250 Construction Contracts 2

Examines current standard forms of Canadian construction contracts in detail; specifically stipulated sum CC DC-2 1994; contractual procedures involving payments and adjustments; application of principles to actual cases; study of recent litigation involving construction contracts; responsibilities for design and advice. Prerequisite: BLDG 2250.

BLDG 3300 Construction Estimating 2

More detailed study and application of measurement and pricing of the work of specific trades with emphasis on concrete structure, excavation, and related items. Students build their own computer estimating program on a spreadsheet and examine a commercial program. Prerequisite: BLDG 230+

BLDG 3350 Construction Specifications

Presents the fundamentals of language as a means of communication; style in specifications; organizing and presenting information in construction contract documentation; filing and retrieval of construction information using Masterformat; procedures for preparing and reproducing project manuals; use of word processing equipment for specifications; practical applications. Prerequisites: BLDG 1050, BLDG 3200 and BLDG 3250.

BLDG 4000 Architectural Option 2

Continuation of BLDG 3000. Covers graphics and freehand drawing of architectural subject matter; advanced design projects/problems; building systems interface; architectural model making; extensive seminar discussion; possible guest lecturers and field trips. Course includes an architectural office practicum and a comprehensive final student project. Prerequisite: BLDG 3000.

BLDG 4050 Economics-Construction Operations Option 2

Continues from BLDG 3050. A study of project management principles within a construction setting. Topics include financial management, construction financing, cost accounting, project tracking, schedule analysis, project control methods and reporting systems, risk management, current labour environment within the construction industry, construction claims and quality assurance programs. The course includes preparation and presentation of construction proposals and feasibility reports as well as an industry practicum. Prerequisite: BLDG 3050.

BLDG 4100 Building Science Option 2

Continuation of BLDG 3100. Covers the application of basics taught in part one plus working with current standards that govern building envelope components; in depth study of cladding systems, membranes, interface details and indoor air quality. Diagnostic skills are taught and applied to retrofit and building management work. Includes a number of field trips and an industry practicum. Prerequisite: BLDG 3100.

BLDG 4200 Building Construction 4

Continuation of BLDG 3200. Examines various larger building construction systems and assemblies including heavy timber, masonry, stucco, metal curtain wall, interior finishes, and prefabrication. Emphasis on the particular technical and procedural concerns in the development of working drawings in the context of construction contract documents. Guest lecturers and field trips supplement formal lecture and lab activities. Prerequisite: BLDG 3200.

BLDG 4303 Construction Estimating 3

Continuation of BLDG 3300. Covers measurement and unit pricing of specific construction trades; preparation of estimate summaries and bids or proposals to owners or clients; construction cost accounting; documentation used in estimating and cost accounting processes; bid strategies, bid depositaries and bid procedures in general. Prerequisite: BLDG 3300.

BLDG 4304 Construction Estimating 4

Presents estimating software that is used in industry. Prerequisite: BLDG 4303

BLDG 4400 Computer Applications in Construction Management

Presents practical computer applications with an emphasis on economic problems and scheduling associated with large comprehensive housing projects, high-rise construction, and other large construction projects. Topics include construction estimating, construction cash flow and project management scheduling. Prerequisites: BLDG 2450 and BLDG 3300.

BLDG 4500 Codes & Regulations (Building Law in Canada)

Presents a general survey of codes and regulations affecting design and construction including zoning and professional practice. Specific study of the B.C. Building Code, with particular reference to Use and Occupancy, and the control of fire hazards. Prerequisites: BLDG 2000, BLDG 2050 and BLDG 2200.

BLDG 4505 Building Acoustics

Covers theory and principles of sound including properties, propagation, sources and measurement techniques; noise criteria and control of interior/exterior noise in buildings. Selection of materials with appropriate acoustical and aesthetic qualities for building. Calculations encountered in acoustical considerations. Prerequisite: BLDG 3200.

Broadcast Communications

BCST 1100 Industry Operations

Provides a fundamental understanding of the operation of the broadcast industry, its foundations in the Broadcast Act, regulatory agencies, rules and regulations, audience measurement, music licensing, educational broadcasting, broadcast standards, associations and unions.

BCST 1101 Technical Introduction

Covers the basics of electricity, magnetism, batteries, etc., and how to apply these principles to equipment found in the broadcast industry. Sound and video are traced through the entire processing and transmitting chain to its ultimate reception on the listener's receiver. This is an introduction to "how things work" technically in the broadcast industry. Creditable to day school radio and television programs.

BCST 1103 Copywriting 1

Familiarizes students with advertising techniques, particularly in the broadcast media. Lectures and workshop sessions relate to the writing and evaluation of radio commercials. Basic marketing concepts, the function of advertising in society and the economics of broadcasting are related. Commercials are studied in detail. Special emphasis is placed on developing the student's ability to work in groups. While students may not become writers, the course could lead to a position in copywriting, broadcast sales or promotion.

BCST 1110 Radio Programming & Operations 1

Introduces the equipment and techniques used in radio broadcasting. Starting with station organization, the student continues with a study of microphones, radio control boards, recording units and broadcast accessories, and develops the manual dexterity needed to operate this equipment.

BCST 1111 Radio Announcing 1

Introduces effective oral communication for radio using lectures, exercises and practical application of the techniques of various specialized forms. Individual and classroom critiques are employed; auditions and assignments measure progress. Broadcast regulations and program scheduling are also included in the announcer-related areas of practical responsibilities.

BCST 1112 Contemporary Issues 1

Demonstrates how essential it is for a broadcaster to exhibit concerns and interests close to the individual and the community. As broad a base of external knowledge as possible must be acquired reflecting the local, regional, national and international scene. Lectures and practical exercises assist in acquiring and building the knowledge base and using it effectively.

BCST 1113 Introduction to Radio News 1

Introduces the student to the basic fundamentals and principles of news broadcasting. The course will instruct students in the gathering, handling, and dissemination of news information and will make them more aware of the importance of information programming in the broadcast industry.

BCST 1120 Video Basics

Teaches the basic components of a television production and how they interrelate. Equipment training include cameras, switchers, audio equipment, video tape recording, and EFP/ENG usage. Manual dexterity is developed in the operation of studio and control room production equipment. The course is a combination of lectures and practical exercises.

BCST 1124 Writing for Television

Introduces the fundamentals of copywriting for television. Students learn to create a variety of appeals for a product or service. They also learn about television audiences and how television advertising works.

BCST 1130 Introduction to News Reporting

Introduces the student to the basic principles of radio and television news gathering and dissemination. The course will give students a grounding in the systems, issues, and policies of the broadcast news industry and will prepare them for the more detailed and involved aspects of the succeeding news course. Some focus will be on reporting on municipal government activities.

BCST 1131 Introduction to Announcing

Introduces basic concepts of voice usage, announcing techniques and news reading skills. Stress is placed on daily practise and students receive both individual and group coaching.

BCST 1132 Introduction to Radio

Introduces Broadcast Journalism students to radio broadcasting equipment and production techniques. The course is designed to give the student a basic understanding of the operational side of radio broadcasting. Practical work complements classroom instruction.

BCST 1134 News Writing

Trains and prepares students to write radio and television news copy. Two hours per week are devoted to lecture and basic writing theory. Two hours are directed at in-class writing and rewriting practice for both media. The course relies heavily on in-class practise and critique.

BCST 1137 Visual Fundamentals for Journalists

Examines the language of pictures and their use to convey information. Topics include the history of pictorial communication, social context, the relationship between picture-making technologies, picture communication and picture use in television news. The course objective is conceptual stimulation rather than "button pushing." While some familiarity with 35mm photography is assumed, there are ample opportunities to learn the basics.

BCST 1223 Television Production Planning

Teaches the student to plan all the elements necessary to guarantee a production that meets the professional standards of the television and video production industry, as well as organize and conduct pre and post-production meetings as the producer/director of a program.

BCST 1331 Media Law

Trains a broadcast journalist to function within the Canadian judicial system. This course explains the inner workings and the various levels of courts, and familiarizes students with Canadian criminal law and the laws of libel and slander.

BCST 2203 Copywriting 2

Continues from BCST 1103. Prerequisite: BCST 1103.

BCST 2207 Advanced Computers for Television

This course will introduce the student to the specific uses of computers in the television industry. Areas such as Avid, Protocols, and Photoshop will be the main focus of the course. Efficient use of computer resources in a post production environment will be emphasised. Use of the Internet as a promotional tool will be encouraged. Prerequisite: COMP 1107.

BCST 2209 Practicum 1

Presents a four-week practical exercise to complete first year. During this period, radio students operate the campus radio station CFML, 24 hours per day. Television students produce a news magazine program and apply electronic news gathering techniques. Broadcast Journalism students work both with radio students in providing news coverage on CFML and with Television students in covering television news stories. Prerequisite: Journalism: None; Radio: BCST 2210, BCST 2211; Television: BCST 2220.

BCST 2210 Radio Programming & Operations 2

Continues from BCST 1110. Major emphasis is on honing the technical operations skills learned in first term. Analog and digital commercial production, radio station operations, audition tapes, and the use of lightweight, portable equipment are topics for instruction in this term. Emphasis is placed on practical applications of theory. Prerequisite: BCST 1110.

BCST 2211 Radio Announcing 2

Strengthens effective oral communication of ad-lib and written material, along with timing, upgrading to acceptable on-air standard, and continued classroom drills, exercises and practice. Basis for correct foreign language pronunciation is provided. Operations in conjunction with radio operations labs serve to bring reality to course objectives. Prerequisite: BCST 1111.

BCST 2212 Contemporary Issues 2

Builds on the knowledge-base attained in first term seminars, lectures and oral communication exercises to develop even broader areas of specific listener-oriented subjects and concerns, and the application in various broadcast forms. Organization of facts and concise communication delivery is stressed. Prerequisite: BCST 1112.

BCST 2213 Radio News

Introduces current regional, national and international issues appearing in the news media. Discussions focus on issues behind the issues, origins of issues, handling news, writing style, line-ups, and so on. Prerequisite: BCST 1113.

BCST 2214 Music and Programming

Focuses on the development and promotion of artists and their music and the relationship of the music industry to the broadcast industry. The programming portion examines radio station formats and their implementation. Prerequisite: BCST 1110.

BCST 2220 Video Production

See BCST 1120. Prerequisite: BCST 1120.

BCST 2222 Theory of Colour Television Systems

Begins with the psychophysics of human and vision and explains how the eye perceives and adapts to colour. This theory is applied to the NTSC system. The colour TV signal path, from the camera through production and measuring equipment to final display, is explained. Prerequisite: BCST 1101.

BCST 2224 Dramatic Writing for Television

Introduces the fundamentals of dramatic writing. Students generate original story ideas and then develop one idea from its concept through to a first draft film or television script. Writing assignments also include character sketches and a story treatment.

BCST 2230 News Reporting

Involves the student in identifying, researching and gathering of news material in an organized manner. The student is introduced to beat and filing systems, the courts, the police, organized labour, business, and politics. Prerequisite: BCST 1130.

BCST 2231 Announcing for Journalists

Presents, after initial voice training in term one, advanced radio and TV news reading. Through additional training and coaching, the student is expected to polish voice skills and become proficient in ad-lib techniques. The student must develop proficiency in news presentation for both radio and TV. News writing also plays a major role in this course. Prerequisite: BCST 1131.

BCST 2232 Radio News 2

Presents the first opportunity for students to work in a newsroom environment, on-or-off campus. The class is divided into small groups for personal instruction on operating newsroom equipment. This is followed by several weeks of practice where students gather, write, compile and read newscasts as well as hone their ability to use newsroom equipment. Prerequisites: BCST 1134 and BCST 1130.

BCST 2233 Television News 2

Teaches the process by which a story idea is transformed into a television news story, how to gather visual materials that tell their story, to write a script that works with their visuals and to edit visuals together with script to create a comprehensible television news story. Some attention is given to newscast make-up and presentation. Prerequisites: BCST 1130 and BCST 1134.

BCST 2325 Government & Politics

Acquaints the student with the structure of the Canadian federal and provincial governments. It also provides an opportunity to research political issues and interact with other students on current issues.

BCST 3303 Copywriting 3

Presents a lab course in which the instructor works with students on the preparation of commercial and public service advertising campaigns. Commercials written by the students are then produced and aired on CFML. Prerequisite: BCST 2203.

BCST 3310 Radio Programming & Operations 3

Applies the basic competence in radio broadcasting techniques to regular practical work through daily operation of the campus radio station CFML, available on cable FM throughout the Lower Mainland. All work must be done to industry standards; individual and group performance is evaluated and critiqued. In lectures, students receive training in station systems and operations. In practice, students perform all the roles normally found in industry. The course is demanding and stimulating. Prerequisites: BCST 2210 and BCST 2211.

BCST 3312 Radio Marketing, Sales & Promotion

Covers a number of topics that develop student broadcasters' attitudes toward the industry and their abilities to perform within it. Major emphasis is placed on broadcast sales and promotion. Prerequisites: BCST 2210 and BCST 2211.

BCST 3315 Feature Program Production 1

Presents an assignment-oriented course that focuses on the production of CFML's half-hour documentaries. Research, writing and production skills are applied throughout the course. Prerequisite: BCST 2210.

BCST 3316 Audio Production

Presents an assignment-oriented course that looks at the many facets of audio production including multi-track recording, commercial production, documentary production, audiovisual production and music recording and production. Prerequisite: BCST 2210.

BCST 3317 Non-linear Audio Editing

Provides advanced instruction in the use of non-linear audio editing equipment, utilizing ProTools technology. Builds on the principles of non-linear editing which is provided in BCST 2207. Prerequisite: BCST 2207.

BCST 3318 Non-linear Video Editing

Provides advanced instruction in the use of non-linear video editing equipment, utilizing Avid technology. Builds on the principles of non-linear editing which is provided in BCST 2207. Prerequisite: BCST 2207.

BCST 3320 Video Production

Upon successful completion of this course, students will be able to demonstrate their professional competency as members of a television or video production team as they rotate through all respective positions. Studio, field and post-production activities will be assigned to meet the demands of a variety of program formats. Students will assume all managerial, production and support function responsibilities. Prerequisite: BCST 2220.

BCST 3322 Television News

Teaches more sophisticated visual techniques that are put to use in the daily preparation of electronic news gathering stories. Lectures, critiques and feedback are interspersed with weekly newscasts throughout the term. Prerequisite: BCST 2209.

BCST 3325 News Shooting & Editing 1

Designed to further acquaint television students with the electronic news gathering skills learned in the first-year TV Practicum. Students will gain a wide range of experience both as camera operators and video editors. News stories will be produced in conjunction with TV reporters. Professionalism and the ability to work as a team are essential for success in this course.

BCST 3332 Radio News 3

Begins structured newsroom operations. Students are divided into groups to operate the student radio station and the two newsroom labs. Some students are also given off-campus assignments to give them experience as beat reporters at courthouses, city and municipal halls and police headquarters. Students are given frequent individual and class performance critiques. Prerequisite: BCST 2232.

BCST 3333 Television News 3

Allows students to bring ideas for news stories to class where these ideas are produced to fit the formats of television news. While most of the emphasis will be on ENG production, occasional stories may warrant the use of studio and graphic facilities. Stories are incorporated into news programs that are produced in conjunction with the Television program. Prerequisite: BCST 2233.

BCST 3431 Labour & Business

Provides students with a good understanding of labour unions and the management structure. This course explains the structure of unions as well as the labour laws of B.C. and Canada. The second part of the course explores the complexities of business, finance and the stock market.

BCST 4403 Copywriting 4

Continues from the work started in BCST 3303. Prerequisite: BCST 3303.

BCST 4409 Practicum 2

Allows students to locate industry positions to observe, practise, work and learn in actual industry situations. This "real-world" experience complements the training and experience received in the past two years, providing final preparation for assuming paid positions as a start to broadcast careers. Prerequisite: Successful completion of all Level 1, 2, 3 and 4A courses.

BCST 4410 Radio Programming & Operations 4

Uses the operation of the campus radio station as a base. Students specialize in desired work areas and are fine-tuned in preparation for entering the industry. Much emphasis is placed on preparation for job applications and industry interviews. Under the cooperative education program, eligible students may enter full-time, paid positions in industry while continuing their studies via correspondence assignments. The course concludes in mid-April, at which time students commence practicum assignments. Industry practices and standards prevail throughout the course. Prerequisite: BCST 3310.

BCST 4415 Feature Program Production 2

See BCST 3315. Prerequisite: BCST 3315.

BCST 4420 Video Production 2

See BCST 3320. Prerequisite: BCST 3320.

BCST 4425 News Shooting & Editing 2

Fine-tunes the electronic news gathering skills gained in BCST 3225. Prerequisite: BCST 3325.

BCST 4430 Reporting Toolbox

Prepares students for specialized reporting on public affairs and consumer research. The student is taught specific research and interviewing techniques and is expected to complete a major investigative project. Prerequisite: BCST 2235.

BCST 4432 Radio News 4

Presents an advanced course in newsroom operations. Students continue to practise the skills of reporting, writing and announcing, and work in the field as well as operating the student radio station and the news labs. The major thrust of this course is to identify student weaknesses and to assist students in strengthening their performance for entry into the industry. Prerequisite: BCST 3332.

BCST 4433 Television News 4

Continues from the third term television news lab. While the format for both courses is the same, the standards of evaluation in the fourth term are raised to reflect the expectations of professional broadcast journalism. Prerequisite: BCST 3333.

BCST 4600 Intro to Media Relations

This course will provide the learner with the skills necessary for the development of a business media strategy. Part of the course will analyse the goals of the news media in reporting on issues and events. Learners will also analyse successful and unsuccessful media relations strategies from case studies. Basic media relations strategies including measuring outcomes against goals and interviewing techniques will also be covered. Prerequisite: ORGB 3600.

Basic Health Sciences

BHSC 1101 Anatomy & Physiology 1 (BMET)

This course, together with BHSC 2201, follows a systems approach to study the relationship between structure and function in the human body. BHSC 1101 begins with a discussion of cells and tissues as basic structural/functional units. Regulation and integration of body functions and the role of control systems in homeostasis are introduced. Major systems covered include the nervous, endocrine, and skeletal muscle systems. Examples of the uses of biomedical instruments in diagnosis and treatment are given where appropriate.

BHSC 1103 Physiology & Pathophysiology 1 (NURS)

The first of a two-course sequence that considers normal physiology and pathophysiology as they apply to contemporary nursing practice. Following sections on introductory basics, cell and tissue injury, inflammation and healing, the concept of homeostasis is considered as a unifying theme in physiologic regulation. These concepts are applied to normal and disordered function of the endocrine and nervous systems, followed by a treatment of neoplasia and blood disorders.

BHSC 1106 Anatomy and Physiology 1

An examination of normal human structure and function based on a systems approach. This course is the first of two consecutive courses and includes basic human cytology and histology which serve as the foundation for the study of body systems. The first of these systems, the circulatory, is covered in this course. Remaining systems are covered in BHSC 2206.

BHSC 1110 Anatomy & Physiology 1 (PROR)

An examination of normal structure and function based on a systems approach. This course is the first of two consecutive courses and is followed by BHSC 2210. Although all body systems will be introduced, the major emphasis will be on the skeletal, skeletal muscles and nervous systems, and their integrated role in human movement and stability. The focus will be on the microstructure and physiology of these systems. BHSC 1110 begins with a study of human cytology, histology, and embryological principles which serve as the foundation for the study of the body systems. It continues with a detailed coverage of the skeletal system and concludes with an introduction to the organization and microstructural details of the skeletal muscle system.

BHSC 1112 Anatomy & Physiology 1 (ENPY)

Provides an essential foundation in human anatomy and physiology for the clinical practice of electroneurophysiology. The content supports subsequent Basic Health Sciences courses (i.e. BHSC 2212, BHSC3312) and a variety of components in the electroneurophysiology curriculum and training. The structure of the body, both at a gross and microscopic level, will provide a framework for the discussion of complex physiological processes. Major topics include cytology, principles of homeostasis, body organization and terminology, the nervous system including historic and current approaches to imaging, analysis, and diagnosis, organization and the function of components of the central nervous system, organs of special sense, peripheral neuroanatomy and muscles used in nerve conduction and electromyography studies. Topics are presented in an illustrated lecture format. Where appropriate, derangements of normal structure and function are described.

BHSC 1113 Anatomy & Physiology 1 (MRAD)

An introduction to human anatomy and physiology using a systems approach. Emphasis is placed on those systems most commonly examined by the radiographic technologist. Systems covered in this course are skeletal, integumentary, urinary, digestive and respiratory.

BHSC 1115 Anatomy & Physiology 1 (MLS)

This course will present an overview of the structure and function of the cardiovascular, respiratory and renal systems, the learner will be provided with the background knowledge required to become a competent practitioner of diagnostic laboratory services. The knowledge of human anatomy and physiology is the backdrop for specimen selection and laboratory analysis to assist in diagnosing the patient condition. The technical laboratory procedures are derived from detailed knowledge of physiological processes and anatomical structure at both gross and microscopic levels.

BHSC 1123 Microbiology 1 (ENVH)

An introductory course that deals with the basic concepts of microbiology with specific emphasis on areas that are of significance to students in the program, in particular, in public health inspection and protection. Also prepares the student for the more applied aspects of microbiology in BHSC 2223 which follows in Term 2, and other courses that include microbiology principles.

BHSC 1126 Medical Microbiology & Immunology (NMED)

Deals with the basic properties of medically important microorganisms, the communicability of infection, host-parasite relationships, methods of destruction and control of microorganisms, with particular attention to the safe preparation of radiopharmaceuticals used for injection. The course also deals with basic immunologic concepts including their related in-vitro applications.

BHSC 1151 Fundamentals of Neurology

Introduces the fundamental approaches and findings of the medical field of Neurology at an introductory level. This is achieved through a flexible combination of lectures, general topic seminars, attendance at Neurosciences Grand Rounds at VGH, case studies, video/videodisc examples of neuropathology and the neurological exam, demonstration of electroneurophysiologic approaches to diagnosis when possible and appropriate, lab visits, directed readings, individual and group projects and presentations. The goal is to develop an appreciation for and a rudimentary skill in applying the systematic diagnostic approach of Neurology. At the same time the contributions of various electrodiagnostic and monitoring modalities will be stressed and other imaging, laboratory, and testing approaches considered. Group facilitation, group work, group and individual presentation skills will be emphasised as will close collaboration and articulation with related term 1 courses.

HSC 1204 Anatomy & Physiology (ENVH)

Anatomy and Physiology. This course is an introduction to human anatomy and physiology presented in a conventional systems approach, integrating structure and function. The physiology is presented around the central theme of homeostasis, and students are given examples of how changes in the internal and external environments can disrupt homeostasis.

BHSC 1207 Anatomy & Physiology (OCHS)

Presents a study of basic human anatomy and physiology and homeostatic principles. Emphasis is placed on the ways in which the body adapts to external changes and the problems that attend extreme changes in various work environments.

BHSC 1241 Human Behaviour

This course explores psychological and sociological concepts, research, and applications of relevance to medical radiography technologists in training and in clinical practice. Topics include trends in the organization and delivery of health care including employment, managing stress in clients and self, critical skills for interaction and communication, dealing with emergencies, challenges and opportunities presented by cultural and other diversity in the workplace, group interaction and organizational climate, special needs associated with age of client and selected conditions, professional and legal implications of practice, life-threatening illness, and mortality. Emphasis is on improving sensitivity and human relations skills in dealing with clients and staff and effective ways of handling common health care events.

BHSC 1242 Behavioural Science (PROR)

Presents a series of lectures, discussions and planned experiences, to provide students with a greater understanding of how various people react to physical loss or illness, and of the role to be played in assisting the disabled to reintegrate with society. Topics include the psychology of illness, understanding stress behaviour, pain management, interpersonal communication, adjustment in self-image, the disabled person in society and relationships among health care professionals.

BHSC 1339 Human Behaviour (ENPY)

Explores basic considerations of behavioural science relevant to the electroneurophysiology technologist's concerns. Theory and research findings dealing with stress and illness behaviour will be presented. Professional and ethical considerations and ways of dealing with common hospital events will be explored. Emphasis will be on human relations skills in dealing with patients and staff.

BHSC 1439 Human Behaviour (NMED)

Introduces the basics of the psychological and social environment of health care organizations, with the aim of understanding how communication affects task activities.

BHSC 2201 Anatomy & Physiology 2 (BMET)

This course is a continuation of the systems approach to the study of human anatomy and physiology begun in BHSC 1101. Major systems discussed include the circulatory, respiratory, and urinary systems. The electrical properties of bone under stress is also introduced. The digestive system is discussed briefly. Examples of the uses of biomedical instruments in diagnosis and treatment are given. Prerequisites: BHSC 1101.

BHSC 2203 Physiology & Pathophysiology 2 (NURS)

A continuation of BHSC 1103 that focuses on physiological regulation and disease in the cardiovascular, respiratory, gastrointestinal, urinary, reproductive and skeletomuscular systems. A section on fluid and electrolyte disorders is included to complete the course content. Both courses combine to provide the foundation on which a broad array of clinical applications depend. Prerequisites: BHSC 1103.

BHSC 2206 Anatomy & Physiology 2 (NMED)

An examination of normal structure and function based on a systems approach. This course is the second of two consecutive courses examining normal human structure and function. The respiratory, digestive, skeletal, endocrine, nervous, and urinary systems will be covered. Prerequisite: BHSC 1106.

BHSC 2210 Anatomy & Physiology 2 (PROR)

This course (a continuation of BHSC 1110) begins with the physiology of skeletal muscle. It continues with a detailed discussion of the nervous system and its role in control of muscle. Basic principles of circulation and respiration are covered and a brief introduction to the roles of the digestive, urinary, endocrine, and reproductive systems conclude the course. Prerequisite: BHSC 1110.

BHSC 2211 Regional Anatomy 1 (PROR)

This course, together with BHSC 3311, is a laboratory course following a regional approach to the study of human anatomy. Preserved Rhesus monkeys will be dissected. Of major concern will be the study of the muscles (including their innervation and vasculature) and skeletal structures of the lower limbs. Prerequisite: BHSC 1110.

BHSC 2212 Anatomy & Physiology 2 (ENPY)

After a brief treatment of histology, this second course in the anatomy and physiology of the human body will follow a traditional "systems" approach, continuing with the integument, skeletal muscles, endocrine control, the cardiovascular system and lymphatics, acid-base and electrolyte balance in the context of respiratory and urinary systems, digestive system, and reproductive system material of relevance to electroneurophysiology. Patterns of inheritance and medical genetics, body defenses, injury, necrosis and repair are treated briefly. Topics are presented in an illustrated lecture format. Where appropriate, derangements of normal function are described. Prerequisite: BHSC 1112.

BHSC 2213 Anatomy & Physiology 2 (MRAD)

A continuation of BHSC 1113, this course uses a systems approach to examine the cardiovascular, lymphatic, nervous, endocrine, and reproductive systems. Prerequisite: BHSC 1113.

BHSC 2223 Microbiology 2 (ENVH)

A course on the basic principles of applied microbiology significant to public health inspection, environmental protection, and foodborne illness investigation. The course also includes basic principles of body defense, differentiates between food tolerance and food hypersensitivity, and introduces the students to in vitro tests employing immunological and microbiological principles. Microbiology of water, sewage, food, milk and dairy products constitute the major portion of the course. Prerequisite: BHSC 1123.

BHSC 3306 Pathophysiology 1 (NMED)

This course introduces the principles of pathophysiology. The organ systems commonly investigated by nuclear medicine procedures are emphasized. Also considered are the major diseases that are encountered in contemporary nuclear medicine practice. Prerequisite: BHSC 2206.

BHSC 3310 Pathophysiology

Introduces the principles underlying the pathological processes commonly encountered by the prosthetist/orthotist. Core concepts of tissue injury, inflammation, healing, and neoplasia are treated first. On this foundation are developed the major aspects of deranged blood circulation, cardiac and respiratory disease, and disorders of bones, joints and the skin. Prerequisite: BHSC 2210.

BHSC 3311 Regional Anatomy 2 (PROR)

This course, together with BHSC 2211, is a laboratory course following a regional approach to the study of human anatomy. Preserved Rhesus monkeys will be dissected. Of major concern will be the study of the muscles (including their innervation and vasculature) and skeletal structures of the upper limbs and trunk. Prerequisite: BHSC 2211.

BHSC 3312 Neuroanatomy & Physiology (ENPY)

Provides a basic understanding of anatomy, physiology and pathophysiology of immediate relevance to the current practice of electroneurophysiology. Emphasis is placed on the structure and function of the nervous system and selected pathophysiological states. Prerequisite: BHSC 2212.

BHSC 3329 Immunology for Nursing
Focuses on the role of the immune system in health and disease. Basic concepts of immunology, including non-specific resistance, both humoral and cell-mediated immune response to microbial pathogens, and foreign grafts and tumors are presented with special emphasis on their clinical application in the following three major areas immunoprophylaxis and immunotherapy; blood transfusion and tissue/organ transplantation; and hypersensitivity, immunodeficiencies and autoimmune diseases. A special detailed discussion of Acquired Immune Deficiency Syndrome (AIDS) is also included. Prerequisites: BHSC 2203 and BHSC 2228.

BHSC 4406 Pathophysiology 2 (NMED)
This course continues on from BHSC 3306 and the introduction of the principles of pathophysiology. The organ systems commonly investigated by nuclear medicine procedures are emphasised. Also considered are the major diseases that are encountered in contemporary nuclear medicine practice. Prerequisite: BHSC 3306.

BHSC 4410 Movement & Movement Disorders
Presents disorders of movement and sensation of relevance to prosthetists and orthotists. Essential brain, spinal cord, nerve and muscle anatomy, and physiology underlying the initiation, execution, and control of movement are presented. In this context, using videotape, videodisc, and case study examples, selected pathologies are explored primary myopathies, myoneural junction defects, peripheral neuropathies including entrapments, disorders of the spinal cord including acute trauma, disorders that affect the function of the basal ganglia, cerebellum, cortex and pathways and vascular supply. Prerequisite: BHSC 3310.

BHSC 5507 Anatomy & Physiology. Pathophysiology (DSON)
Provides an overview of the organ systems of particular interest to sonographers. Special emphasis is placed on the genito-urinary, hepatobiliary and cardiovascular systems. Normal fetal developmental anomalies and disorders of pregnancy are also discussed.

BHSC 7423 Communicable Disease Control (ENVH)
Students will be able to assess existing control measures for communicable diseases and propose new measures to contain communicable diseases. The course systematically deals with bacterial, rickettsial, viral, parasitic infections and intoxications. Emphasis is given to reservoirs, modes of transmission and preventable measures. The course also provides opportunities for students to enhance their communication, teamwork, critical thinking, problem solving and computer skills within the context of communicable disease control.

BHSC 7601 Sectional Anatomy of the Abdomen & Pelvis
For technologists who require knowledge of cross sectional anatomy of the abdomen and pelvis, including body planes. Various imaging techniques will be discussed and will provide much of the visual support material. Anatomic, functional and pathological relationships among the organs will be emphasised.

BHSC 7602 Sectional Anatomy of the Thorax
Designed for all medical Imaging technologists, the course is an exploration of the three-dimensional anatomy of the chest. Major anatomic features will be examined with emphasis on sectional appearance in all three fundamental body planes. The anatomic, functional and pathological relationships among organs of the chest will be included. Prerequisite: Medical Imaging Technologist with RTR Certification.

BHSC 7603 Sectional Anatomy of the Head & Neck
Exploration of the anatomy of the extracranial head and neck and the adult brain and cervical spinal cord from relational and sectional perspectives. The major anatomic features will be examined with an emphasis on their appearance in all three fundamental body planes for the extracranial head and neck and the conventional transverse planes for the cervical cord and oblique, coronal and sagittal planes for the brain.

BHSC 7604 Sectional Anatomy of Musculoskeletal System
For technologists who require a knowledge of cross-sectional anatomy of the musculoskeletal system. This course will be of particular interest for MR and CT Technologists. Prerequisite: Graduates of approved program in diagnostic medical radiography/nuclear medicine/therapy.

Business Law

BLAW 1100 Introductory Law for OCHS
Introduces the student to the Canadian legal system including its development, constitutional law, the Charter, torts, contracts and business relationships.

BLAW 3100 Business Law
Presents a practical study of Canadian business law, including the legal and administrative systems, torts, contracts, sale of goods and consumer protection, secured transactions, employment, agency and business organizations. Participation in this course, taught by lawyers, prepares you to recognize and feel comfortable with the legal aspects of doing business.

BLAW 3300 Broadcast Law
Introduces the Canadian legal system, emphasising contracts, torts (including defamation and privacy), criminal law, court procedure, secured transactions, government agencies, employment law, forms of doing business, and other topics applicable to broadcast business.

BLAW 3410 Business & International Law
An overview of the central legal issues that arise when conducting business across international boundaries. International sale of goods contracts, letters of intent and international arbitration are some of the topics covered. A basic understanding of the Canadian legal system, contracts, torts, and the sale of goods is provided.

BLAW 3500 Law for Real Estate Marketing
Covers the case law and legislation relevant to real property a contract, tort liability, interests in B.C. land registration system, agency, mortgages, tenancies, condominiums, professional organizations, and professional ethics. Prerequisite: BLAW 3100.

BLAW 3600 Computers & the Law

Gives the student basic knowledge of Canadian law with emphasis on how the law affects those in the computer industry. The course includes the law of tort, contracts, sale of goods, secured transactions, employment, intellectual property, partnerships and companies.

BLAW 3800 Human Resource Management Law

This course provides an overview of business law subjects normally studied by those seeking a career in business with emphasis on specific topics associated with the practice of human resources management. Subjects introduced include contracts, torts, the Canadian legal system, employment, human rights, Charter of Rights, and wrongful dismissal. Students will have some opportunity to study additional specific HRM topics such as freedom of information, harassment and privacy.

Biomedical Engineering

BMET 1100 Electronics Principles & Practice 1

Provides students with a basic knowledge of electrical quantities, their units and relationships. The course includes DC circuit analysis for R, RC, RL circuits and an introduction to AC circuits. Lab exercises are coordinated with course content. Prerequisites: MATH 1781** and PHYS 1179** (**may be taken concurrently).

BMET 2200 Electronics Principles & Practice 2

Analyses the properties of AC, RLC circuits and introduces basic active devices and integrated circuits. Topics include AC, RC, RL, RLC circuits, RLC resonant circuits, bipolar transistor and FET fundamentals, discrete amplifier circuits (single and multistage), amplifier stability, power amplifiers, oscillators, power supplies, regulators, IC regulators, differential amplifiers. Prerequisites: BMET 1100, MATH 1781 and PHYS 1178.

BMET 2215 Digital Electronics

Presents a study of basic digital techniques. Topics include switch and relay control; numbering systems; Boolean algebra; logic synthesis; codes and coding; solid state logic (TTL CMOS, etc.); noise and loading; encoders, decoders, relay drivers and delay devices; counters, shift registers and arithmetic systems; A/D and D/A conversion and multiplexing. Corequisite: BMET 2200. Prerequisites: BMET 1100, MATH 1151 and MATH 1781.

BMET 3300 Electronics Principles & Practice 3

Covers topics such as integrated circuit components and the uses of various other semiconductor components, e.g. Op Amp, FET, SCR, opto-electronics components, timers, regulators, etc. Lab exercises are coordinated with course content. Prerequisites: BMET 2200, ELEX 2860 and MATH 2782.

BMET 3301 Biomedical Devices Technology 1

Introduces students to basic properties of biomedical signals collecting (transducers), processing, displaying and recording. The principles of operation, design, and construction of physiological diagnostic monitoring equipment will be presented through both block and schematic diagrams. Lab exercises are coordinated with course content. Prerequisites: BHSC 2201, BMET 2200, BMET 2215, CHEM 1205, COMM 2278, ELEX 2860, MATH 2782 and CHEM 2305** (** may be taken concurrently).

BMET 3302 Quality Assurance & Systems

This course gives an introduction to the various factors involved in the implementation of a quality assurance system in the practice of Biomedical Engineering; different approaches to problem solving in Biomedical Engineering will be discussed. Laboratory sessions and assignments will be coordinated with theory. Prerequisites: BHSC 2201, BMET 2200, BMET 2215, CHEM 1205, COMM 2278, ELEX 2860 and MATH 2782.

BMET 4401 Biomedical Devices Technology 2

Presents the principles of operation, design, and construction of medical equipment used in the biomedical environment. Selected equipment is covered in more detail with schematic diagrams (e.g. electrosurgical, cardiac resuscitation equipment). Operational hazard considerations are presented. Lab exercises emphasising on calibration and trouble shooting techniques are coordinated with course content. Prerequisites: BMET 3300, BMET 3302, CHEM 2305, COMP 3151 and BMET 3301.

BMET 4402 Biomedical Engineering Technology Project

Allows students to build a biomedical device using current technology and design techniques. Students gain experience with the implementation of project planning, design, material acquisition, prototyping, printed circuit design, construction, testing, calibration, commissioning and evaluation. A technical report is required for the project. Prerequisites: BMET 3300, BMET 3301, BMET 3302, CHEM 2305, COMP 3151 and COMM 3478** (**may be taken concurrently).

BMET 4403 Medical Imaging Systems

Introduces the concepts and basic hardware involved in imaging systems used in medicine. X-ray, nuclear medicine and ultrasound equipment are examined. Prerequisites: BMET 3300 and BMET 2215

BMET 4415 Digital Systems & Microprocessors

Introduces basic elements of digital systems, memory systems, memory organization, address decoding, programmable logic devices, 68HC16 programming model, addressing modes, instruction format, structured programming, subroutines, parameter passing, stack machines, digital arithmetic, Input/Output, data transfer format, digital communications, interrupts, microprocessor development systems and C language interface, some development tools and relationships between these tools, and cache memory. Prerequisites: BMET 1100, BMET 2215, BMET 3300 and COMP 3151.

BMET 4420 Practical Experience in Biomedical Engineering Technology
Allows students to gain practical experience in biomedical engineering technology and related fields while working under supervision at a number of hospitals, research agencies and private companies throughout the province. The work experience is five weeks in duration. Prerequisites: COMM 3478, BMET 4403, BMET 4415, BMET 4855, MATH 3872 and NURS 1182.

Business Administration

BUSA 1100 Introduction to Management

A study of the basic concepts of the management process planning, organizing, staffing, directing and controlling. Integrated with the concurrent first term courses and using the case study method, it creates opportunities for the students to develop analytical, problem solving, teamwork, and communications skills, by analysing and presenting solutions to typical business problems. Topics covered include structuring organizations, decision-making and an introduction to production, human resources, controlling, and strategic and tactical planning.

BUSA 1102 Management for Food Technology

Introduces the basic concepts of the management process required to bring a food product from recipe to market. Topics covered include organizational structure, financing, marketing (including promotion and sales), manufacturing, staffing, and planning. It creates opportunities for the student to develop analytical, problem solving, teamwork, and communications skills necessary for an entrepreneur in food processing.

BUSA 1200 Business Concepts

Designed to expose students to some of the general workings of the economy and business. This will enable them to relate these topics to listenership when reading news or presenting general ad-lib material.

BUSA 1201 Television Management

The television industry today requires individuals who possess a good working knowledge of basic business concepts. This course is designed to provide the student with an insight into setting up and running a company in the television production field. Topics covered include preparing a business plan, developing a marketing plan identifying target markets, and monitoring cash flow.

BUSA 1600 Computer Applications 1

Begins the process of teaching the business student to appreciate the microcomputer as an aid to management. The course provides an introduction to basic business software, which may include one or more of the following MS Windows; MS Word, MS Excel, MS Access, the Internet, and the World Wide Web. Prerequisite: COMP 1104.

BUSA 1610 Microcomputer Software 1

Gives students a basic understanding of the microcomputer and available software. It provides hands-on experience in using various software packages such as word processing and spreadsheets, as well as the application of software to the field of Occupational Health and Safety.

BUSA 1620 Computer Applications for Broadcasting

Develops skills in word-processing, spreadsheets, and database using Windows-based software. Also includes the use of Internet features such as WWW, search engines, news groups, Web chat and integration with other business applications.

BUSA 1700 Computer Applications 1

Begins the process of teaching the post diploma student to use the microcomputer as an aid to management. The course provides an introduction to basic business applications, which may include one or more of the following MS Windows, MS Word, MS Power Point and the Internet.

BUSA 2005 Management (T)

Investigates the primary functions of management and managerial roles in teams, projects, departments and the organization as a whole. Strategic planning, operational planning, leading, organizing and controlling for performance will be addressed. Through actual business scenarios, cases and exercises, participants gain experience and apply the skills and knowledge in work situations.

BUSA 2100 Principles of Management

A study of the basic concepts of the management process planning, organizing, staffing, directing and controlling. Integrated with the concurrent first term courses and using the case study method, it creates opportunities for the students to develop analytical, problem solving, teamwork, and communications skills, by analysing and presenting solutions to typical business problems. Topics covered include structuring organizations, decision-making and an introduction to production, human resources, controlling, and strategic and tactical planning.

BUSA 2610 Software Systems

See BUSA 1610. Prerequisite: BUSA 1610

BUSA 2650 Computer Applications 2

Builds on the BUSA 1600 course by expanding on the managerial approach developed in that course. This course will concentrate on more complex spreadsheet management tasks using a popular spreadsheet package. Prerequisite: BUSA 1600

BUSA 2660 Computer Applications 3

The course builds on BUSA 2650. Topics will include an introduction to database management and other software applications specific to the program. Prerequisites: BUSA 1600

BUSA 3500 Management Science

Introduces Quantitative Methods. Students will be introduced to some of the more common techniques in the Management Science field, and will use microcomputer software to solve problems. Emphasis is placed on the formulation of problems and the interpretation of calculated results. Prerequisites: OPMT 1110 and OPMT 1130

BUSA 3515 Management Science

Emphasises the use of decision-making models in business. It trains students in the use of quantitative methods in the choice of alternatives in the decision-making process. Microcomputers will be used to solve problems.

BUSA 3600 Introduction to Database Management

An introductory course on the theory and application of Database Management Systems (DBMS) using the Microsoft ACCESS Relational DBMS for Windows. The intent of the course is to provide enough theoretical background, practical skill and hands-on experience to make effective users of DBMS technology for business improvement. Prerequisite: BUSA 1600.

BUSA 3650 Information Technology 1

This is an introductory course on the development and management of Information Systems. The course covers all of the phases of the Systems Development Life Cycle, and builds a hands-on system development using the Microsoft ACCESS Database Management System. Prerequisites: BUSA 2660 or (OPMT 1110 and BUSA 2600).

BUSA 3700 Spreadsheets for Business

The primary focus of this course is the development of a sound methodology to build "what if" spreadsheet models. Students begin with detailed instruction on basic commands and functions then progress to common business cases in which the design of the spreadsheet is of paramount importance. In addition to model building, the course will cover the basics of EXCEL, Charts, Names, Pivot Tables, Filters, Goal Seek and Scenarios.

BUSA 4610 Microcomputer Software Applications

Continues from BUSA 3700, with emphasis on the solution of practical problems. Students will become familiar with database and other programs on the IBM-PC system enabling their use in other course areas. Prerequisite: BUSA 3700.

BUSA 4620 Internet Applications

The course covers the basics of the Internet and Local Area Networks. Topics include the storage, retrieval and transfer of information using a variety of applications. As part of this process the course covers effective search strategies and the basics of HTML and Web page design. Prerequisite: BUSA 3600.

BUSA 4650 Information Technology 2

This course aims at an understanding of the relationships information technology, information systems, business strategy and organizational improvement. It will examine information technology as an enabler and facilitator of business strategy and as a control tool to track performance and improve managerial decision-making. Prerequisite: BUSA 3650.

BUSA 4800 Management Policy

Analyses of business strategy formulation to give the student practice experience and confidence in handling complex business situations. Comprehensive business cases will be selected in fields such as finance, control, personnel, production, marketing and general management. Acquaints the student with management decision-making and effective verbal and written business analysis. Teamwork and organizational change are addressed as elements of strategy implementation. Prerequisite: Permission from the program head.

BUSA 4810 Management Policy

Presents an analysis of business policy formulation designed to give the student practise, experience and confidence in handling business situations, including those of a complex nature, where basic policy decisions are necessary to assist in problem solving. Comprehensive business cases will be selected covering such fields as finance, control, personnel, production, marketing and general management for study and discussion. The course is designed to acquaint the student with the role of top management and the interrelationships among these fields.

BUSA 4850 Consulting Skills & Problem Solving

This is an introductory course in the theory and application of commonly used consulting skills and problem solving. The intent of the course is to present a methodology and toolkit for solving unstructured business problems. These tools and methodologies are widely used by Management and Information Technology Consultants.

BUSA 4900 Directed Studies

Designed to give students practical application of concepts learned in major program areas by engaging in problem solving projects in business or government. Prerequisites: All courses in Level 1.

BUSA 5200 Business, Society & Ethics

Discusses a variety of topics. The emphasis may vary from semester to semester but may include the relationship between government and the business system in Canada, the impact of foreign investment and free trade, consumerism, environmental protection, the impact of the Canadian Bill of Rights, etc. Prerequisite: Acceptance into the Advanced Diploma in Business program.

BUSA 6800 Strategic Management

This capstone integrative course is designed to dramatically improve the quality of student decision-making in a time sensitive global environment. Enables students to utilize the principles of strategic management enhanced by contemporary new analytical concepts. Simulates "real world" decisions via team case studies and the applications of management decision support systems. Prerequisites: All level 5000 courses.

BUSA 7250 Management Skills & Applications

Provides an overview of the basic skills of a manager and applies these skills through a series of projects and case studies. Examines the evolution of management and the organizational culture and environment. It also teaches decision-making skills and the skills involved in planning, organizing, leading and controlling, including planning and facilitating change, teamwork, applying motivational techniques and effective communication.

CAD/CAM

CDCM 1575 Windows NT Environment

To use computers effectively in an engineering environment, it is important to understand the operating system, networking and application software of a computer workstation. This course explores such Windows NT topics as file management, information sharing, data security, network connectivity and software installation. An overview of office application software features is also covered.

CDCM 2270 Introduction to C

An introductory course in 'C' programming with emphasis on structured program development. Components of the 'C' language are introduced and discussed, along with a number of techniques used in the developments of structured code. These concepts are applied to computer and engineering related problems.

CDCM 2370 Technical Programming 1

Many problems in technical fields such as CAD and GIS can only be solved by creating custom programs. This course will use the C/C++ programming language and an object oriented approach. Relevant components of the C/C++ language are introduced and discussed along with a number of techniques used in the formulation and development of technical programs. The platform will be Windows NT console and windowed environments. Prerequisite: MECH 1171 or acceptance into post or advanced diploma program.

CDCM 2372 Database Applications

Both CAD and GIS make extensive use of databases. This course introduces databases and their terminology. An overview of various data models will be undertaken. Guidelines for designing an efficient database will be presented and used to design a relational database. Applications for Windows using a commercial database package will be presented. Structured Query Language (SQL) will be covered and used to conduct complex queries. Prerequisite: MECH 1171 or acceptance into post or advanced diploma program.

CDCM 2732 Introduction to Databases

This course introduces the student to databases and their terminology. An overview of various data models will be given and guidelines for designing an efficient database will be presented and utilized to design a relational database. Techniques for developing database applications, using a commercial database package will be presented. SQL will be covered in some detail and used to conduct complex queries.

CDCM 3300 Parametric Modeling

Covers the use of parametric solid modeling application software. MCAD (Mechanical Computer Aided Design) software is used to create 3D parts and assembly models as well as 2D production drawings that are linked to 3D models. MCAD techniques enhance conceptual design and automate the design to the manufacturing process.

CDCM 3375 CAD Customization 1

Introduces AutoLISP programming for those with programming experience. Includes AutoLISP programming concepts, development of applications in parameterized drawings, user defined commands and interfacing with the drawing file database. Prerequisite: MECH 2201.

CDCM 3460 CAD/CAM System Management

Covers issues related to the acquisition, implementation and management of computer systems for CAD/CAM applications. Drawing files management, hardware and software selection, networking, security and maintenance. Prerequisite: MECH 2201.

CDCM 3470 Technical Programming 2

Advanced components of C/C++ that are needed for solving technical programs are introduced and discussed, along with a number of techniques used in the formulation and development of technical programs. Topics include file I/O, structures dynamic memory allocation, inheritance and function overloading. Projects include reading of data files produced by CAD and GIS software, windows programming using visual development tools, and handling multiple source files. Prerequisite: CDCM 2370.

CDCM 3472 CAD/Database Applications

Investigates the integration of non-graphic data with CAD drawing files. Covers internal and external storage of data, database integrity and management, creating and maintaining links between data, and the use of ASE, AutoCAD's Structured Query Language (SQL) extension. Prerequisites: CDCM 2372, MECH 2201 and CDCM 3375.

CDCM 3500 CAD Graphics (AutoCAD)

Presents an extensive overview of AutoCAD. Includes CAD concepts, 2D and 3D constructions, annotations, dimensioning, plotting, and menu customization.

CDCM 3505 CAD Graphics (Microstation)

Introduces Computer Aided Design using Microstation PC software. Designed to give students experience in production of 2D design files from various engineering disciplines. The student will utilize the basic and advanced techniques available in the software including basic element creation, fence manipulations, text, dimensioning, reference files, cell creation and plotting. The course will also include discussion on CAD hardware requirements, CAD concepts and trends in CAD software development.

CDCM 4400 Selected Topics in CAD

Focuses on the rendering and animation of CAD models, the comparison of CAD systems, the exchange and translation of design files and exploration of emerging trends in computer aided design.

CDCM 4470 Technical Programming 3

Professionally written Windows programs are based on the Microsoft Foundation classes (MFC). This course introduces several of these classes, including the widely used Data Access Objects (DAOs) for accessing databases. Furthermore, advanced features of object oriented programming, such as function overloading and operator functions will be covered. Arrays of pointers, stacks, queues and linked lists will also be studied. Prerequisite: CDCM 3470.

CDCM 4475 CAD Customization 2

Continues from CDCM 3375. This course deals with complex entities, error handling, dialogue box creation and programming, and ADS, AutoCAD's C language interface. Prerequisites: CDCM 3375 and CDCM 2370.

CDCM 4490 CAD/CAM Projects

Students integrate skills in graphics, programming, databases and engineering technology and apply them to industrial purposes. Prerequisites: CDCM 2370, CDCM 2372, CDCM 3305, CDCM 3375 and COMM 2460.

CDCM 4600 Advanced CAD Graphics

Covers computer generation of 3D models using wireframe, surface and solid modeling software. Students will create and generate shaded models and animation for engineering applications. Prerequisites: AICO 3000 or (CDCM 3500 and CDCM 3505).

CDCM 4605 AEC CAD Applications

Provides a general exposure to the requirements of the Architecture, Engineering and Construction (AEC) Industries for the production of working drawings. Layouts and details for various working drawings are generated while exploring the capabilities of an object oriented AEC software package. Prerequisite: CDCM 3500.

CDCM 4671 CAD Algorithms & Graphics

This course covers fundamentals of computer graphics and development of numerical algorithms used frequently in CAD/CAM. Topics in graphics include taking control of and drawing in the client area of a window, using the MFC CView class, sizing of images and transformation between world and screen coordinates. Topics in algorithm development include numerical integration techniques, perimeter, area and centroid calculations; and interpolation techniques such as cubic splines. The mathematical principles behind these algorithms will be explained. The programming language is C/C++ and the platform will be MFC based Windows NT. Prerequisite: CDCM 3470.

CDCM 4690 Post Diploma Project

Students apply the skills learned in coursework to the solution of an industrial problem. The project must be approved by the department and will be jointly supervised by a faculty member and an industry sponsor.

CDCM 5660 Graphic System Management

Covers issues related to the acquisition, implementation and management of computer systems for CAD/CAM applications. Drawing files management, hardware and software selection, networking, security and maintenance.

CDCM 6660 Graphic Information Management

Provides a detailed discussion of the engineering database and includes graphic standards (IGES, DXF) and graphic translations. It also includes strategies for the integration of non-graphic and graphic information. Prerequisite: CDCM 5660.

Chemistry

CHEM 1101 Chemistry 1 for Chemical Sciences

Includes stoichiometry, nomenclature, chemical equilibrium, acid-base titrations, pH, buffer solutions, solubility product, and redox reactions. The topics include gravimetric, volumetric and qualitative analysis.

CHEM 1102 Chemistry 1 for Mining/Petroleum

Covers topics of inorganic chemistry including atomic structure, chemical formulas, stoichiometry, solution preparation and concentrations, acids and bases, pH, buffer solutions, solubility equilibria, and oxidation and reduction reactions and titrations. The emphasis is on the application of chemical principles in industrial processes, chemical calculations and analysis, and the development of good laboratory skills. Laboratory exercises consists of qualitative and quantitative analysis, and acid-base chemistry.

CHEM 1103 Chemistry 1 for Biological Sciences

Introduces basic inorganic chemistry. Topics include chemical bonding, stoichiometry, formula writing, solution preparation, oxidation and reduction, acid-base theory, titration calculations and buffer solutions. Laboratory exercises consist of qualitative and quantitative analysis. Good laboratory techniques including WHMIS are emphasised.

CHEM 1108 Chemistry 1 for Environmental Health

A general chemistry course for environmental health. Topics include chemical symbols, formulas, chemical reactions, calculations based on formulas and chemical equations, theory of volumetric analysis, molarity, normality, calculations based on concentration of solutions, acid-base equilibria solutions, pH and pOH, buffers and hydrolysis.

CHEM 1115 Chemistry 1 for OCHS

Introduces basic inorganic chemistry. Topics include chemical bonding, stoichiometry, formula writing, solution preparation, oxidation and reduction, acid-base theory, titration calculations and buffer solutions. Laboratory exercises consist of qualitative and quantitative analysis. Good laboratory techniques including WHMIS are emphasised.

CHEM 1116 Chemistry 1 for Nuclear Medicine Technology

This course covers topics of general chemistry relevant for the study of the health sciences. It includes stoichiometry, nomenclature, concentrations of solutions (molarity, percent, equivalent weight), oxidation and reduction and acid-base chemistry (strong and weak electrolytes, buffers, hydrolysis of salts). The term ends with an introduction to organic chemistry. As these topics are studied, applications to Nuclear Medicine Technology are emphasised. The laboratory part of the course consists of preparation and use of standard solutions and buffer solutions and use of the pH meter.

CHEM 1117 Basic Clinical Chemistry

Begins with basic general chemistry including names and formulas of common inorganic compounds, concentrations of solutions (molarity and percent), acid-base chemistry (strong and weak electrolytes; buffers), oxidation and reduction and electrochemistry. Then the major classes of organic compounds are described. The chemistry and biological function of proteins, lipids, monosaccharides and nucleic acids are explored and the term ends with a description of the structure and function of the neurotransmitters.

CHEM 1120 General Chemistry for Plastics

Reviews the general principles of chemistry leading to an understanding of matter, plastic or otherwise. Includes physical and chemical changes, atomic structure and bonding. Equations, molar weights and stoichiometry provide the tools necessary to carry out reaction calculations and quantitative analysis. Also includes solution chemistry (mechanism, preparation, acid-base and redox), electrochemistry (for predicting corrosion in plastics processing equipment) and the behaviour of gases, liquids and solids. Laboratory exercises are designed to teach safe working techniques and correct attitude. Here qualitative analysis and aqueous reactions are covered.

CHEM 1205 General & Organic Chemistry for Biomedical Engineering

This course starts with a review of the periodic table followed by a study of the mole, chemical equations and stoichiometric calculations. Oxidation and reduction will then be discussed with reference to balancing redox equations. Solution stoichiometry is then studied. Acid-base chemistry is studied with emphasis on the difference between strong and weak electrolytes and different types of buffer solutions. Electrochemistry is introduced with emphasis on different types of voltaic cells. Then the major groups of organic compounds are considered and the basic physical and chemical properties of each group are described. The laboratory work will acquaint the student with the basic techniques used in chemistry as well as several techniques used in a clinical laboratory.

CHEM 2201 Chemistry 2 for Chemical Sciences

Continues from CHEM 1101. Topics include oxidation reduction reactions, electrochemical cells, electron structure of atoms, properties of solids, liquids, gases, colligative properties of solutions, thermochemistry and organic chemistry. The industrial application of chemical principles is emphasised. Prerequisite: CHEM 1101.

CHEM 2202 Chemistry 2 for Mining/Petroleum

Continues from CHEM 1102 and covers topics of inorganic and organic chemistry. Electrochemistry includes electrochemical cells, applications of electrolysis, electrometallurgy, and corrosion. Simple physical chemistry provides theory of solids, liquids and gases leading to fractional distillation and colligative properties. The periodic table is used to correlate many properties of elements and compounds. The physical and chemical properties, structures and names of some organic compounds are also examined. Lab work includes qualitative and quantitative analysis, and separation and purification methods for organic compounds. Prerequisite: CHEM 1102.

CHEM 2203 Applied Chemical Principles 2

Introduces the organic chemistry course with specific topics related to biotechnology and food technology. Major topics include carbohydrates, lipids, proteins, solvents and Isomerism of selected organic compounds. Laboratory exercises consist of quantitative, qualitative analysis and separation of organic compounds. Prerequisite: CHEM 1103.

CHEM 2204 Chemical Laboratory Techniques

Emphasises the safe analysis of natural samples where interfering elements or substances must be removed before the final analysis, with particular emphasis on safety awareness and application. The student will gain experience in weighing, moisture and ashing; gravimetric separations and analysis; volumetric separations and analysis including acid-base, redox and complexometric determinations; ion exchange separation and analysis; spectrophotometric analysis; physical methods including viscosity and specific gravity measurements. In addition, various solvent extraction, distillation and similar methods will be studied. The course begins with an introduction to sampling procedures. Prerequisite: CHEM 1101.

CHEM 2208 Chemistry 2 for Environmental Health

An organic chemistry course for Environmental Health. Topics covered include polycyclic aromatic hydrocarbons, volatile organic compounds, organo-chlorine compounds, alkalinity, hardness, water softening, surfactants, lipids, grease, sanitizing agents, dissolved oxygen, biological oxygen demand, chemical oxygen demand, chlorination, chloramination, ozonation, and swimming pool chemistry. Prerequisite: CHEM 1108.

CHEM 2215 Chemistry 2 for Occupational Health & Safety

Offers an applied approach to melding established chemical principles to chemical hazards, their problems and solutions. Terminology encountered in the field is related to principles such as acid base chemistry, oxidation-reduction, electrochemistry, stoichiometry, equilibrium, chemical bonding, simple thermodynamics, etc., that are linked to potential and real chemical hazards. Laboratory exercises and field trips are designed to complement and integrate lecture material. The language of practical and theoretical applications is emphasised. Prerequisite: CHEM 1115.

CHEM 2216 Chemistry 2 for Nuclear Medicine Technology

In the first half of the course, the major groups of organic compounds are introduced and the basic physical chemical properties of each group are studied. Coordination chemistry will be discussed with emphasis on chelating agents. In the second half of the course, biochemistry is introduced. The properties of proteins, lipids and carbohydrates are studied followed by a discussion of how these substances are metabolized in the body. The laboratory work will acquaint the student with the basic techniques used in organic chemistry and biochemistry. Prerequisite: CHEM 1116.

CHEM 2220 Organic Chemistry for Plastics

Surveys a wide selection of organic compounds. Starting with hydrocarbons, a firm foundation of organic structure and naming is established. Derivatives of hydrocarbons including alcohols, halides, phenols, amines, carbonyl compounds, carboxylic (acids, esters, amides, acid chlorides and acid anhydrides) are presented. Naming, structure, reactions and involvement in the plastics industry is emphasised throughout. Knowing the structure of commercial plastic materials, a correlation is made between their physical properties, intermolecular forces and end-use requirements. Lab work requires the use of safe working habits in separation, identification, characterization and analysis, and includes the preparation of several plastics in order to relate properties with structure and end use. Prerequisite: CHEM 1120.

CHEM 2305 Biochemistry/ Instrumental Analysis

Combines the study of the most important aspects of biological chemistry (i.e. properties of carbohydrates, proteins and lipids and how these are metabolized in the body) with a study of the instrumental methods used to analyse substances of biological importance (i.e. spectroscopy, chromatography and electrochemistry). Prerequisite: CHEM 1205.

CHEM 3303 Chemical Systems & Sensors

Teaches the principles and applications of chemistry, chemical reactions and analytical measurements, enabling the student to communicate effectively with plant chemists and engineers. Topics include stoichiometry, chemical reactions (endothermic and exothermic), chemical equilibrium, acid-base titrations and their application to pH and conductivity measurements. Prerequisites: MATH 1431 and PHYS 1143.

CHEM 3309 Organic Chemistry 1 for Chemical Sciences

Covers the classification of organic compounds, naming using IUPAC, common and trade names of many industrial chemicals, factors affecting boiling point and solubility, theory of extractions, preparation and reactions of alkanes and alkenes, sources and uses of hydrocarbons, stereochemistry, and structure determination using IR and NMR spectroscopy. Laboratory exercises include the isolation and identification of natural products, qualitative tests for the identification of functional groups, preparation of samples for infrared analysis, and qualitative analysis by gas chromatography. Prerequisite: CHEM 2201.

CHEM 3310 Physical Chemistry

Presents the kinetic theory of gases, the first and second laws of thermodynamics, chemical kinetics and catalysis. Lab work consolidates lecture material and gives experience in practical physicochemical measurements. Prerequisite: CHEM 2201.

CHEM 3311 Instrumental Analytical Methods

Covers instrumentation used for chemical analysis. The theory, construction, application and operation of instrumentation is discussed. Instruments include spectrophotometry (visible, ultra violet, near infrared and infrared, emission, absorption), flame photometry, chromatography (gas, liquid, high pressure liquid) and mass spectrometry. Laboratory exercises involve use of these instruments. Prerequisite: CHEM 2203.

CHEM 3315 Organic Chemistry for Occupational Health and Safety

Surveys the various classes of organic compounds likely to be encountered in the workplace. Naming, structure, chemical and physical properties, industrial uses, toxicity and occupational hazards are emphasised. Practical work provides experience with organic compounds and processes. Prerequisite: CHEM 2215.

CHEM 3320 Polymer Chemistry & Technology

The different ways in which plastics behave during processing and in service depend on the polymer chains which are present; additives and the incorporation of comonomers can modify this behaviour. Polymer properties such as glass transition temperature, crystallinity, crystal melting temperature, molecular weight and molecular weight distribution. CHEM 3320 shows how these variables are related to the chemical structure of the polymer by exploring many commercial examples of condensation and addition polymers. Lab work involves a series of polymer preparations, analyses, identifications and characterizations. Prerequisite: CHEM 2220.

CHEM 3321 Toxicology for Environmental Health

Provides students with a background in the science of toxicology. The course covers basic biochemistry and the effects of environmental chemical pollutants on organs and body systems. The chemicals discussed include heavy metals, pesticides, organic solvents and air pollutants. Prerequisite: CHEM 2208 or equivalent.

CHEM 4409 Organic Chemistry 2 for Chemical Sciences

Continues from CHEM 3309. Covers naming, properties, preparations and reactions of aromatic compounds, alkyl halides, alcohols, phenols, ethers, aldehydes, ketones, carboxylic acids, esters, amines and amides; organochlorines in the environment; lipids, amino acids and proteins. Laboratory work involves the synthesis of a variety of organic compounds, isolation and purification techniques, qualitative chemical analysis, and instrumental methods including infrared and ultraviolet spectroscopy and gas chromatography/mass spectrometry. Prerequisite: CHEM 3309.

CHEM 4415 Petroleum Chemistry

Correlates the physical and chemical properties of petroleum chemicals with their structures. Naming compounds and the production and end use of petrochemicals of commercial importance are emphasised. Instrumental analyses of petroleum fractions and products is covered in lectures and in practical work. Prerequisite: CHEM 2202.

CHEM 4416 Analytical Instrumentation 1

Covers the construction of electrodes and the use of operational amplifiers in the following analytical methods: constant current coulometric titration, amperometric, potentiometric and polarographic methods. Phototransducers and photometric circuits. Prerequisites: PHYS 2141 and CHEM 2201.

CHEM 4417 Chemical Analytical Techniques & Applications 2

This course covers the principles and practice of laboratory quality control and modern instrumental methods of chemical analysis. Major topics include ultraviolet, visible and infrared spectroscopy, and chromatography (gas and high performance liquid supercritical fluid extraction). Specific emphasis will be given to the operation, troubleshooting and maintenance of all instruments used in this course. Prerequisite: CHSC 3318.

CHEM 4418 Industrial Chemical Processes

This course examines the chemical processes used in various B.C. industries, the chemicals used, the chemical reactions, the products manufactured, the waste products and pollutants produced. The chemical hazards and the toxicity of the chemicals workers may be exposed to are emphasised. Prerequisite: CHEM 3315.

CHEM 8422 Environmental Chemistry

Examines the sources and assesses the cause and effect of environmental pollutants and chemical wastes, and the treatment or detoxification methods which may be employed to reduce the amount of toxic pollutants released to the environment. Students will analyse common environmental pollutants and interpret the results. Prerequisite: CHEM 2208 or equivalent.

CHEM 8432 Environmental Chemistry

Examines the sources and assesses the cause and effect of environmental pollutants and chemical wastes, and the treatment or detoxification methods which may be employed to reduce the amount of toxic pollutants released to the environment. Prerequisite: CHEM 2208 or equivalent.

Chemical Sciences

CHSC 1100 Computer Applications for Chemical Sciences

Introduces microcomputer software packages including electronic spreadsheets, databases and graphical methods, with applications to Chemical Sciences Technology.

CHSC 1103 Engineering Materials 1

Covers properties and physical testing of materials including metals and alloys. Mechanical behaviour concepts such as strength, hardness, toughness, creep, structure/property relationship.

CHSC 1105 Engineering Materials 1

Covers comparative properties of all classes of engineering materials including metals, alloys, polymers, concrete, wood and ceramics. Common causes of failure in service including fatigue, weathering, embrittlement and corrosion.

CHSC 1106 Engineering Materials Petroleum

Imparts a basic knowledge of the structure, properties, behaviour and application of metals. Terminology and significance of physical testing of metals tensile testing, hardness, impact, etc. Reasons for metal failure fatigue, creep, embrittlement. Crystal structure of metals, properties and forming methods of metals, corrosion and nondestructive testing.

CHSC 1119 Environmental Science

Introduces environmental chemistry and pollution control. The course examines the major air and water pollutants including measurement techniques and engineering control methods. Laboratory sessions cover sampling methods now used by industry.

CHSC 1202 Laboratory Workshop

Presents a basic course in chemical laboratory safety with emphasis on WHMIS practices, safe handling and storage of chemicals, care and use of safety equipment. Assignments on safety-related topics will be given. Prerequisites: CHSC 1119 and CHEM 3309.

CHSC 1262 Engineering Materials for Plastics Technology

Covers comparative properties of all classes of engineering materials including metals, alloys, polymers, concrete, wood and ceramics. Common causes of failure in service including fatigue, weathering, embrittlement and corrosion.

CHSC 1284 Materials Workshop

Provides basic coverage of the structures, properties and applications of common engineering materials with emphasis on those used in prosthetic/orthotic devices. Concepts such as tensile and yield strength, fatigue, hardness and deformation will be explored both in theory and in the testing laboratory. The aim is to provide an appreciation of the materials that are or may be used in prosthetic/orthotic devices, and to explain at least some of the factors involved in selecting a material for a specific purpose.

CHSC 1488 Engineering Concepts for OCHS

Covers test procedures for mechanical properties nondestructive testing and failure analysis, the basic concepts of engineering materials including metals, alloys, plastics, and ceramics.

CHSC 2203 Engineering Materials 2

Continues from CHSC 1103. Comparative structure and properties of engineering materials including metals, alloys, polymers, ceramics, concrete, and composite materials. Service failures of materials including embrittlement, fatigue, wear, creep and corrosion. Basic principles of materials selection. Prerequisite: CHSC 1103.

CHSC 2205 Engineering Materials 2

Continues from CHSC 1105. Prerequisite: CHSC 1105.

CHSC 2248 Industrial Chemistry 1

Provides a description of the chemical processes involved in major industrial chemical plants in B.C. Emphasis is placed on chemical operations associated with the pulp and paper industry. Laboratory sessions involve the testing and control procedures used in industrial applications. This course also covers introductory organic chemistry.

CHSC 3305 Assaying

Presents analytical chemistry applied to the ore minerals with special attention to fire assaying for gold and silver. Gravimetric, volumetric and instrumental methods are developed for the more common metals.

CHSC 3314 Mineral Processing 1

The course covers the essential operations of applied mineral processing grinding, screening, gravity separation, cyclone classification, flotation, sedimentation, thickening, filtration. Emphasis on numerical solution of operating and design problems. Course includes laboratory work.

CHSC 3318 Chemical Analytical Techniques/Applications 1

This course provides training in an environment which simulates actual working conditions in industry and covers materials related to the syllabus for proficiency examination. Both theoretical and practical aspects of analytical techniques are covered in three components sampling, classical wet analysis and fire assaying. Prerequisites: CHEM 2201 and CHEM 2204.

CHSC 3320 Unit Project 1

Assigns projects relating to the student's chosen specialty each term. Regular progress reports and a final term report are required. An industrial or laboratory practicum may be required. Prerequisite: CHSC 1119.

CHSC 3330 Pulp & Paper Process Control

Covers theory and practical applications of process measurements in the pulp and paper industry. Includes basic process control, advanced control strategies, and final control elements. Utilizes four industrial distributed control systems typically found in the pulp and paper industry Fisher Provox, Foxboro I/A, Bailey Inffinet 90, and Honeywell TDC 3000. Hands-on experience will be gained on these systems and applied to real process in the BCIT labs.

CHSC 3341 Unit Operations 1

Introduces chemical engineering. Topics include transportation of fluids, thermodynamics, heat transfer, evaporation, distillation, liquid/liquid extraction, solid/liquid extraction, gas absorption and psychrometry.

CHSC 3342 Industrial Process Fundamentals

Before suitable measurement and automatic process control strategies can be designed and implemented, a detailed knowledge of the behaviour of that process is required. This course fills that requirement by introducing the student to the static and dynamic properties of common industrial processes. Topics include transportation of fluids and fluid dynamics as well as an introduction to concepts of heat transfer and energy balance. Prerequisites: MATH 2411 and PHYS 2141.

CHSC 3346 Pulp & Paper 1

Designed to equip students with basic testing skills and provide hands-on experience with typical mill unit operations. Prerequisite: CHSC 2248.

CHSC 3351 Pollution Control

Examines the hydrocarbon processing industry air pollution meteorology, fundamentals of waste products treatment and management systems, basic sampling and testing techniques.

CHSC 3360 Environmental Applications

The course provides up-to-date training in current pollution abatement technologies for air pollutants, liquid wastes and solid wastes as practised in the mining industry. Current abatement practices in the mining industry and mine reclamation practices are also discussed. Prerequisite: CHEM 2202.

CHSC 3413 Environmental Analytical Methods

Surveys suitable methods of examining many types of water, waste water and materials related to control of water quality. Typical industrial pollution problems related to local industry are discussed during laboratory periods and special attention is given to proper sampling techniques. A selection is made from the following analysis of field samples cyanide, pesticides, arsenic, mercury, nitrogen (ammonia, nitrate, organic), oxygen (D.O., B.O.D., C.O.D.), surfactants, phosphates, sulphates, chlorides, proteins, carbohydrates, lignins, phenols and heavy metals. Prerequisite: CHSC 1119.

CHSC 3448 Industrial Processes & Materials

Covers major metal manufacturing industries. Lecture material includes topics in phase diagram calculations, atomic diffusion, solidification of metals, basic metal casting processes, microstructural development and defects in castings. This course emphasises problem solving skills. Prerequisite: CHSC 2203.

CHSC 4405 Assaying 2

Continues from CHSC 3305. Also, environmental chemistry, acid generating potential. Prerequisite: CHSC 3305.

CHSC 4408 Ore Analysis

Covers methods for the determination of a wide variety of elements in ores, concentrates, and industrial process streams. Emphasis is on selection of the most suitable technique for the particular samples under investigation. Classic methodology includes gravimetric and volumetric analysis as well as fire assay. Instruments used are atomic absorption, inductively coupled plasma, X-ray fluorescence, and ion chromatograph. A practicum will be scheduled at the end of the term. Prerequisite: CHEM 3314.

CHSC 4411 Pollution Science & Microbiology

Discusses air pollution meteorology, air pollution chemistry, air sampling methods, classic and instrumental techniques for measuring atmospheric and indoor contaminants (e.g. hydrogen sulphide, mercaptan, sulphur oxides, carbon monoxide, ozone, nitrogen oxides, various organic contaminants and lead, mercury, cadmium and zinc in air, etc.), particulate counting and sizing, stack sampling and some of the principles and techniques used in water pollution microbiology. Laboratory sessions include standard methods used by industrial and government laboratories. Prerequisites: CHSC 1119 and CHEM 3309.

CHSC 4412 Waste Management

Covers the physical, biological and chemical methods used in treating municipal and industrial waste waters. Major industrial techniques for control of air pollutants are discussed. Remediation of contaminated soil sites is also covered. Prerequisite: CHSC 1119

CHSC 4414 Mineral Processing 2

Continues from CHSC 3314. Prerequisite: CHSC 3314.

CHSC 4418 Chemical Analytical Techniques and Application 3

Inorganic instrumental analysis techniques are introduced in this course in a format that simulates the ways analytical instruments are utilized in industry. This is a configuration of CHSC 3318. Emphasis is placed on the selection of instrumental techniques pertaining to extractive metallurgy, process in pulp & paper, engineering materials testing, industrial chemical processing, environmental control processes, mining, and others. General principles involved in the operation of instruments commonly found in industry are discussed in detail. Students will gain practical experience through a work shadowing program by participating in an industry-sponsored practicum or directed studies in each option. Analytical instruments techniques include colourimetric, atomic spectroscopy (absorption emission, fluorescence), x-rays (fluorescence, diffraction), and electrochemical methods (pH, conductivity, DO, etc.) Prerequisite: CHSC 3318.

CHSC 4420 Unit Project 2

See CHSC 3320. Provides a field practicum in the laboratory aspects of the program. Prerequisite: CHSC 3320.

CHSC 4441 Unit Operations 2

See CHSC 3341. Prerequisite: CHSC 3341.

CHSC 4446 Pulp & Paper 2

See CHSC 3346. Discusses how Pulp and Paper Technology is concerned with pulp bleaching, papermaking, newsprint manufacturing, printing and pollution abatement. The lab portion of this course is designed to equip students with basic testing skills and provide hands-on experience with typical mill unit operations. Prerequisite: CHSC 3346.

Civil & Structural

CIVL 1000 Statics

Presents a thorough introduction to the relationship between applied loads and the resultant support reactions and internal forces developed in statically determinate members and structures. The course is delivered through lectures and problem solving sessions. Topics include classification of force systems, equilibrium equations, support conditions, freebody diagrams, support reactions, truss analysis by the methods of joints and sections, analysis of machines and pinned plane frames, load, shear force and bending moment diagrams for beams, and geometric properties of structural sections.

CIVL 1001 Graphical Communication 1

Presents an overview of fundamental graphical techniques necessary for plan reading and production of working drawings, and introduces a variety of civil engineering terminology. Subject materials for the course are drawn from the civil engineering industry. Topics include freehand sketching, field sketching, drawing scales and layout, orthographic projections, contour drawings, and geometric constructions. Lettering and linework will be emphasised throughout.

CIVL 1040 Hydrology

Presents the basic concepts and techniques needed for watershed analysis and drainage facility design. The course is delivered through assigned reading, lectures, and problem solving sessions. Basic observation and estimation skills are developed through field assignments or a small field project. Fundamental concepts include rainfall intensity, runoff, catchment area, streamflow, infiltration, mass balance, snowmelt, flood frequency, and the hydrologic cycle. The streamflow estimation procedures presented are the rational method, the unit hydrograph and flood frequency analysis.

CIVL 1080 Construction Materials 1

Provides the knowledge required to select materials for concrete production, design a concrete mix and conduct quality control tests on concrete and aggregates. The course is delivered through lectures and laboratory sessions. Topics include cements, water/cement ratio, admixtures, concrete properties, manufacturing, placing, finishing, curing, and inspection techniques as per CSA A23.1 and A23.2.

CIVL 1200 Building Structures 1

Presents a basic introduction to the relationship between applied loads and the resulting support reactions and internal forces developed in statically determinate members and structures. The course is delivered through lectures and problem solving sessions. Topics include classification of force systems, equilibrium equations, support conditions, freebody diagrams, support reactions, truss analysis by the methods of joints and sections, and load, shear force, and bending moment diagrams for beams. This course lays the foundation for subsequent Building Structures courses.

CIVL 1220 Civil Technology for Mining 1

Presents a basic introduction to the relationship between applied loads and the resulting support reactions and internal forces developed in statically determinate members and structures. The course is delivered through lectures and problem solving sessions. Topics include classification of force systems, equilibrium equations, freebody diagrams, support conditions and reactions, truss analysis by the methods of joints and sections, and load, shear force and bending moment diagrams for beams. This course lays the foundation for subsequent civil engineering courses taught to mining students.

CIVL 2002 Mechanics of Materials

Presents a thorough introduction to the relationship between applied loads and the resulting stresses and deformations produced in common structural elements. The course is delivered through lectures and problem solving sessions. Topics include concepts of stress and strain, mechanical behaviour of construction materials, elementary design using allowable stresses and factors of safety, analysis of statically determinate and indeterminate axially loaded bars, thermal stresses, bending and shear stresses in beams, shear flow in built-up members, beam deflections, combined stresses, and column buckling. Prerequisite: CIVL 1000.

CIVL 2005 Civil Computer Applications 1

Focuses on the personal computer as an analysis/design tool used to solve routine engineering problems. The course provides an introduction to the BASIC programming language. Emphasis is placed on computer-assisted solutions to practical civil and structural engineering problems. The course is delivered through lectures and hands-on computer lab sessions. Prerequisites: CIVL 1000 and MATH 1421.

CIVL 2006 Civil Computer Applications 2

Focuses on the personal computer as an analysis/design tool used to solve routine engineering problems. The course provides an introduction to the use of spreadsheet software. Emphasis is placed on computer-assisted solutions to practical civil and structural engineering problems. The course is delivered through lectures and hands-on computer lab sessions. A spreadsheet project is a mandatory component of the course. Prerequisite: CIVL 2005.

CIVL 2007 Computer Aided Design 1

Through the medium of computer aided drafting software, and building on the fundamental techniques presented in CIVL 1001, the student continues to reproduce graphics examples for the civil engineering field. The emphasis of this course is on the development of graphical computer skills for communication purposes. Prerequisite: CIVL 1001.

CIVL 2041 Hydraulics 1

Prepares students to analyse and design pipe-pump systems for water distribution and other purposes, and to analyse the hydrostatic forces on fixed or floating structures. The course is delivered using lectures, reading, assigned problems, and, if possible, laboratory exercises. Topics include fluid properties, hydrostatic pressure and forces, buoyancy and stability of floating and submerged objects, continuity, Bernoulli's equation, energy and hydraulic grade lines, head losses, pump characteristics and selection, cavitation, network analysis, forces in pipes, and basic cost analysis for pipe-pump systems. Prerequisite: CIVL 1000.

CIVL 2081 Construction Materials 2

This is an introductory course in the field of construction materials, supplementing CIVL 1080. The first part of the course is intended to provide a background in the fundamentals of asphaltic concrete, and familiarization with associated laboratory testing procedures. The second part of the course is intended to provide the beginning of the study of soil mechanics and associated laboratory testing procedures. The course is delivered through lectures and laboratory testing sessions. Prerequisite: CIVL 1080.

CIVL 2162 Introduction to Timber Design

Provides a general introduction to the design of wood structures. Topics include limit states design philosophy, determination of dead load and live load (snow, occupancy, and wind) effects according to national standards, and design of simple tension members, beams, columns, beam-columns, and connectors in accordance with the current CAN/CSA design codes. Design of wood slab and wall forms, and a small timber structure will be covered as practical application of course material. Testing of small timber specimens will take place in the structural laboratories. The course is delivered through lectures, problem solving sessions, and laboratory testing. Prerequisite: CIVL 2002.

CIVL 2201 Building Structures 2

Presents the elementary principles of mechanics of materials and an introduction to timber design. The course is delivered through lectures and problem solving sessions. Topics include concepts of axial stress and strain, section properties of structural shapes, bending and shear stresses in beams, deflection of beams, column buckling, NBCC gravity and wind loads, limit states design philosophy, and preliminary sizing of decking, beams, columns, and beam-columns using the CWC wood design manual. Prerequisite: CIVL 1200.

CIVL 2221 Civil Technology for Mining 2

Presents a basic introduction to the relationship between applied loads and the resulting stresses and deformations produced in common structural elements. The course is delivered through lectures and problem solving sessions. Topics include geometric properties of structural sections, concepts of stress and strain, mechanical behaviour of construction materials, elementary design using allowable stresses and factors of safety, analysis of statically determinate and indeterminate axially loaded bars, thermal stresses, bending and shear stresses in beams, deflection of beams, combined stresses, and column buckling. Prerequisite: CIVL 1220.

CIVL 2222 Civil Technology for Mining 3

Presents an introduction to geotechnical engineering with an emphasis on tailings disposal. Topics include rock slope stability, soil mass/volume relationships, classification, compaction, and permeability. A tailings dam design project considering quantity takeoff, feasibility, pond life, and alternate sites forms a major component of the course. Prerequisite: CIVL 2221.

CIVL 2223 Civil Technology for Mining 4

Presents the fundamentals of hydrostatic pressures and water distribution systems, with an emphasis on mining applications. The course is delivered using lectures, assigned problems, and reading. Topics include fluid properties, hydrostatic pressure, continuity, Bernoulli's equation, pipe flow and friction, head losses, pump characteristics and selection, flow conditions, and open channel flow in flumes and streams. Prerequisite: CIVL 1220.

CIVL 3005 Highway Design Basic

Provides the knowledge required to prepare preliminary drawings and design notes for highway construction. Using a B.C. location, students will choose an alignment within a corridor and prepare a short bill of quantities based on a preliminary design. Horizontal and vertical alignment elements will be designed with the aid of computer software. Using typical sections and digitized ground data, students will interactively adjust alignment elements to achieve an earthworks balance and analyse the resulting mass-haul diagram. Prerequisites: CIVL 1040, CIVL 3007 and CIVL 2004.

CIVL 3007 Computer Aided Design 2

Presents the use of AutoCAD as a graphical tool for solving civil engineering problems. This is a design course in which students study a variety of techniques employing LISP routines and ATTRIB EXTRACT for transfer of design data out of AutoCAD, and DXFIN facilities for transfer of design resultants into AutoCAD. Course project topics include highway horizontal alignment design, tailings dam design, Hardy-Cross pipe network analysis, and structural layout. Prerequisites: CIVL 1000, CIVL 2004, and CIVL 2007.

CIVL 3015 Construction 1

Provides the student with the knowledge necessary to estimate and control construction activities for a typical civil engineering project. The course material is delivered through lectures, videos, assignments, and group projects. A local construction project is used as the vehicle for presenting the course material. Topics include construction equipment, planning, quantity takeoffs, productivity rates, costing, and construction inspection. Prerequisite: Completion of first year or departmental approval.

CIVL 3042 Hydraulics 2

Presents fundamental concepts required for the analysis and design of open channel systems with steady flow. Topics include normal flow (the Manning Equation), energy principles, calculation of varied flow profiles, control structures, and storage routing. Practical applications of the material include natural and man-made channels, chokes, culverts, and detention ponds. Prerequisites: CIVL 2041 and CIVL 1040.

CIVL 3081 Soil Mechanics 1 Basic

Presents the basic principles of soil mechanics and testing procedures through lectures, problem solving sessions, and laboratory work. Topics include mass/volume relationships, soil classification, compaction, subsurface investigation, permeability, pressure and head diagrams, effective stress, consolidation, and shear strength. Prerequisites: CIVL 1000, CIVL 2041 and CIVL 2081.

CIVL 3082 Soil Mechanics 1

Presents the basic principles of soil mechanics and testing procedures through lectures, problem solving sessions, and laboratory work. Topics include mass/volume relationships, soil classification, compaction, subsurface investigation, permeability, pressure and head diagrams, effective stress, consolidation, and shear strength. Prerequisites: CIVL 1000, CIVL 2041 and CIVL 2081.

CIVL 3090 Project Proposal

Students are required to initiate contact with a registered professional in the Civil Engineering/ Construction industry, and formulate an industry- applicable project. The project should involve the investigation of a current, relevant problem for the industry contact. The student is required to submit a project proposal for approval, and is then assigned a faculty advisor for a subsequent course, CIVL 4020, in which the student will produce a finished project. Prerequisite: Completion of first year or departmental approval.

CIVL 3120 Subdivision Planning

Provides an understanding of the planning concepts and imposed constraints for subdivision development at the municipal/city level. Sections of the Municipal Act and local bylaws are reviewed to establish layout criteria, subdivision procedures and rezoning applications. Requirements of external approving agencies are also considered. Preparation of a subdivision plan considering the viewpoints of the city, the developer, and the engineer, as well as a preliminary cost analysis forms a major component of the course. Prerequisite: CIVL 2007.

CIVL 3122 Basic Subdivision Planning

Provides an understanding of the planning concepts and imposed constraints for subdivision development at the municipal/city level. Sections of the Municipal Act and local bylaws are reviewed to establish layout criteria, subdivision procedures, and rezoning applications. Requirements of external approving agencies are also considered. Preparation of a subdivision plan considering the viewpoints of the city, the developer, and the engineer, as well as a preliminary cost analysis forms a major component of the course. Prerequisite: CIVL 2007.

CIVL 3123 Urban Street Design

Provides the knowledge required to design all elements of a major urban road. Concepts of horizontal and vertical element control, road drainage, intersection design, sidewalks and utility locations will be discussed and utilized to prepare an urban street design. A review of the design process, extent of field information, and the preparation of as-built drawings will conclude the course. Prerequisites: CIVL 1622 and CIVL 2003.

CIVL 3162 Structural Steel & Concrete Design

Presents a general introduction to the design of steel structures and reinforced concrete structures. Topics include limit states design philosophy, design of steel tension members, columns beams and beam-columns, design of reinforced concrete beams, one-way slabs footings, columns footings and retaining walls all in accordance with current Canadian design codes. Prerequisites: CIVL 2162 and CIVL 3165.

CIVL 3163 Structural Steel Design

Presents a general introduction to the design of steel structures. Topics include limit states design philosophy, design of tension members, compression members, beams, beam-columns and bolted and welded connections in accordance with the current Canadian design code. The course is delivered through lectures, problem solving sessions and project work. Prerequisites: CIVL 2162 and CIVL 3165.

CIVL 3165 Structural Analysis 1

Building on the concepts presented in CIVL 1000 the student is introduced to various exact and approximate methods of analysis for statically indeterminate structures. Prerequisite: CIVL 2162.

CIVL 3202 Building Structures 3

Demonstrates elementary structural design concepts for steel and concrete structures, and the use of tables, handbooks and manuals for preliminary sizing of members. The course is delivered through lectures and problem solving sessions. Topics include fundamental material properties of steel and concrete, steel and concrete structural systems, use of design aids, and lateral force-resisting systems for wind and seismic forces. Prerequisite: CIVL 2201.

CIVL 4008 Civil Engineering Construction

Demonstrates how the organization, cost, and sequencing of construction activities for a typical civil engineering project are all interrelated. The course material is covered through lectures, videos, assignments and group projects. A local construction project is used as the vehicle for presenting course material. Topics include construction equipment, planning, Gantt charts, CPM methods, scheduling software, quantity takeoffs, costing, productivity rates, construction inspection and job cost control. Prerequisite: Completion of first year or departmental approval.

CIVL 4009 Construction Contract Law

Introduces the legal aspects of construction contract administration through lectures and construction scenarios. Topics include an overview of the Canadian legal system, contractual responsibilities and relationships between the various parties to a construction contract, bonding, liens and holdbacks, tendering, types of construction contracts, contents of a contract document and the application of typical clauses to construction-related issues. Prerequisite: COMM 3342.

CIVL 4016 Construction 2

Provides the student with the knowledge necessary to organize, sequence, and control construction activities for a typical civil engineering project. The course material is delivered through lectures, videos, assignments, and group projects. A local construction project is used as the vehicle for presenting the course material. Topics include construction planning, Gantt charts, CPM methods, scheduling software, and job cost control. Prerequisite: CIVL 3015.

CIVL 4020 Projects

After submitting an acceptable project proposal in CIVL 3090, the student is assigned a faculty advisor. The student is required to meet periodically with the faculty advisor and/or the industry contact, and submit the finished project to both the industry contact and faculty advisor. Prerequisites: CIVL 3090 and COMM 3342.

CIVL 4044 Water Resources

Introduces the student to a wide range of water resource problems, methods of analysis and solutions. The course material is covered through lectures, problem sessions and field assignments. Topics include drainage, flood control, hydroelectric power generation, well hydraulics, irrigation, water supply, sewage, sewerage and coastal engineering. In addition to basics from the course prerequisites, the fundamentals of sedimentation, detention, engineering economics, hydraulic modeling and numerical solution techniques are reviewed.

CIVL 4083 Soil Mechanics 2

Applies the knowledge gained in CIVL 3082 to a variety of geotechnical, foundation, and drainage design problems through lectures, problem solving sessions, and small projects. Laboratory testing is completed near the beginning of the course. Project topics include seepage studies, stability analysis of slopes, earth pressures, retaining structures, Prerequisites: CIVL 3082 or CIVL 3081.

CIVL 4122 Municipal Services

Provides the requisite knowledge for the design of storm and sanitary sewers, and water distribution networks for residential subdivisions. Using current design criteria and commercial software packages, students will prepare detailed designs for each of the services. Emphasis will be placed on preparation of plan and profile working drawings, and design calculations to industry standards. Prerequisites: CIVL 1040, CIVL 1001 and CIVL 3042.

CIVL 4165 Structural Analysis 2

Topics include energy methods, limit load analysis, overview method and the use of commercially available structural analysis software. Prerequisites: CIVL 3163 and CIVL 3165.

CIVL 4166 Structural Detailing

Presents an overview of detailing practices and connection design in steel, timber, concrete, and masonry. Prerequisite: CIVL 3163.

CIVL 4167 Reinforced Concrete Design

Presents a general introduction to the design of reinforced concrete structures. Topics include limit states design philosophy; design of beams, one-way slabs columns, footings and retaining walls in accordance with the current Canadian design code. The course is delivered through lectures, problem solving sessions and project work. Prerequisites: CIVL 3163 and CIVL 3165.

CIVL 4203 Building Structures 4

Presents an overview of a variety of civil engineering subject areas that will enhance Building Engineering Technology graduates' ability to comprehend and discuss concepts with civil engineers. Topics include earthquake engineering, reinforced masonry, prestressed and post-tensioned concrete, concrete formwork, soil classification, soil compaction, effective stress, footing design, and retaining walls. The course is delivered through lectures and problem solving sessions. Prerequisite: CIVL 2201.

Clinical Genetics Technology

CLGT 5501 Cytogenetics Technology 1

An introductory course with extensive hands-on training, demonstrations, and lectures focused on the principles and methodologies involved in human cytogenetic technology. The student is introduced to the theoretical and practical aspects involved in cell growth and culture as they relate to major tissue types used in the laboratory including amniotic fluid, chorionic villi, fibroblasts and products of conception. The principles and practical aspects of various banding techniques are studied and applied to metaphase chromosomes derived from various tissues. Trouble shooting, laboratory safety (MSDS and WHMIS) and group problem solving are stressed. Cytogenetic syndromes and chromosome abnormalities are introduced. Documentation of experimental and routine results is critical and highly emphasised.

CLGT 5502 Chromosome Analysis 1

A wide range of metaphase chromosomes in print and microscopic form are studied to introduce students to the human chromosome karyotype. Students also submit chromosome results from experimental cultured cells set up in CLGT 5501. Both normal and abnormal metaphases are examined. Results are described according to the 1995 ISCN (International Standard Chromosome Nomenclature). Students follow standard laboratory criteria for selecting and analysing banded chromosomes under the microscope.

CLGT 5503 Seminar Topics 1

Students are assigned topics to research and present orally to the class. A written handout is required. Topics are taken from the R.T. Syllabus (Subject, Clinical Genetics), as well as current issues and practices in clinical genetics. Topics in Clinical Genetics encompass both cytogenetics and molecular genetics.

CLGT 5504 Photomicrograph Reproduction & Imaging 1

Students learn to use darkroom equipment to produce high quality prints from photomicrographs. The relationship between the microscope image and its reproduction is emphasised. A Genevision Image analysis system is used routinely for reproducing karyotypes assembled electronically.

CLGT 5505 Fluorescence in Situ Hybridization (FISH) Technology 1

Students are introduced to theory, practice and application of FISH technology. The skills required to perform interphase/metaphase karyotyping and interpretation of the results are emphasised. Fibroblasts, short/long digest of solid tissues, and touch preps are some of the specimens that are examined with FISH techniques.

CLGT 5506 Molecular Technology 1

Recent advances in clinical genetics have made this area an essential tool for diagnosing genetic disease and obtaining information about the human genome. Similar tissue types are examined in molecular genetics as in cytogenetics. Gel electrophoresis, nucleic acid extraction, various blotting procedures, PCR, and DNA/RNA quantification are used to identify single gene defects in human tissue(s).

CLGT 6601 Cytogenetics Technology 2

An advanced course similar to CLGT 5501 but with increased emphasis on producing consistent high quality chromosome preparations. Advanced technique for obtaining high-resolution chromosomes (HRC) are introduced. Special straining (NOR, DAPI) and special banding (Q-b, C-b) are discussed and applications reviewed. Peripheral blood cultures and suspensions are used. Prerequisite: CLGT 5501.

CLGT 6602 Chromosome Analysis 2

Students are exposed to an increased level of complexity in the type of chromosome abnormalities to be detected on the band resolution. The criteria for the selection of metaphases for analysis and the systematic approach for chromosome analysis are reviewed. Chromosome analysis from cultures established in CLGT 6601 are submitted for evaluation. Individual prints from selected cases are also given to students as tests and assignments. The ISCN (1995) nomenclature is applied to both somatic and neoplastic cases. Prerequisite: CLGT 5502.

CLGT 6603 Seminar Topics 2

Similar to CLGT 5503. Students are assigned topics to research and present orally to the class. A written handout is required. Topics are taken from the R.T. Syllabus (Subject, Clinical Genetics) as well as current issues and practices in clinical genetics. The topics in Clinical Genetics encompass both cytogenetics and molecular genetics. Prerequisite: CLGT 5503.

CLGT 6604 Photomicrographs Reproduction & Imaging 2

A continuation of CLGT 5504 with increased emphasis on obtaining high quality reproductions from photomicrographs and Genevision images. Prerequisite: CLGT 5504.

CLGT 6605 Fluorescence in Situ Hybridization (FISH) Technology 2

A more intensive course in current methods and practices involving FISH technology on peripheral blood, fixed blood culture suspensions and buccal smears. The use of recent direct detection systems is emphasised. Multicolour FISH application and SKY techniques are discussed. The scoring and reporting of FISH analyses/results is emphasised. Prerequisite: CLGT 5505.

CLGT 6606 Molecular Technology 2

Building on the techniques and theory from Part 1 of this course, additional techniques involving DNA/RNA manipulations are introduced. Techniques and applications of PCR, RT-PCR, and RFLP are emphasised. Nucleic acid extraction from peripheral blood specimens is performed with the phenol/chloroform techniques and commercially available purification kits. Several single gene defects from well-known genetic diseases are examined using molecular diagnostic procedures.

CLGT 6607 Clinical Training

The cytogenetics/FISH portion of the practicum is approximately 18 weeks in length and deals with the theoretical and technical content of CLGT 5501/6601, 5502/6602, and 5505/6605 as well as techniques not covered at BCIT. Most sites are located in larger hospitals in the Vancouver area and in Victoria. It may be necessary to locate some students to Alberta and/or Manitoba due to a limited number of sites for the molecular genetics portion of the practicum.

CLGT 6608 Practicum

The molecular genetics portion of the practicum is approximately 12 weeks in length and deals with the theoretical and technical content of CLGT 5506/6606 as well as techniques not covered at BCIT. Most sites are located in larger hospitals in the Vancouver area. It may be necessary to locate some students to Alberta and/or Manitoba due to a limited number of molecular genetic sites.

Construction Management

CMGT 7100 Construction Project Controls 1

This is the first part of a three part series of courses covering the scope, time and analysis of construction costs, or what is commonly called *Project Controls*. This particular course will cover many aspects of task and time scheduling for construction projects using computer software as an aid in developing, monitoring and controlling construction projects. Topics include activity inter-relationships, milestones, task duration and risk and the management of float time. Microsoft Project 4 will be used to demonstrate application of suitable software. Prerequisite: Acceptance into this degree program or by departmental approval.

CMGT 7110 Construction Project Controls 2

In this second part of this three part series on Project Controls, emphasis will be placed on the cost and accounting aspects of construction projects. Building on the Prerequisite course material, participants will initially prepare summary reports for tasks and resource pools, critical path analysis and work progress tracking. Project costing and cost reports for sub-projects, or multiple projects, and its relationship to the overall schedule and cost requirements will then be covered.

CMGT 7120 Construction Project Controls 3

In this third and final part of this series on Project Controls, participants will be shown how to use schedules for claim preparation. More advanced techniques such as expert systems will be reviewed and discussed. The use of software such as Primavera will be used in a lab setting to develop and simulate these skills. Prerequisite: CMGT 7110.

CMGT 7145 Statistics for Construction Management 1

Statistical techniques are used in the construction sector to analyse business and engineering data. In preparation for the application of enumerative and analytical statistics, participants will be shown how to approach the design of the data collection process and adopt standard formats for the presentation of statistical data. The course will conclude with the application of probability and distribution methods to data analysis. Prerequisite: CMGT 7100.

CMGT 7155 Statistics for Construction Management 2

In this follow-up course on construction statistics, participants will be shown the relevance of sampling and estimating, linear regression and correlation with particular emphasis on the interpretation of construction test results. The application of these methods and techniques to business forecasting and quality management will complete this course. Prerequisite: CMGT 7145.

CMGT 7200 Management of Construction Equipment & Plant 1

The selection, efficient utilization and cost-effectiveness of major construction operations (such as earthmoving, lifting, transporting, etc) have a significant impact on the overall cost and duration of construction activities. This course will review and discuss the operational parameters of many of these activities including earth moving operations, lifting, materials handling, foundation construction, asphalt and concrete production facilities. Prerequisite: Acceptance into the degree completion program.

CMGT 7210 Management of Construction Equipment & Plant 2

Construction managers should be able to develop systems and procedures for the efficient management and maintenance of construction equipment. Managers should also be able to make economic comparisons between alternate methods of financing, recognising the impact of economic influences and overall costs. Management of the equipment also requires consideration of cost, time and productivity records, inventory management, maintenance management and equipment standardisation. Prerequisite: CMGT 7200.

CMGT 7220 Health & Safety in Construction

Presents the role of key stakeholders involved in health and safety issues in construction. Sessions will include Role of Workers Compensation Board; accident prevention on the construction site; protection of the public; health hazards and the cost of accidents in construction. Prerequisite: Acceptance into the Construction Management degree program or by departmental approval.

CMGT 7230 Quality Assurance & Control 1

This is the first part in a three part series on the development and implementation of a quality assurance (QA) plan for a construction project. After an overview of QA systems, the economic benefits and the administrative aspects of developing a quality assurance plan will be discussed in detail. This will include development of policy statements for program implementation and the preparation of estimates of time and cost for the various components. Reference will also be made to benchmarking of auditing tools that will aid in assessing formal comparisons with peer groups in industry. Prerequisites: CMGT 7120 and CMGT 7150.

CMGT 7240 Quality Assurance & Control 2

This course relates to knowledge and awareness of quality management/assurance aspects covered in ISO 9001 and Quality Standards for 1994 and the draft 2000 editions. Topics will include evolution, approaches, structure, benefits and a critique of ISO standards. Also included will be an interpretation of all sections of draft ISO 9001-2000 consisting of quality aspects related to management responsibility, resource management, product and/or service realisation, measurement, analysis and improvement. Prerequisite: CMGT 7230.

CMGT 7250 Quality Assurance & Control 3

This course is a follow-up of CMGT 7240 (Interpretation of ISO 9001-2000) and deals with the implementation of ISO 9001-2000 for building construction industry using a project approach. The overall implementation will cover phases such as preparation, assessment, planning, QMS design, process deployment and validation. It is intended to include the activities associated with developers, designers, architects and contractors as much as possible within the constraints of time. Prerequisite: CMGT 7240.

CMGT 7300 Construction Finance 1

The challenges of determining if a project is staying within budget are critical in today's fiercely competitive environment. This three part series of courses on Construction Finance illustrates the transition of the project estimate, prepared for bidding purposes, to the cost control system required to ensure profitability. In this first part, emphasis will be placed on developing a cost control system and its implementation into the daily management of projects. Discussion on the preparation of estimates/budgets that are conducive to job cost control, utilization of cost baselines and the projection of cash flow and balances will complete this section. Prerequisites: CMGT 7120 and CMGT 7150.

CMGT 7310 Construction Finance 2

In the second part in this series, participants will build upon the strategies covered in the prerequisite course. New topics will include the development of variance assessment techniques and the preparation of financial projections and forecasts to completion costs. The application of engineering economic analysis will then be demonstrated in order to analyse financial decisions. Prerequisite: CMGT 7300.

CMGT 7320 Construction Finance 3

Concluding this series, this course will present methods for monitoring and controlling costs of construction projects, while emphasising the importance of a proactive approach to corrective actions. The relationship of cost control systems to the financial accounting of the organization as a whole will then be illustrated. Prerequisite: CMGT 7310.

CMGT 7420 Construction Law & Ethics 1

Participants will start with a basic review of the legal principles and then examine the provisions of the standard contract (CCDC2) which deals with those issues. After an analysis of the project type, the appropriate form of standard contract will be selected together with an interpretation of the limitation periods and other procedural requirements. The role of the consultant as both the owner's agent as well as an independent arbiter of the contract will be contrasted. Prerequisite: Acceptance into this degree program or by departmental approval.

CMGT 7430 Construction Law & Ethics 2

Case histories will be reviewed that deal with the disputes that illustrate the basic principles of contract law. The principles and procedures under the Builders' Lien Act of B.C. will be critically reviewed. Issues relating to surety bonds, insurance law and the protection of a contractor's (or owner's) right to assert a delay claim will also be discussed. A comparison of the advantages and disadvantages of the different dispute resolution methods used in B.C. will conclude this course. Prerequisite: CMGT 7420.

CMGT 7530 Leadership & Interpersonal Skills

This course provides current or potential team leaders and managers with the essential skills to manage a diverse workforce in the construction workplace. Participants will be introduced to factors influencing performance, personality, culture and organizational norms, as well as the practical application of modern management concepts and techniques. Skills development will be achieved through a variety of training interventions including lecture, casework and discussions. In addition, a computer-mediated simulation will provide exposure to participants, working in teams, to typical decisions required of a manager in realistic, real-time environment. Extensive feedback will be provided to participants on the real implications of their decisions. Prerequisite: BUSA 7250.

CMGT 7600 Industrial Relations in Building Construction 1

The two courses in this series will cover employment and collective bargaining legislation as well as the maintenance of collective agreements and the management of industrial relations. This first course will analyse how employment standards legislation impacts on the collective bargaining environment and the impact of collective bargaining on different models of organizational structure. This course will conclude with discussion of open and closed shop work environments. Prerequisite: CMGT 7420.

CMGT 7610 Industrial Relations in Building Construction 2

The construction manager will become involved in the management of industrial relations in the modern workforce. This second course will discuss the relationship of labour relations associations and their involvement in the collective bargaining process. It will also relate the management of construction trades and professionals to the evolving construction environment. There will also be a review and discussion of current B.C. labour legislation, both contemplated and existing. Prerequisite: CMGT 7600.

CMGT 7640 Environmental Issues in Construction 1

Contaminated site issues impact on both the contractor and the owner. Common surface and sub-surface contaminants and their migration patterns will be reviewed together with current legislation. Issues relating to liability, risk, hazards and toxicity will be discussed. A section on the historical use of sites will conclude the course. Prerequisite: CMGT 7610.

CMGT 7650 Environmental Issues in Construction 2

This course will enable participants to manage construction-related aspects with due regard to pollution prevention and long term environmental protection. Topics will include legislation, sensitive areas (watercourses), construction and demolition waste, building materials, noise management and fuel handling. Prerequisite: CMGT 7640.

CMGT 7800 Project Reports

Primarily intended for the preparation of the final report for the Industry Sponsored Project, this course will provide the basis and format for all technical reports required in the program. Emphasis will be placed on the overall structure, organization of information and the logical progression of concepts. This course should be completed at an early stage in the program. Prerequisite: CMGT 7100.

CMGT 7820 Project Proposals

This course is intended to be taken just prior to completion of the program. It will help you conduct the necessary literature review to clearly define your industry sponsor/ research topic and to prepare an effective proposal for submission to the department. Your industry sponsor is expected to provide occasional guidance and support relating to this activity. Prerequisite: CMGT 7800.

CMGT 7840 Technical Presentations

The ability to make an effective business presentation is now more essential than ever for individuals wanting to advance in their careers. This course will allow participants to analyse the need of your audience and then integrate your objective to the content and audience. Video feedback will be used extensively to provide immediate and practical comments as you develop comfort and confidence in business presentations. Prerequisite: CMGT 7100.

CMGT 8020 Project Delivery Methods

Designed for managers, developers, and building owners, this course will contrast stipulated sum, construction management and design-build methods for the construction of new projects. Presentations will also outline the funding and design decisions for viable projects. Participants should have at least 2 years of related building-project experience. Prerequisites: Related Diploma of Technology (or Degree) plus 2 years work experience.

CMGT 8030 Project Initiation/Definition

Covers the process from the initial decision to evaluate an identified need or opportunity, through project planning and evaluation, to the decision either to proceed to final design or to defer the project. Includes business/funding decisions, leading and organizing the development team and establishing the objective and obligations for the long term. Risk strategies for safe, functional, aesthetic, durable and financially viable buildings will also be discussed. Prerequisite: CMGT 8020.

CMGT 8200 Special Techniques for Large Construction Projects 1

Through presentations from seasoned construction professionals, participants will gain knowledge of appropriate strategies and construction techniques that have been used on a variety of recent, interesting construction projects. Emphasis in this first course will begin with the management of large civil construction projects and design-build-transfer/ operate projects. Following this, presentations will be made relating to a variety of major excavation based projects. Experts representing project managers, specialist consultants and specialist contractors will present the challenges and solutions to both the technical and managerial aspects of these projects. Prerequisites: CMGT 7210, CMGT 7220 and CMGT 7250.

CMGT 8210 Special Techniques for Large Construction Projects 2

Through presentations from seasoned construction professionals, participants will gain knowledge of appropriate strategies and construction techniques that have been used on a variety of recent, interesting construction projects. This series of speakers will make presentations on a major creek diversion project, a variety of pile driving projects, environmental management for construction, design/build from the contractor's perspective and tilt-up construction. Experts representing project managers, engineers, specialist consultants and specialist contractors will present challenges and solutions to both technical and managerial aspects of these projects. Prerequisite: CMGT 8200.

CMGT 8220 Special Techniques for Large Construction Projects 3

Through presentation from seasoned construction professionals, participants will gain knowledge of appropriate strategies and construction techniques that have been used on a variety of recent, interesting construction projects. This series of speakers will make presentations on the Confederation Bridge project, traffic management issues for construction, trenchless technology, segmental guideway construction for the Rapid Transit project, project management philosophy, and cost control and scheduling of a major construction project. Prerequisite: CMGT 8210.

CMGT 8430 Management of Construction Enterprise 1

Participants will be introduced to the primary elements of the management of a construction enterprise including the initial set-up of a construction company, getting work and managing its day-to-day operations. This will also require the management team to develop a marketing plan for the company as well as developing a financial plan that includes procurement, financing, cash flow and risk analysis. The course will conclude with the overall submission and negotiation of a construction bid. Prerequisites: CMGT 7320, 7430 and 7250.

CMGT 8440 Management of Construction Enterprise 2

This course identifies the overall contractual obligations of a construction enterprise working within a CCDC 2 form of stipulated price contract. Emphasis will be placed on management responsibilities relating to the bidding process, contract management, Changes in Work, and in responding to external and internal project stakeholders. Other topics will include effective allocation of personnel and financial resources to maintain a viable organisation in today's business environment. Prerequisite: CMGT 8430.

CMGT 8450 International Construction Management

Participants will be introduced to special considerations in the management of an international construction project, including logistical and cultural implications. Guest lecturers will present topics based on their own experience and illustrated with case studies. Prerequisite: CMGT 8440.

CMGT 8600 Management of Project Stakeholders

Provides individuals with a comprehensive overview of internal and external stakeholder groups involved in a construction project. Case studies will be utilized to demonstrate the potential influence of these groups on such projects. Computer mediated simulation will also be used to provide real-time feedback on decisions made during teamwork exercises. Prerequisites: CMGT 7530 and CMGT 8440.

CMGT 8800 Applied Research Project

This course is intended to be the capstone activity for the program. In conjunction with an industry sponsor, the participant will apply their specialty knowledge in solving a management related problem directly associated with the construction sector. This major program activity is expected to contain some elements which are deemed to be innovative, experimental or exploratory in nature. The department will form a committee to evaluate and approve each project proposal and will provide occasional guidance as appropriate. Feedback from the industry sponsor will be actively encouraged. Prerequisites: CMGT 7820 and departmental approval.

Communication

COMM 1100 Business Communication 1

Designed to give students basic listening, writing, and speaking skills that will allow them to prepare written and oral reports for BCIT courses and to proceed to more advanced communication courses.

COMM 1103 Introduction to Business & Technical Communication

Teaches practical techniques for planning, organizing, selecting, and presenting information in a business or industry environment. Routine memos, instructions, procedures, graphics, letters, and oral presentation are covered. This course is equivalent to most first level Communication courses at BCIT. Student interest in COMM 1103 is always extremely high. Register EARLY to reserve a seat. This course is often fully booked weeks in advance of first class. Prerequisite: English 12 or equivalent.

COMM 1112 Communication for Broadcasters 1

Examines, through lectures, labs and industry examples, some of the basic differences between writing for print and writing for the ear and eye. Students completing this course should be able to apply some of these principles to a variety of standard broadcast features such as reviews, profiles, etc., written in clear, concise and correct language.

COMM 1114 Business Communication 1 for Computer Systems

Teaches basic communication theory and the principles of effective business writing. Students apply these principles to informational and persuasive memos and letters. The term includes an informational oral presentation. Assignments are specific to the computer industry.

COMM 1135 Technical Communication 1

Students learn how to write letters, memos, and routine e-mail messages. They learn to write clear and concise sentences and paragraphs and to make documents easily accessible through headings, lists and white space. They also learn how to prepare a standard laboratory report and give an oral report based on library and online research on a new development in their technology. In addition, they prepare a resume and job application letter and fill out a job application form. Students also learn how to collaborate as part of a team to accomplish work-related communication tasks.

COMM 1140 Technical Communication for Building

This course is currently under development.

COMM 1143 Technical Writing 1 for Electronics

Emphasises clear, correct, concise technical writing in the electronics field. Students learn how to organize technical information, illustrate documents, define and describe technical objects and processes, write routine letters, memos and instructions, a lab report and an operating manual. Students also write a resume and application letter for Co-op, and give short, informative presentations to small groups.

COMM 1144 Communication 1 for Biot/Food

Teaches the skills necessary for success in the food industry. Students learn technical writing, speaking and presentation techniques, and the correct formats for reports, instructions and lab reports. They also research and deliver an oral report on a new development in their technology, develop job search skills, take part in a meeting and give a persuasive oral presentation.

COMM 1145 Technical Communication 1 for Renr

Introduces Forestry, Fish, Wildlife and Recreation students to professional writing skills as applied to routine request letters, persuasive requests, claim letters, adjustment letters, "bad-news" letters and written instructions. It also includes resume writing and the basic skills of oral presentation.

COMM 1149 Technical Communication 1

Teaches the basic skills for effective writing and speaking in industry. Students learn the layout, content and graphic techniques for technical writing and speaking, as well as job-search documents. Students write instructions, letters, reports, and give an oral report.

COMM 1164 Technical Writing 1 for Robotics

Emphasises clear, correct, concise technical writing for the robotics field. Students learn how to organize technical information, illustrate documents, define and describe technical objects and processes, write routine letters, memos and instructions, and summarize technical articles. Students also learn how to prepare content and design visuals, and deliver technical briefings.

COMM 1178 Technical Writing 1 for Biomedical Engineering Technology

Introduces students to the communication needs of biomedical engineering technologists. It includes organizing and sequencing technical information and composing and word processing effective letters and memos. Students will also deliver a formal oral presentation.

COMM 1180 Communication/ Applied Research

Introduces technical communication, an overview of the fundamentals of applied research and word processing software and hardware to Electroneurophysiology students. Oral and written technical communication skills plus research fundamentals are presented concurrently to enable students to understand both processes as they apply in their work. They learn the steps in the technical communication process and apply them in a variety of written memos, letters and reports as well as in oral presentations. Students also address fundamental research topics including major steps in the research process, basic research terminology, basic research methodology and a literature review.

COMM 1184 Technical Writing 1 for Prosthetics & Orthotics

Improves students' abilities to express themselves clearly and appropriately to patients and their families and to health care professional groups such as government and fee-paying agencies. Topics include basic skills in writing instructions, memos, letters and reports, and effective public speaking. Library orientation and research techniques are also emphasised.

COMM 1188 Communication 1 for OCHS Professionals

Professionals introduces students to the communication needs of professionals working in the OCHS field. It includes organizing information, writing public relations letters, procedures and literature reviews. Students also deliver a short oral training session on an OCHS topic.

COMM 1282 Communication 1 for Environmental Health

In the workplace, Environmental Health Technologists (EHOs and PHIs) spend time each day communicating with co-workers, supervisors, operators, and clients. This course teaches how to be a professional and efficient communicator at work. Topics include effective memos and letters, delivering an informative oral presentation, and technical instructions and descriptions.

COMM 1372 Communication for Medical Radiographers

Introduces students to workplace communication and provides practice in communicating with co-workers, supervisors and patients. The course includes organizing and explaining information, writing procedures and short reports. Students also research a new technique in imaging and deliver an oral presentation to colleagues. All assignments are based on radiography case studies.

COMM 1474 Communication for Nuclear Medicine Technology

Introduces students to the communication needs of the nuclear medicine profession with regards to communicating with supervisors and patients. This course includes organizing and explaining information, oral and written reporting, and resume writing.

COMM 2200 Business Communication 2

Provides further instruction and practice in the principles taught in COMM 1100. It concentrates on more sophisticated forms of written communication the job application package, indirect correspondence, and reports. The course might also include modules on graphics, questionnaires, telephone techniques, and organizing and running meetings. Prerequisite: COMM 1100.

COMM 2202 Business & Technical Correspondence

Teaches the skills needed to write all types of memos and letters commonly used in business and industry including requests, replies, claims, "bad-news", sales letters, and job applications. Students in a BCIT diploma program must complete COMM 1103 before taking this course. Register EARLY to reserve a seat. This course is often fully booked weeks in advance. Prerequisite: English 12 or equivalent.

COMM 2203 Business & Technical Reports

Teaches the skills needed to write effective business and technical reports. Emphasises the persuasive skills needed to sell ideas, methods and products. Topics include comparison and recommendation reports, proposals, feasibility studies, summaries, formal report format, oral reports, and graphics. Prerequisite: English 12 or equivalent. Students in a BCIT diploma program must complete COMM 1103 and COMM 2202 before this course.

COMM 2212 Communication for Broadcasters 2

Continues from COMM 1112. This course focuses on the unique demands of radio and television writing. Students will work individually and in groups to produce a number of presentations and scripts, including a documentary feature. Prerequisite: COMM 1112.

COMM 2214 Business Communication 2 for Computer Systems

Continues from COMM 1114. This course teaches strategies for writing a variety of informational and analytical reports, getting a job, interviewing clients, holding productive meetings, and making persuasive oral presentations. The term includes a 15-hour block on writing effective and readable manuals for the end-users of computer systems and programs. The major assignment for the term involves an oral and written proposal to clients for a new system. Prerequisite: COMM 1114.

COMM 2235 Technical Communication 2

Covers the preparation of various kinds of industry-related reports and proposals. Prepares students to make persuasive oral presentations, participate effectively in meetings, and develop effective job-search skills.

COMM 2236 Technical Communication 2

Prepares students to participate effectively in job interviews. Students write technical descriptions and instructions, prepare effective graphics, and write several reports. Students do primary and secondary research to prepare a formal report related to their technologies, practice effective meeting strategies, and give a persuasive oral presentation. They also learn to use a word processing package and learn how to collaborate as part of a team to complete a large writing project. (Course duration is 17 weeks).

COMM 2242 Technical Communication for Civil & Structural

Students write job application letters and resumes and learn about job interviews. They also write short progress, incident, trip and inspection reports common in the Civil and Structural field. They also practice oral reporting. Prerequisite: COMM 1135.

COMM 2244 Communication 2 for Biot/Food

Enables students to put together a career package, take part in meetings, and give a persuasive oral presentation in front of a panel. Prerequisite: COMM 1144.

COMM 2245 Technical Communication 2 for Renewable Resources

Teaches forestry students professional writing skills as applied to memos and formal reports incident reports, progress reports, inspection reports, proposals and comparison reports, including the use of graphics. It includes job search skills, application letters, resumes and interviewing. It also includes oral presentations, library research and documentation skills. Prerequisite: COMM 1145.

COMM 2251 Technical Communication 2 for Surveying

This course expands the scope and complexity of communication skills learned in previous courses. Students will update career packages, participate in job interviews and meetings, and produce a variety of informal and formal reports. Emphasis throughout will be placed on effective writing strategies and editing skills. Prerequisite: COMM 1135.

COMM 2255 Technical Communication 2 for Building

Teaches students the theory and practice of writing different types of short reports based on industry-related case studies. They learn report formats and write occurrence, trip, progress, investigation and recommendation reports. Prerequisite: COMM 1140.

COMM 2278 Technical Writing 2 for Biomedical Engineering Technology

Builds on the skills taught in COMM 1178. Students will write hospital and industry-oriented reports, and deliver a persuasive presentation. Effective meeting and interview skills are also covered. Prerequisite: COMM 1178.

COMM 2280 Communication/ Applied Research

Continues to develop skills and add knowledge in technical communication and applied research. Students begin the term by developing a job application package followed by writing workplace related reports and reports that utilize some of the recently acquired research skills. Additional research topics such as problem identification and solutions, design, ethics, data collection and analysis plus measurement uncertainty and error are examined. This course also includes further developing oral skills such as reporting research and participating in a persuasive meeting participant. Some assignments may be done jointly with other courses. Prerequisite: COMM 1180.

COMM 2284 Technical Writing 2 for Prosthetics & Orthotics

Continues from COMM 1184. Students learn how to compose submissions to technical journals and research proposals. An oral presentation is also included. The emphasis is on communication applications in the prosthetics/orthotics field. Prerequisite: COMM 1184.

COMM 2288 Communication 2 for OCHS Professionals

Builds on skills learned in COMM 1188 and adds incident, inspection and investigation reports, proposals and a professional job application package. Meetings and interview skills are also covered. Students propose, design and sell a training module on an OCHS topic. Prerequisite: COMM 1188.

COMM 2382 Communication 2 for Environmental Health

Builds on the skills learned in COMM 1282 and adds writing informal reports including inspection, investigation, and progress reports. It also covers proposals, formal reports, and meetings in preparation for the industry project and research courses. Topics include application letters, resumés, and interviews. Prerequisite: COMM 1282.

COMM 2443 Technical Writing 2 for Electronics

In this course students prepare a professional job search package, practise interviewing skills, write informal reports including a Proposal, and prepare a substantial formal report. They also learn techniques and formats for documentation, and do technical briefings. Prerequisite: COMM 1143.

COMM 2449 Technical Communication 2 for Mechanical Technology

Applies techniques from COMM 1149 to produce a project proposal, evaluation or comparison report, a progress report and a major formal report. Meetings, interpersonal communication techniques and oral reports are integral parts of this Term 4 course. A technology project course must be taken concurrently. Prerequisite: COMM 1149.

COMM 2460 Advanced Technical Communication 2 for CAD/CAM

Applies techniques from COMM 1149 to produce a project proposal, evaluation or comparison report, a progress report and a major formal report. Meetings, interpersonal communication techniques and oral reports are integral parts of this Term 4 course. A technology project course must be taken concurrently. Prerequisite: COMM 1149.

COMM 2462 Technical Communication 2 for Plastics

Applies techniques from COMM 1149 to produce a project proposal, evaluation or comparison report, a progress report and a major formal report. Meetings, interpersonal communication techniques and oral reports are integral parts of this Term 4 course. Technology project course must be taken concurrently. Prerequisite: COMM 1149.

COMM 2464 Technical Writing 2 for Robotics

Introduces advanced technical writing techniques and principles. In labs, students write industry-oriented reports and give technical briefings. They prepare proposals, progress reports and documentation describing the project designed and produced for ROBT 4491. They also write a resume and an application letter and prepare for and hold meetings and interviews. Prerequisites: COMM 1164 and ROBT 4491.

COMM 3310 Advanced Communication for Business Administration

Provides practice in communication techniques used by managers, including correspondence and short reports. Emphasises persuasive writing and speaking skills, especially proposal writing.

COMM 3312 Corporate Writing for Television

Emphasises the writing and research skills needed by professionals in broadcasting. Writing skills will be developed through writing scripts for reviews and critiques, writing powerful business letters and memos, and developing effective program and story ideas. Research skills will be developed through units on effective reading, time management and advanced research techniques. Prerequisite: COMM 2212.

COMM 3342 Technical Communication 3 for Civil & Structural

Applies the skills learned in COMM 2242 and complements the industry sponsored proposal required by the Civil and Structural Projects Committee. Preparation of the proposal requires students to discuss the design objectives with the industry sponsor, review the problem solving approach with the advisory committee, and write and edit a formal proposal. Students also prepare a persuasive proposal oral for the committee and course instructor. Students design and write instructions and process descriptions for user documents, and build on their skills with designing graphics for proposals, user documents and orals. Prerequisites: COMM 1135, COMM 2242, and concurrent enrolment in CIVL 3090.

COMM 3344 Communication 3 for Biotechnology

Provides a scheduled time slot where a Communication instructor is available to provide guidance and assistance to Biotechnology students on writing assignments assigned in other courses. Prerequisite: COMM 2244.

COMM 3345 Technical Communication 3 for Forest Resources

Applies the skills learned in COMM 2245 and requires students to write and edit a proposal memo, formal proposal and progress reports for the natural resource management forestry project. Complements the RENR 3180 course requirements. Students also prepare an oral presentation of the forestry project proposal. Students revise project journals and design graphics and technical descriptions for documents and orals. Prerequisites: COMM 1145, 2245, and concurrent enrolment in RENR 3180.

COMM 3346 Advanced Technical Communication 3 for Wood Products Manufacturing

Allows students to review and practise technical reporting. They write several memos and a summer technical report which is evaluated jointly by the instructor and by people employed in the lumber and plywood industry. Students practise illustrating, revising and editing skills, and presenting an oral technical report. Prerequisites: COMM 1135 and COMM 2246.

COMM 3350 Advanced Technical Communication 3 for Mining

This course expands the scope and complexity of communication skills learned in previous courses. Students will update career packages, write field-trip and evaluation reports, and participate in language workshops that specifically address common problems of style and usage. Prerequisite: COMM 2250.

COMM 3353 Advanced Technical Communication for Fish, Wildlife & Recreation

Allows students to apply communication skills to industry projects. They write proposals, meet with clients, report on progress, and practise oral communication skills. They also design, write, illustrate and produce a slide-tape or multimedia presentation on a Fish, Wildlife and Recreation topic. Prerequisite: COMM 2253.

COMM 3388 Advanced Communication for OCHS

Prepares students for the Safety Program Review (SPR) completed at the end of the second year. Students write proposals, design questionnaires, negotiate a Term of Reference, deliver progress reports, and conduct an evaluation of a few elements of a safety program. They also present their findings to industry sponsors, the OCHS program head, communication instructor and classmates. Prerequisite: COMM 2288.

COMM 3394 Communication for TTED

An introduction to technical communication, with emphasis on the uses of technical communication in the technology problem solving and design processes. Covers the basics of technical formatting style and presentation and graphic aids in communication with applications to different types of technical reports found in industry and used in the classroom.

COMM 3444 Communication 3 for Food Technology

Allows students to update their career package, write and present a manual or feasibility student and a proposal, prepare a brochure, take part in meetings, and give a persuasive presentation. This course is coordinated with FOOD 4390. Prerequisite: COMM 2244.

COMM 3478 Technical Writing 3 for Biomedical Engineering Technology

Builds on the skills learned in COMM 1178 and 2278 to write effective reports and a project manual. This operation and service manual is for a device that they design and build in their technology course. In addition, students will update their resumes to graduate level requirements. Prerequisite: COMM 2278.

COMM 4412 Project Writing for Television

Emphasises skills needed to sell writing to broadcasters and to sell students' abilities and training to employers. Skills will be developed through units on covering letters, resumes and job interview techniques, copyright law, writing effective proposals, queries and sales presentations and translating students' work into several media. Students will be required to produce broadcast material written to professional industry standards. Prerequisite: COMM 3312.

COMM 4442 Technical Communication 4 for Civil & Structural

Builds on the skills in 3342 and requires preparing progress reports for the project advisor and industry sponsor. Students plan and write the formal reports, user manuals, guidebooks and/or portfolios for the project. Students plan and design a static display, model and oral explanation for the project. Students also write a functional resume and letter of application. Additionally, students write specifications for construction sites. Prerequisites: COMM 3342 and concurrent enrolment in CIVL 4020.

COMM 4444 Advanced Communication for Biotechnology

Gives students the opportunity to present the results of their internship project. Students write a formal report for the sponsor and present their research results in a seminar. Prerequisite: COMM 3344.

COMM 4445 Technical Communication 4 for Forest Resources

Builds on the skills from COMM 3345 and complements the RENR 3181 natural resource management project. Students write a formal report for the forestry project and revise a functional resume and application letter. Also, students prepare a product review and write an inspection report for a mill, nursery or silviculture operation. Students design an educational brochure for the general public and develop special techniques for dealing with the public through media plans, newspaper or video interviews. Prerequisites: COMM 3345 and concurrent enrolment in RENR 3181.

COMM 4446 Advanced Technical Communication 4 for Wood Products Manufacturing

Allows students to write technically advanced material typical of the forest products industry. They update their resumes and job application letters and write technical definitions and descriptions, procedures, instructions, trip reports and technical letters. They write one long report based on observations in a mill, in conjunction with an engineering course. Prerequisites: COMM 1135, COMM 2246 and COMM 3346.

COMM 4450 Advanced Technical Communication 4 for Mining

This course focuses on various communication strategies for presenting information in a variety of industry-related contexts. These strategies include field trip reports, interviewing techniques, questionnaires, brochures, display panels, news releases, and studies in media relations. Emphasis throughout will be placed on editing and style. Prerequisite: COMM 3350.

COMM 4453 Public Info Techniques for Fish, Wildlife & Recreation

Students study and practise techniques for communicating with the public and media about FWR issues. They write a public relations plan and promotional materials such as news releases, brochures and materials for interpretive educational programs. Students write a proposal to a funding agency for a FWR public relations initiative, are interviewed by a media reporter and also polish oral skills. Students design and construct visual displays and give community briefings on controversial issues in FWR. Prerequisite: COMM 3353.

COMM 4488 Writing Safety Program Reviews

Assists students with their industry Safety Program Review (SPR). Students spend one day per week gathering information at the company. Students conduct interviews, design and administer a questionnaire, review safety-related documentation, and inspect workplace conditions. Using this information, students evaluate the program and present their findings to their industry sponsors, the instructor, and the OCHS program head. Students work with industry representatives, handle correspondence and write a formal report. They also implement one of the report recommendations in the workplace. Prerequisite: COMM 3388.

COMM 4494 Advanced Communications for TTED

A continuation of COMM 3394; covers more complex types of technical reports, as well as how to use technical communication in the classroom; also covers the basics of professional academic communication for teachers. Prerequisite: COMM 3394.

Computer Systems

COMP 1100 Enhanced Learning Skills

Assists new Computer Systems students in increasing their success at BCIT. The course covers skills in retention, time management, reading, test taking, note taking, report writing, oral presentation and planning, and portfolio development.

COMP 1130 Computer Applications

Emphasises the use of computers to solve problems related to Wood Products Technology. Topics include how a computer works, recognizing problems suitable for computer solution, IBM DOS, and communicating with computer personnel. Uses Windows based software for modeling and problem solving.

COMP 1135 Computer Applications

Upon successful completion of this course the student will have a basic literacy in the use of a computer in a problem solving capacity; recognize a problem as being amenable to computer solution; code, test, execute and document a program written in BASIC; gain fluency in the use of the IBM PC or compatible computer; have a knowledge of some of the fundamental commands in MS-DOS, basic computer concepts and terminology; and have a working knowledge of using spreadsheets with Microsoft Excel.

COMP 1510 Programming Methods

COMP 1510 is a prelude to all future systems and programming courses. The course presents modern principles of programming methodologies. Students write programs that are readable, reusable, and easy to maintain.

COMP 1525 Introduction to Object Oriented Programming with Java

Students learn to develop applications with the Java language using the Object Oriented Paradigm. Focus is on problem solving, proper Object Oriented Programming techniques, and clear coding style. The three fundamentals of OOP are covered; data abstractions and encapsulation, inheritance, and polymorphism. Basic Java is explored using interfaces, exception handling, and user interfaces. Several Java packages are examined including java.io, java.awt, and others. Students will become familiar with many classes and learn to search for useful classes.

COMP 1710 Computer Applications Fundamentals

Addresses computer fundamentals and personal productivity. Opens with a review of computer literacy basics (hardware & software). Addresses basic productivity tools such as MS-DOS, text editing, word processing, spreadsheets, database management, and communications. Covers business information systems, particularly the key operations and standard financial applications. Introduces the student to advanced productivity tools time management, desktop publishing, power programming and includes an introduction to objects. Includes extensive hands-on lab work related to lecture material.

COMP 2104 Microcomputer Applications

Introduces microcomputer applications using a database and spreadsheet package, the IBM mainframe and electronic mail. Prerequisite: COMP 1104.

COMP 2135 Computer Applications 2

Introduces Windows based database and presentation graphics so students can compile a professional presentation incorporating text, graphics, spreadsheets and charts. Includes software integration, preparing and delivering a presentation, and organizing and updating a relational database. Prerequisites: COMP 1135, PETR 2201 and PETR 2202.

COMP 2140 Linear Programming

Presents linear programming using manual and computer assisted methods to solve problems, computer forecasting models, sawmill simulation software and its application, and database techniques using Windows-based software. Prerequisite: COMP 1130.

COMP 2510 Procedural Programming in C

This course provides a complete coverage of the C programming language with a focus on the implementation of common algorithms. Topics covered include creation of various file types, and dealing with dynamic memory including self-referential structures such as trees and linked lists. Prerequisites: COMP 1510, COMP 1515 and COMP 1710.

COMP 2530 Visual Tools

Builds on previous programming courses with an emphasis on good programming techniques, interface design and testing procedures. Follows on from Comp 1510 (Programming Methods) furthering students' knowledge of Object Oriented programming and GUI design using Rapid Application Development (RAD) tools. Students will be taught to use one of the current RAD tools available in order to create programs for the Windows 95 operating environment. Students will complete a number of smaller assignments as well as one larger project. Prerequisite: COMP 1510.

COMP 2710 Systems Analysis & Design

Covers systems development life cycle, starting a project, preliminary investigation, systems requirements, fact finding techniques, data flow concepts and diagrams, data modeling, data dictionaries, cost/benefit analysis, design of input/output and controls, on-line system design considerations, system testing and implementation, hardware and software selection. Human factors and ethical issues are stressed. Prerequisites: COMP 1710, FMGT 1100, COMM 1114, COMP 1510 and COMP 1515.

COMP 2720 Computer Organization/Architecture

Evolution of computer architecture and current microprocessor designs. Discussion and comparison of several modern machines. Sequential and combinational circuit design. Memory technologies and bus structures. Internal data representation and architectural issues affecting programming. Instruction set design and an introduction to operating systems. Prerequisites: COMP 1710, COMP 1510, OPMT 1113 and COMP 1515.

COMP 2750 Introduction to Decision Systems

Gives an overview of the use of computers to assist management in short and long run decision-making for planning and control. Topics include decision theory, inventory models, simulation and linear programming, as well as the behavioural aspects of implementation of computer models. Prerequisite: OPMT 1133.

COMP 3110 Networks & Current Developments

Familiarizes students with concepts, components, topologies, and operations of Wide and Local Area Networks. Topics include introduction to Local Area Network operating systems; new development in the computer network field; and effects of new technology on business and society. Students are prepared for Local Area Network support positions in small to medium sized organizations.

COMP 3151 Software Engineering

This course will give students an understanding of software engineering on a variety of levels. Topics include basic microprocessor/computer architecture, software development methodology and tools, assembly language programming, and C programming. If time permits, elements of scientific algorithms and real-time programming will also be included. The goal of this course is to give the student an in-depth view of software engineering starting from the hardware level building up to the use of high level programming languages. Prerequisites: MATH 1151 and BMET 2215.

COMP 3511 Object Oriented Programming with C++

This course covers a paradigm in programming which deals with classes and objects. Most features of the C++ language will be covered including polymorphism, templates, persistence, and exception handling.

COMP 3710 Relational Database Systems

Covers relational database model, database design techniques, normalization, functional dependency, relational algebra, Entity Relationship (ER) modeling, distributed database systems, database administration, implementation of relationship database using SQL. Prerequisite: COMP 2615 or COMP 2710 or COMP 3620.

COMP 3720 Introduction to Data Communications

Introduction to modern computer communications and networking using layered protocols. Synchronous and Asynchronous data transmission. Character and bit-oriented protocols. Circuit switched and packet switched networks. Issues in Internet working. Network through performance analysis. Issues in Network design, routing, flow and congestion control. Digital Modulation schemes. Error detection/ Correction algorithms. Prerequisites: COMP 2510 and COMP 2720.

COMP 3730 Operating Systems Concepts

Covers topics related to the management of computer resources by an operating system (software) and supporting hardware. Topics include processor management and scheduling, memory management and input/output management. Prerequisites: COMP 2720 and COMP 2510.

COMP 3765 Issues in Networking

Covers communication between computer; networking theory and practice; distributed processing with special emphasis on microcomputers; software management of Local Area Network systems; and, theory of ETHERNET and ISO standards.

COMP 3900 Computer Projects Practicum 1

Allows students to work on projects of their choice within guidelines specified by faculty. The projects are drawn from a variety of sources, especially from industrial situations, and may require extensive contact with the business community. Students work in teams and seek advice from a faculty member acting as their project supervisor. Some of the projects continue through both terms, whereas others end in COMP 3900 and new ones start in COMP 4900. Prerequisites: COMP 2510, COMP 2710, COMP 2720 and COMM 2214.

COMP 3910 Introduction to Information Technology Management

Investigates design and implementation of large software systems for the business community. The emphasis is on transaction processing systems such as payroll, A/R, inventory, POS, human resources, and shipping/receiving. Students perform numerous case studies which explore alternative solutions to real life IS problems. The programming component of this course introduces Visual Basic, DAO, and MS Office Integration. Students use these technologies to develop small business applications. Prerequisite: Completion of first year.

COMP 3920 Database Systems 1

Continues from COMP 3710 for students who have a special interest in database technology. Topics include the importance of data in an organization; conceptual, logical and physical data modeling; meta data and data repository; steps in transforming user requirements to a database; database implementation; performance tuning and optimization; backup and recovery; roles and responsibilities of data and database administrators in an organization. Students will use industry-standard DBMs such as SQL/DS, Access and Oracle. Prerequisite: Completion of first year or permission from the instructor. Corequisite: COMP 3710.

COMP 3931 Digital Image, Video & Audio Fundamentals

Introduces the basics of digital image and audio signals. Topics include colour spaces, time to frequency transformations, filtering of signals using convolutions, point/area/geometric processing of images, morphing and warping digital data, feedback impulse response filters, and more. Students will develop audio and image editors using C and the Win32 API. Techniques gained here will be applied directly to fourth term courses. Prerequisites: COMP 2510, COMP 2720 and COMP 1113.

COMP 3940 Client/Server Computing 1

Provides an introduction to the client/server based systems. The course covers most of the analysis and design techniques used to implement a Client Server application. Topics include components of Client Server Architecture; client, server, and connectivity; key requirements and design goals; means to evaluate and achieve these requirements and goals; differences from traditional application environment; client and server delineation; structural and modeling issues; and, design methodologies for client/server based systems. Students will develop client/server based systems using X Windows, UNIX sockets, and RPC on UNIX.

COMP 3950 Technical Programming with WIN 32 API

This course is available only for students who are enrolled in the Technical Programming Option, and covers Microsoft Windows programming. We assume previous experience with C programming. Example programs are applicable to all current versions of Windows. We will use the SDK (software development kit) to study GUI (graphical user interface) design and implementation (menus, icons, modal dialogs, modeless dialogs); the GDI (graphical device interface) for line-drawing, fonts, justification; the help system; DDE (dynamic data exchange); MDI (multiple document interface). In short, we will learn to develop complete Windows applications in C. Students will work through several coding assignments, and will design and code a project of their choosing.

COMP 3960 Multimedia Content

This course addresses understanding and creation of the different media elements found in multimedia titles. The three focal areas are still pictures (images and digital drawings), sound (digital music and MIDI), and moving pictures (digital video and animation). Prerequisites: Completion of first year computer systems, and good command of English language (exam may be required).

COMP 3970 Applied Artificial Intelligence 1

Covers the Common LISP language and its CLOS object-oriented extension. This course prepares courses (COMP 3900, COMP 4900, and COMP 4975) by exploring several AI application paradigms. Prerequisite: Completion of first year or permission from the instructor.

COMP 3980 Data Communications/ Internetworking 1

Introduces LAN installation and administration using NOVELL Netware 4.1. Serial communications programming, using the Win32 API and TAPI. Design and implementation of Interrupt Service Routines. Implementation of bit and character-oriented protocols in the Windows 95/NT environment. Hardware/Software interface for communication programming. PPP implementation issues. Prerequisite: Completion of first year.

COMP 3991 Applied Small Systems Architectures

Small Systems Architectures will cover non-traditional computer systems such as handheld systems (e.g. HP, Palm Pilot) and their operating systems (Microsoft Windows CE, etc.). Programming aspects would focus on the differences in the programming environment between a "full" O/S and a smaller realtime or dedicated O/S. The course will provide students with a basic knowledge of realtime system design. Students will be required to develop applications for various small systems and their peripherals. Prerequisites: COMP 2510 and COMP 2530.

COMP 4550 Advanced Programming Topics OOPL

Introduces the major principles behind the OOPL paradigm including data abstraction, class hierarchies and inheritance, encapsulation, message passing, polymorphism, etc. Students acquire experience with typical OOPLs such as Smalltalk, Actor, C++ and object-oriented extensions to popular microcomputer-based languages such as Pascal and C. Prerequisite: COMP 3510 or COMP 3520.

COMP 4560 Advanced Programming Topics

Covers basic operations in two-and three-dimensions, including the mathematical representation of basic geometric objects, definition of coordinate systems and mappings, transformations, simple animation, and viewing. Transformations and projections are presented in a matrix formulation. The course also introduces lighting models, colour models, and methods for constructing curves. Prerequisite: All first year courses or permission of the instructor.

COMP 4570 Intranet Planning & Development

Alternative techniques for developing and deploying office Intranets are explored. This course focuses on migrating business documents to an online format, using an office Intranet. Lotus Notes is introduced as an Intranet architecture, and compared to custom Intranet solutions developed with HTML, CGI, ActiveX, and ActiveServer technologies. A term project includes implementation of a business Web site on an NT IIS server. Prerequisite: Completion of first year or permission from the program head.

COMP 4575 Graphics Programming

Provides students with a foundation in interactive computer graphics and graphical user interfaces, placing special emphasis on the computer programming techniques involved. At the completion of the course, students will understand how a simple Computer Aided Design system is implemented. Prerequisite: CDCM 3470.

COMP 4710 Software Engineering/Case

Features software engineering practices and computer-aided software engineering (CASE). Includes the CASE software development environment; software methodologies; code generation; categories of CASE tools; implementation considerations; CASE software life cycle; software reusability; software re-engineering. Students develop a project using CASE software tools. Prerequisite: COMP 3710.

COMP 4730 Topics in Operating Systems

Covers advanced topics related to the management of computer resources by an operating system (software) and supporting hardware. Topics include protection and security, data encryption and comparative analysis of current commercial operating systems. Prerequisite: COMP 3730.

COMP 4900 Computer Projects Practicum 2

See COMP 3900. Prerequisites: COMP 2510, COMP 2710, COMP 2720 and COMM 2214.

COMP 4911 Managing is Development

Software Engineering and Project Management skills are studied and applied to large-scale business systems. Students work in large teams (15-20 people) to complete an extensive development project in Visual Basic and MS Access. Management and engineering strategies are introduced continually throughout the project, as students encounter the unpredictable effects of large team dynamics. This course includes a self-directed study component, which allows students to bring diverse skills and areas of specialization to the project team. Prerequisite: COMP 3910

COMP 4915 Special Topics in MIS

Explores two operating systems that are used extensively within the IS community. In the first half of the course students learn to work within the UNIX environment. Shell programming, UNIX system administration, X Windows, and UNIX networking are introduced. The second half of the course covers support and administration of Windows NT Server core technologies. Students are prepared to a level suitable for Microsoft certification. Prerequisites: COMP 3510 and COMP 3710.

COMP 4921 Database Systems 2

Focuses on database application development using some of the most popular database systems and application development tools in the industry. Topics include Recovery and Concurrency Control in multi-user distributed database systems; Object Oriented Database Systems; Logic Based Database Systems, client/server, and Object Oriented Database system development; and, performance considerations in database systems. Students will develop database applications using Oracle, E-SQL, PL/SQL, C, C++, Oracle's Designer/Developer 2000, and Gemstone Object Oriented Database System. Prerequisite: COMP 3920.

COMP 4925 Advanced Topics in Database

Focuses on advanced topics in database, data management, system design tools, and related topics. Some of these topics include data warehousing; replication; databases on the Web; Object-Oriented Databases' Database performance; version control; transaction management; database applications based on three-tier model; connectivity; and, GUI development. This course will also introduce tools to build front end GUIs for desktop as well as Internet based database applications such as Java AWT, Visual Basic, and PowerBuilder. Students will develop these applications and connect them to database servers such as Informix, Oracle, SQL Server, Access & Watcom using JDBC, ODBC, MS-Jet, and ActiveX. Prerequisite: COMP 3710.

COMP 4932 Media Systems

This course covers advanced features in building multimedia and other types of systems. Topics include concurrent programming (threads) with synchronization techniques (mutexes, semaphores, critical sections, etc.) and popular compression techniques (Huffman, RLE, JPEG, Wavelets). Students will develop a complete media system. Programming will be done using Java, however most of the topics will be extended to the concurrent course COMP 4995 Gaming Systems using C++. Prerequisite: COMP 3931.

COMP 4935 Geographic Information Systems (GIS)

Introduces the operational aspects of GIS software using ARC/INFO in a UNIX workstation environment. Topics include data entry, editing, map design, tabular geographic analysis, and the ARC macro language (AML). Prerequisite: Completion of first year or permission from the instructor.

COMP 4941 Client/Server Computing 2

This course is an extension to COMP 3940 and provides in-depth knowledge of the principles and practice of client/server or distributed systems design. The focus is on examining strategies and algorithms to achieve design goals such as performance, reliability, scalability, consistency, and security in a distributed system. Some of the topics that will be covered include concurrency control, recovery and performance considerations in multi-user and distributed data servers; replication, security and fault tolerance in distributed systems; and relational versus object oriented database systems; design and development of client/server based database applications. Students will develop client/server based database applications using Oracle, SQLServer, E-SQL, PL/SQL, C, C++, Java and JDBC, VB, and ODBC. Prerequisite: COMP 3940.

COMP 4945 Special Topics in Client/Server

This course focuses on advanced topics in client/server systems, distributed systems, and network computing. Topics reflect the state-of-the-art technology being used to develop such systems and also the current trends in this area. Some of these topics include distributed computing environment; relational database management systems (RDBMS); object oriented database management systems (OODBMS); common object request broker architecture (CORBA); distributed operating systems; web servers; groupware; workflow; legacy access; and mobile agents. The emphasis is on developing/designing desktop-based, as well as Internet-based, Client/Server Systems. The students will develop these applications using Java multithreading, Java sockets, Java RMI, Orbix Web, COM/DCOM and ActiveX. Prerequisite: COMP 3710.

COMP 4951 Special Topics in Technical Programming

This course consists of two separate modules, each consisting of 10-week mini-courses. One module covers OS/2 programming, while the other module covers Unix programming (currently using Linux). Topics for the OS/2 module focus on the Presentation Manager (PM) and the Graphics Programming Interface (GPI). Topics for the Unix module include multi-tasking and inter-process communications. This course is only available for students who are enrolled in the Technical Programming option. Prerequisite: COMP 3950.

COMP 4955 Visual Programming with MFC

Covers Visual programming for GUI systems. Visual programming is a technique and not a language. This course focuses on trying to keep the writing of code to a minimum and how code generators will ease our jobs. The focus will be on Microsoft Visual C++ Wizards and the Microsoft Foundation Classes. The limitations of visual programming and how to handle them will also be discussed. This course is available to students enrolled in the Technical Programming Option. Prerequisites: COMP 3950 and COMP 3511.

COMP 4971 Applied Artificial Intelligence 2

Explores a variety of Knowledge Engineering tools and techniques, such as inference engines (deductive, inductive, and abductive); machine learning strategies; natural language interfacing; virtual world-building; neural networks; cellular automata, and genetic algorithms. Throughout the course, emphasis is on using these elements in building useful real-world applications. Typically, students practise and demonstrate these in their COMP 4900 project course. Prerequisite: COMP 3970.

COMP 4975 Prolog and Logic Programming

Covers the PROLOG language and its underlying formal logic principles. A major focus is the task of describing real-world objects and processes in natural language (English), then transforming such descriptions into more formal descriptions (predicate calculus or PROLOG). This process, called declarative programming, is very different from the procedural programming many students are used to. Prerequisite: Completion of first year or permission from the instructor.

COMP 4981 Data/Comm/Internetworking 2

Covers advanced topics in Data Communications such as advanced UNIX systems programming for telecommunications; developing TCP/IP and UDP/IP applications for the Internet and Intranet using the Berkeley socket interface. Students develop client/server models on the UNIX environment using IPC, RPC and TCP/IP protocol suite. This course also deals with design and implementation of multimedia communications applications on UNIX platform and provides coverage of special topics such as building a UNIX Internet server, as well as security and firewall issues. Coverage of special topics such as building a UNIX Internet server, as well as security and firewall issues. Prerequisites: COMP 3720 and COMP 3980.

COMP 4985 Topics in Data Comm/Internetworking

Advanced Windows 95/NT systems programming for communications. Developing TCP/IP and UDP/IP applications for the Internet and Intranet using the Windows Socket API (Winsock) interface. Java programming for Web site development and Java applets for Netcentric computing. Multimedia communications using TCP and UDP. Implementation of error detection/correction algorithms. Prerequisite: COMP 3720.

COMP 4991 Embedded Systems

Focuses on the design of microcontroller embedded real-time systems and interfaces to the real world and is based on the examination of one or more microcontroller architectures (Motorola and Intel Microcontrollers, Texas Instruments _ DSP). The course will apply and extend knowledge gained in ELEX-2865 and will focus on advanced assembly language programming, hardware interface, I/O and low level design features. Topics include the low level design of serial port, A/D converter, memory addressing and interface protocols as they apply to developing real-time processes and custom real-time operating systems. Prerequisites: COMP 2510, COMP 2720 and COMP 3991.

COMP 4995 Gaming Systems

Concentrates on gaming system architectures (DirectX/MSDOS N64, PlayStation) and provides an introduction to gaming graphics and basic game design. Course materials cover the game system architectures and programming requirements for realtime graphics for gaming. Students develop small demonstration games or projects applying knowledge gained from previous option courses and their concurrent graphics programming courses. Prerequisites: COMP 2510, COMP 2720, COMM 2214, COMP 3990 or COMP 3930.

COMP 7005 Data Communication Principles

Covers topics beyond those covered in COMP 3605 and applies theoretical material, to the design and development of communication applications. Presents a broad range of topics needed to apply the principles of data communications. The student acquires a thorough understanding of communications hardware and its interface to communications software. Prerequisites: COMP 3605 and admission to the Bachelor of Technology program or permission of the program head.

COMP 7011 Computer Graphic Fundamentals

Provides the student with a foundation in interactive graphics and graphical user interfaces, emphasising the computer programming techniques involved. Introduces computer graphics systems, graphical user interfaces, devices and graphics software/hardware, followed by output primitives and their attributes and a preview of 3D surface representation using polygon meshes. Presents 2D/3D transformations, windowing, clipping and 3D viewing. Explores the concept of a graphical object within an object hierarchy and how this idea can be extended to form the basis of an interactive computer graphics package, comparing it to some commercial version of PHIGS (Programmer's Hierarchical Interactive Graphics System). Prerequisites: COMP 3475 and admission to the Bachelor of Technology program or permission of program head.

COMP 7036 Applied Research Methods in Software Development

Introduces principles and procedures of standard research methodologies in the context of software development and includes the relationship between software development and fields such as MIS, computing science, systems analysis and design, data processing, knowledge engineering, and decision theory; theories, paradigms and frameworks in software development; the role and importance of models, theories and conceptual frameworks; (prescriptive and descriptive models; scientific tradition; inference; deductive, inductive and abductive reasoning), traditional empirical research methods survey, experiment, case study and implementation (generate and test); measurement and evaluation, reliability, validity; literature exploration and criticism. *(For Saturday sessions, attendance at all six sessions is required to receive a passing grade)*. Prerequisite: Admission to the Bachelor of Technology program, or permission of the instructor and program head.

COMP 7061 Distributed Systems Principles

Develops in-depth knowledge and understanding of principles, architectures, issues and future directions of Distributed Object-Oriented Technology. Existing industry standards such as OMG's CORBA and Microsoft's COM/DCOM & OLE will be analysed and evaluated. Some competing technologies such as Java RMI, HP's OpenDoc, INA DPE, OSF's DCE and Mobile Agents concept will be discussed. The emphasis will be on gaining hands-on experience through lab exercises. Students develop and deploy distributed objects and multithreaded object managers/servers on the www and Internet using (1) Java, Java SET & Orbixweb (CORBA compliant), and (1) VC, C++, COM/DCOM. Prerequisites: COMP 4409 or MMSD 3610 and admission into the Bachelor of Technology program.

COMP 7071 Database Design

Focuses on two major aspects of database design: Logical data modeling and Relational database design and optimization. Prerequisites: COMP 3710 and admission to the Bachelor of Technology program or permission of the program head.

COMP 7081 Technical Issues in Software Development

Presents an overview of technical issues in software development. Addresses major activities and techniques in developing software and the resulting documentation and outputs produced. Presents only selected approaches with emphasis on overall understanding of software development. Uses a case study throughout the course to aid in concepts understanding. Prerequisite: Admission to the Bachelor of Technology program or permission of the program head.

COMP 7401 Advanced Topics in Programming Methodology

This course focuses on programming methodology, which includes new trends in software development, net-centric computing, object-oriented frameworks, advance programming languages, and logic. Specific topics for this course vary from term to term due to the rapid changes and development in the software industry. Please call the program assistant for the Bachelor of Technology program in Computer Systems at 432-8459 for the latest course offering information.

COMP 7615 Selected Topics in Computer Systems

This course focuses on selected topics in developing computer systems. Emphasis is on the development of practical application of computer systems. Specific topics vary from term to term. Some of the topics to be introduced through this course include multimedia, artificial intelligence, small systems (mobile, PDA, game systems), visual tools for numerical analysis, etc. Please call the program assistant for the Bachelor of Technology program in Computer Systems at 432-8459 for the latest course offering information.

COMP 7881 Advanced Topics in Software Engineering

This course focuses on advanced software engineering issues such as those related to developing quality, cost-effective, often complex software. Some of the topics include software reuse, software testing, quality assurance, configuration management, CASE tools, software interoperation, reverse engineering, etc. Specific topics for this course vary from term to term due to the rapid changes and development in the software industry. Please call the program assistant for the Bachelor of Technology program in Computer Systems at 432-8459 for the latest course offering information.

COMP 8005 Data**Communications Applications**

Encompasses Communication protocols, reference models and case studies of transmission protocols. Examines higher layers in the OSI reference model. Includes Internetworks: naming issues, multicast/broadcast in the Internetwork; local networks: multiple-access and ring architectures; Implementation aspects: modularity and efficiency in the implementation of protocols, case studies. Introduces client-server models. Prerequisites: COMP 7005 and admission into Bachelor of Technology program or permission of the program head.

COMP 8011 Photo-Realism in Computer Graphics

Focuses on Photo-realism, emphasising shading, lighting, rendering, and illumination placing special consideration of the computer programming requirements. Begins with Graphical User Interface design and Computer Graphics interaction, followed by curve and surface representation, with emphasis on polygon meshes and usage in graphics packages, physics of colour and some common colour models. Develops a small interactive, full-colour shaded-lighted, 3D computer graphics package and special projects. Prerequisites: COMP 7011 and admission to Bachelor of Technology program or permission of the program head.

COMP 8045 Practicum 1

Provides for practical application of computing knowledge and skills preferably in a workplace setting and with projects that involve applied research or technology transfer. Should produce a product that is innovative, experimental or exploratory in nature. Ranges from directed study projects to the preparation of proposal or project plan and includes the development of formal deliverables, including a final report. Prerequisites: Completion of all 8000 level Bachelor of Technology courses, with the exception of the last 8000-level specialization course, which can be taken concurrently, and with permission of the program head.

COMP 8046 Practicum 2

Provides for practical application of computing knowledge and skills in a workplace setting and with projects that involve applied research or technology transfer. Should produce a product that is innovative, experimental or exploratory in nature. Ranges from directed study projects to the preparation of proposal or project plan and includes the development of formal deliverables, including a final report. COMP 8046 can be taken as a single course or as three additional Bachelor of Technology courses (must be approved by the program head prior to registration). Prerequisites: COMP 8045 and permission of program head.

COMP 8061 Distributed Systems Applications

Develops in-depth knowledge of principles, architectures, issues, and future directions of client-server database or distributed database systems. Various paradigms used for accessing relational and object-oriented database systems on the Internet will be analysed and evaluated including E-SQL, JDBC, ODBC, Microsoft's DB-ADO. Applications involving multiple database servers will be considered and related issues analysed. The role of database gateways and transaction processors/monitors such as Encina and Tuxedo and the effectiveness of database Web Servers such as Oracle Web Server in Web based applications will be analysed and studied. Emphasis on gaining experience on Oracle, SQL Server, Informix, and Gemstone. Prerequisites: COMP 7061 and admission to the Bachelor of Technology program or permission of the program head.

COMP 8071 Advanced Database Modelling

Critically analyses the structural and integrity aspects of the relational model, the significance of views and their applicability to application-data independence, different strategies of handling missing information in database systems, and various data distribution strategies, by applying criteria for efficient distribution of data. Prerequisite: COMP 3710 and admission in the Bachelor of Technology program or permission of instructor and program head.

COMP 8081 Management Issues in Software Engineering

Presents current topics important to managing software development projects. Concentrates on understanding and being able to apply state-of-the-art management techniques to improve software productivity, and help software projects and companies' transition to new technologies. Emphasises management issues such as project leadership, communication, critical thinking and problem solving skills. Prerequisites: COMP 7081 and admission in the Bachelor of Technology program or permission of the program head.

COMP 8505 Selected Topics in Data Communications

Conducts an in-depth study of specific and highly specialized areas in Data Communications. Develops a substantial project in the selected area, and produces an application or project report or both upon completion. Prerequisites: COMP 8005 and admission in the Bachelor of Technology program or permission of the program head.

COMP 8511 Selected Topics in Computer Graphics

Discloses the latest development in Computer Graphics and emphasises computer programming techniques. Explains image processing involving image sizing, contrast stretching, filtering, and transforming, and the use of JAVA in computer animation. Student projects cover morphing, computer animation, fractals, stereograms, particle systems, wavelets, ray tracing, radiosity models. Tests concepts using C++ or JAVA on Silicon Graphics' INDY/INDIGO UNIX workstations. Prerequisites: COMP 8011 and admission in the Bachelor of Technology program or permission of the program head.

COMP 8561 Advanced Topics in Distributed Systems

Discusses on advanced topics in client/server systems, distributed systems, and network computing. The focus is on examining strategies and algorithms to achieve design goals such as performance, reliability, scalability, consistency, and security in a distributed system. Topics include parallel processing and scheduling; performance modelling; concurrency control; recovery in multi-user and distributed data servers; security and fault tolerance; embedded and real time distributed systems; multimedia storage and transmission. Prerequisites: COMP 8061 and admission in the Bachelor of Technology program or permission of the program head.

COMP 8571 Selected Topics in Database

Focuses on emerging object-oriented database technology. Discusses Object-oriented design and development with specific emphasis on database systems. Includes topics on data administration, data dictionary systems, and data access standards for client/server and distributed database systems. Prerequisites: COMP 3710 and admission in the Bachelor of Technology program or permission of the program head.

Diagnostic Medical Sonography

DSO 5112 Abdominal Sonography 1

Introduces the theory necessary to identify normal abdominal anatomy as seen with ultrasound. Pathology of the liver and biliary tract, imaging techniques and correlation of patient history with sonographic appearances are included.

DSO 5113 Obstetrical/Gynecological Sonography 1

Introduces the theory and skills necessary to identify normal anatomy of the gravid and non-gravid pelvis. Gynecological and 1st trimester pathology, imaging techniques and correlation of patient history with sonographic appearances are included.

DSO 5116 Clinical Experience in Sonography 1

Introduces sonographic experience at clinical sites. The emphasis of this course is abdominal and pelvic imaging. Obstetrical imaging is included as per site workloads. Patient care services as required of health care technologists are emphasised.

DSO 6112 Abdominal Sonography 2

This course is a continuation of DSO 5112. The focus is on pathology of the abdomen, including thyroid, breast, scrotum and prostate. Correlation of patient history with sonographic appearances is emphasised.

DSO 6113 Obstetrical/Gynecological Sonography 2

This course is a continuation of DSO 5113. The focus is on abnormal fetal development and maternal disease states that affect pregnancy. Correlation of patient history with sonographic appearances is emphasised.

DSO 6114 Vascular Sonography

Covers the theory necessary to describe blood flow hemodynamics, and identify carotid artery and leg vein anatomy and flow abnormalities. Imaging techniques, and correlation of patient history and sonographic appearances are included. Doppler instrumentation is emphasised.

DSO 6115 Echocardiography

Introduces cardiac anatomy and physiology as seen by ultrasound.

DSO 6116 Clinical Experience in Sonography 2

Includes hands-on sonographic experience at clinical sites including examinations involving the abdomen (including small parts), obstetrics, gynecology and vascular tree. Clinical observations are arranged in pediatrics and echocardiography. Patient care services as required of health care technologists are emphasised.

Economics

ECON 1150 Economic Issues

Presents the influential concepts of both micro and macroeconomics and, in a student-based learning environment, assists you in applying these notions to your career. A professional economist will work with you in discovering the laws of supply and demand, consumer decision-making, producer profit maximization, competition and monopoly regulation in microeconomics. Use of fiscal, monetary and exchange rate policy to influence unemployment, inflation and economic growth is also covered. Familiarization with spreadsheets is strongly recommended for those intending to register in the Internet delivery section.

ECON 2000 Managerial Economics

Focuses on the issues of resource allocation within a business. It will examine how managers can utilize the tools of economics, accounting/finance and decision theory to aid in these critical decisions. The course will consider how differences and changes in the internal operating conditions and in the external political-economic environment can affect a manager's resource allocation decisions. Topics include incremental analysis, short and long run decision-making and basic financial analysis.

ECON 2100 Microeconomics (T)

Investigates economic analysis, focusing on fundamentals of markets, supply and demand, consumer and producer behaviour, and monopoly and competition. Optional areas of business application may explore labour markets, government intervention and environmental regulation. Prepares students to identify, evaluate the economic considerations they will undoubtedly encounter in business.

ECON 2200 Macroeconomics (T)

Presents a challenging overview of the workings of an economy. Stresses measurement and determination of national economic activity, the role of monetary and fiscal policy, and the understanding of inflation, unemployment, and growth in an international environment. Prepares students to weigh political and economic issues as they relate to their business ventures.

ECON 5200 Intermediate Macroeconomic Analysis

This course extends the macroeconomic analysis introduced in ECON 2200. It develops modern theories of the determination of income, employment and prices with attention to their application to the Canadian experience. Throughout, the course emphasises the application of theory to understanding the workings of macroeconomic policy. Prerequisite: Diploma graduate and acceptance into ASTB.

ECON 6500 Managerial Economics

Examines the use of economics, decision theory and business problems. Uses case studies to accounting/finance tools by managers facing various problems. The course will consider how the internal and external operating environment impacts on a manager's resource allocation decisions.

Environmental Engineering

EENG 7700 Environmental Case Studies

This course provides an introduction to the major areas of study in the Environmental Engineering program. Topics include industrial and municipal liquid waste management, solid waste management, contaminated sites, environmental law, principles of environmental assessment, ground water flow and environmental management. Prerequisite: Diploma of Technology in Engineering or Science or departmental approval.

EENG 7710 Chemistry 1 for EET

This course is the first of a two-course series. The major topics covered are the structure of atoms, compounds, stoichiometry, oxidation and reduction, and electrochemistry. Prerequisite: EENG 7700 or departmental approval.

EENG 7711 Chemistry 2 for EET

This second course will build on earlier material and will include solutions, acids and bases, salt and buffer solutions, and solubility of compounds. Some applications of precipitation reactions to water and wastewater treatment will also be examined. Prerequisite: EENG 7710.

EENG 7712 Organic Chemistry for EET

This course will introduce the student to organic chemistry. The nomenclature, physical properties, and reactivities of the more common classes of organic compounds are discussed with special attention given to industrial chemicals and organics that are environmental hazards. Prerequisite: EENG 7711.

EENG 7713 Environmental Analytical Chemistry

Interpretation of results obtained from analytical laboratories is an integral part of waste management or environmental assessment. This course is intended to provide an overview of the environmental laboratory discipline. Topics will include test parameter selection and sample collection concerns, analysis procedures, quality assurance, and data management. Prerequisite: EENG 7712.

EENG 7714 Methods of Wastewater Analysis

This course will introduce the student to some of the analytical methods used to determine common pollutants in water and wastewater. The theoretical aspects of each analysis as well as typical industrial pollution problems related to local industry are discussed during the lecture periods. Students practice the use of laboratory equipment in accordance with proper procedures in the laboratory periods. Prerequisite: EENG 7712.

EENG 7715 Hydraulics 1 for EET

An introduction to hydraulics (including hydrostatics, fundamental flow and volume relationships) and solving simple, steady, pipe flow problems. Prerequisite: EENG 7700 or departmental approval.

EENG 7716 Soil Mechanics & Groundwater for EET

An introduction to soil mechanics and groundwater, including soil origins, types and classifications, phase relationships, compaction, Darcy's law, flow nets, settling pond analysis, soil pressure and soil strength. Prerequisite: EENG 7715.

EENG 7717 Hydrology for EET

An introduction to hydrology, including precipitation, drainage basins, rational formula, SCS method, frequency analysis of extreme flows, regional analysis, low flow analysis and measurement of hydrologic parameters. Prerequisite: EENG 7716.

EENG 7718 Hydraulics 2 for EET

A continuation of Hydraulics 1 for EET, including pipe networks, pumps, uniform and non-uniform open channel flow, and flow measurement. Prerequisite: EENG 7717.

EENG 7719 Survey Techniques for EET

Introduces fundamental concepts of surveying with applications for applied waste management. Topics include an introduction to survey methodology, survey instrumentation, a description of the theory associated with survey computations, methods for determining horizontal positions and elevations, including position determination using GPS satellite technology. Prerequisite: EENG 7700 or departmental approval.

EENG 7720 Applied Microbiology

This course examines the types and functions of microorganisms as applicable to the engineering field. Topics include the basic characteristics of bacteria, nutrient cycles, oxidation and reduction, waste treatment, pollution and bioremediation. Case studies of applied microbiological projects will be reviewed including constructed wetlands, drinking water distribution systems and pollution monitoring. Prerequisites: EENG 7710, EENG 7711 and EENG 7712 or departmental approval.

EENG 7721 Applied Toxicology

This course provides an introduction to the principles of toxicology, as applied to environmental engineering. Course topics include a review of biological, organic and inorganic substances and their properties and behaviour in the environment; the biological responses of cells and animals to toxic substances; and the application of toxicology to risk assessment and the development of water-quality guidelines. Prerequisites: EENG 7710 and EENG 7711.

EENG 7740 Physical Hydrogeology

This course gives students an overview of the occurrence and movement of groundwater in a variety of geologic settings and explains the effect of human activity on that movement. Topics include types of aquifers, properties of porous media, groundwater flow and pump testing of aquifers. The course provides theoretical foundation for the study of groundwater contaminants in EENG 7741 - Contaminant Hydrogeology. Prerequisite: completion of EENG 7718 or its equivalent.

EENG 7741 Contaminant Hydrogeology

Major sources of groundwater contaminants and their flow in groundwater will be examined. Topics include terminology, water quality, chemical constituents of groundwater, natural chemical evolution of groundwater, instrumentation, LNAPL's and DNAPL's, transport mechanisms, measurement of parameters, sources of contamination, and an introduction to solutions employing analytical and numerical methods. Prerequisite: EENG 7740.

EENG 7742 Groundwater Modeling: Numerical Methods

This course introduces students to the basics of two major modeling tools used in industry: finite difference and finite element. The course explores mathematical basis of the two methods and allows students to experiment with simple models of each type, using computers. Prerequisite: EENG 7741 (may be taken concurrently).

EENG 8750 Municipal Wastewater Treatment 1

Examines the sources of municipal wastewater, factors that affect wastewater flow, measurement of wastewater flow and strength, effects of effluent discharges on the receiving environment, legislation, onsite treatment, screening, comminution, grit removal and flow equalization. Design and practical considerations will be emphasized. Prerequisites: EENG 7714 and EENG 7721.

EENG 8751 Municipal Wastewater Treatment 2

This course is a continuation of EENG 8750 and examines the principles of primary sedimentation and secondary treatment including suspended growth, attached growth, and secondary clarification. Practical and operational aspects would be emphasized. Prerequisite: EENG 8750.

EENG 8752 Municipal Wastewater Treatment 3

This is the third and last course in the municipal wastewater treatment series and covers advanced treatment involving biological nutrient removal, effluent disinfection and sludge processing. Practical and operational aspects would be emphasized. Prerequisite: EENG 8751.

EENG 8753 Industrial Wastewater Treatment 1

This course is the first of a two-course series on industrial wastewater treatment. Course topics include characteristics of industrial wastewater, industrial wastewater survey, waste minimization, quality equalization, neutralization and oil-water separation. Practical and operational aspects would be emphasized. Prerequisites: EENG 7714, EENG 7721 and EENG 8750.

EENG 8754 Industrial Wastewater Treatment 2

This is the last course in the industrial wastewater treatment series. It examines additional physical/chemical unit processes including chemical coagulation, chemical precipitation of heavy metals, chemical phosphorus removal, adsorption, ion exchange, membrane separation, chemical oxidation, and gas transfer. Practical and operational aspects would be emphasized. Prerequisite: EENG 8753.

EENG 8755 Drinking Water Treatment

This course will cover drinking water quality and associated public health concerns. Particular emphasis will be placed on the multiple-barrier concept for the inactivation of *Giardia* and *Cryptosporidium*, as well as the control of disinfection by-products. A substantial portion of the course will deal with practical design of commonly used treatment processes for the production of potable water. Prerequisite: EENG 7712.

EENG 8760 Solid Waste Management

This course is the first of a four-course series in the solid-waste technical studies. Solid-Waste Management gives students an overview of municipal solid-waste management including collection, transfer, transport and disposal. Methods of processing, introduction to disposal facilities, disposal options, and the economic and environmental issues of solid-waste management are topics covered in this course. Prerequisites: EENG 7700, EENG 7720 and EENG 7721.

EENG 8761 Recycling & Reduction Techniques

Topics include the basis and impact of the 3 R's on the waste management systems; industry examples; recycling and recovery of paper, cardboard, metals, plastic, oil, glass, and other commodities; new uses of recycling and recovery; composing basics; types of systems; design of plants; and markets. Prerequisite: EENG 8760.

EENG 8762 Landfill Design & Operation

This course will examine landfill site selection, landfill capacity analysis, landfill construction and operations, environment systems overview of leachate generation and landfill gas. Prerequisites: EENG 8761 and EENG 7741.

EENG 8763 Environmental Controls for Landfills

This course examines state-of-the-art environmental control systems that are being used in B.C. and in the U.S.A. to meet new government regulations. The course includes environmental issues, leachate composition, predicting leachate qualities within the EPA HELP model, landfill closure, leachate containment, leachate treatment, landfill gas collection and environmental monitoring. Prerequisite: EENG 8762.

EENG 8768 Advanced Residuals Management

This course is designed to help students learn about the various aspects of hazardous material and waste management. Major emphasis will be on Acts and Regulations governing hazardous material and waste as well as determination, classification, handling and storage of hazardous waste. Additional topics include pollution prevention and waste minimization. Prerequisite: EENG 8760.

EENG 8769 Advanced Residuals Treatment

This course is designed to provide the students with the fundamentals of hazardous material and waste in relation to chemistry and chemical processes. The course will describe major treatment technologies and methods traditionally applied to hazardous material and waste. There will be a particular emphasis on incineration, solidification and utilization of hazardous waste as an alternative fuel in combustion processes. Prerequisite: EENG 8765.

EENG 8770 Environmental Site Assessment

This course is the first of a five-courses. It has two primary purposes. First, it summarizes the five main processes in the management of contaminated sites: site audit, site investigation, risk assessment, sampling, and treatment and monitoring. Second, it gives students the necessary knowledge and skills to perform a site audit. Case histories will be used as examples to demonstrate the principles of environmental site assessments (ESAs) and environmental audits (EAs). Prerequisite: EENG 7700 or departmental approval.

EENG 8771 Contaminated Site Investigation Process

This course highlights the importance of site characterization in terms of soil, water and sediment, as an essential and integral part of the overall management of contaminated sites. It also focuses on the role of the site investigator, and on a phased planning approach to obtaining proper data to characterize site contamination, evaluate remedial alternatives and assess risks. Prerequisites: EENG 7741 and EENG 8770.

EENG 8772 Site Remediation & Risk Assessment Process

This course introduces students to the third major process in contaminated site management: site remediation and risk assessment. Focusing on the role of the site investigator, the course promotes a scientific approach for evaluating and selecting options to manage site contamination including treatment, removal or containment. This course focuses specifically on toxicological principles of risk assessment, and on the evaluation and design processes for site remediation. Prerequisite: EENG 8771.

EENG 8773 Sampling Methods for Contaminated Sites

This field school involves two full days of hands-on sampling exercises: sampling strategies, design and implementation of sampling plans, and interpretation of results. The sampling exercises include: (1) soil sampling using drill rig, backhoe and hand augers; (2) groundwater sampling by installation, development and testing of monitoring wells; (3) overview of surface water and sediment sampling techniques; and (4) demonstration of geophysical investigation techniques. Prerequisite: EENG 8772.

EENG 8774 Site Remediation Technologies

This course focuses specifically on the range of remedial technologies that are available and provides students with the skills to apply appropriate technologies in given situations. Discussion on the techniques to monitor and evaluate performance of the selected remedial options are also included. Since this is the final course in the series, it also focuses on integrating the material from the first four courses. Prerequisite: EENG 8773.

EENG 8780 Environmental Law 1

This course provides an overview of the Canadian legal system and sources of environmental law. It addresses federal, provincial and local government powers to regulate the environment, as well as B.C. and federal environmental laws governing water, air, transportation of dangerous goods, contaminated land, and waste and hazardous substance management. Sources of liability for individuals, directors and officers, companies and environmental professionals and the basic elements of due diligence are also covered. Prerequisite: EENG 7700.

EENG 8781 Risk Assessment

This course will examine risk-assessment methods and outcomes including definitions and discussions of the principles of hazard identifications, dose response, exposure assessment and risk characterization. Specific risk-assessment techniques will be presented including checklists, preliminary hazard analysis, what-if analysis, fault-tree analysis, event-tree analysis, hazard and operability studies and EPA risk assessment procedures. Prerequisites: EENG 7712 and EENG 7721.

EENG 8782 Value Analysis & Environmental Management

This course provides an overview of the process involved in managing the environmental aspects of projects on a global, regional and local scale. The student will learn to apply the guiding principles of sustainability; and consider the laws, policies and regulations related to environmental management. Emphasis will be placed on environmental management (ISO 14000), life cycle analysis; environmental risks and liabilities. Prerequisite: EENG 8781.

EENG 8783 Risk Management

This course covers factors affecting management decisions; regulatory requirements, corporate standards, employee politics, public and media, financial limitations and risk communication. Other risk management options including prevention planning, emergency response, containment, on-site treatment, off-site treatment, landfill and other storage means will be examined. Prerequisite: EENG 8781.

EENG 8784 Environmental Law 2

This course addresses environmental regulation of various natural resources sectors in B.C., including forestry, mining, energy and fishing. The course covers laws regulating environmental impact assessment and environmental aspects of municipal and regional land use planning processes and the role of aboriginal rights in environmental and natural resource management. Prerequisite: EENG 8780.

EENG 8785 Decision-Making in Environmental Management

This course will examine decision-making and decision planning models as they relate to environmental management. Topics will include the historical roots of environmental management, rational decision making processes, the institutional structure and methods of decision-making in environmental management, and the relationship between current decision making models and sustainable development. Prerequisites: EENG 8780 and EENG 8782

EENG 8790 Air Quality Management

Provides an overview of air pollution, focusing on atmospheric air quality issues. The course will discuss the sources of air pollution and their regulation. The student will be introduced to emission inventories, urban air pollution, and meteorology. An introduction to dispersion modeling as a method of linking emissions to air quality will also be presented. Prerequisite: EENG 7712.

EENG 8791 Industrial Air Pollution Control Techniques

This course provides an overview of the different methods used to control the release of air pollutants from industrial and mobile (vehicular) sources. The different types of contaminants, their causes, and the regulations governing their release are discussed. The basic design principles of the various technologies, and their application, form the bulk of the course. A basic treatment of combustion and fluid dynamics is also covered. Prerequisite: EENG 8790.

EENG 8792 Air Quality Monitoring & Testing

This course covers; the theory and practice of emission testing for particulates including gas flow measurements, isokinetic sampling, determination of gas molecular weight, moisture determination methods, sampling train components, equipment calibration, details of a complete testing program, calculation details, report writing and regulatory requirements. Prerequisite: EENG 8791.

EENG 8801 Terrain Mapping & Erosion Processes

This course covers terrain and interpretive maps, with emphasis on utilization. Topics will include delineation of polygons (air photo interpretation and ground truthing), mapping conventions and development of polygon labels (ELUC, 1988, 1997), determination of mass wasting, erosion and sediment delivery hazards. Surface erosion and sedimentation processes will also be covered. A field trip is arranged when and if suitable sites are available.

EENG 8802 Forest Road Design & Construction

This course covers the applicable sections of the Forest Practices Code Act, Forest Road Regulation. Engineering Guidelines will be discussed. Other topics will include preliminary road location surveys and terrain stability assessments with emphasis on minimization of environmental risks. Various construction techniques will be presented along with the basic elements of drainage design. A field trip is arranged when and if suitable sites are available.

EENG 8803 Forest Road Rehabilitation

This course will cover the applicable sections of the Forest Practices Code Act, Forest Road Regulation. Road maintenance and upgrade during harvesting operations will be discussed, as well as deactivation after harvesting operations and silvicultural commitments have expired. Other topics include field assessment procedures, mapping and the development of appropriate prescriptions. A field trip is arranged when and if suitable sites are available.

EENG 8804 Hydrological Mapping & Hydrometrics

This course covers the procedures involved in the creation of hydrological maps, with emphasis on utilization. Topics will include delineation of slope drainage networks (air photo interpretation and ground truthing), and mapping conventions, the measurement of streamflow, snowpack and water quality. The use of hydrometric instruments is demonstrated. A field trip is arranged when and if suitable sites are available. Prerequisites: EENG 7715, EENG 7717 and EENG 7718.

EENG 8805 Stream Channel Assessment

This course covers the applicable sections of the Forest Practices Code Act, with particular emphasis on Interior and Coastal Watershed Assessment Procedures. The collection and interpretation of data down a stream channel will be outlined. Other topics will include USDA Forest Service methodology, MOELP Channel Assessment Procedures, the effects of timber harvesting on stream channel morphology and channel restoration strategies. A field trip will be arranged when and if suitable sites are available.

EENG 8810 Pulp & Paper Industry for EET

Covers details of the Kraft process, chemistry of the process, process parameters and environmental emissions. Other pulp and paper processes are also reviewed. The principal emissions (air, water, solids) are discussed in detail in terms of formation, chemistry, analytical detection techniques and engineering control methods. Potential process modification in the pulp and paper industry as a mean of decreasing environmental emissions are also discussed. Prerequisites: EENG 7700 and a 2 year Science Diploma.

EENG 8811 Mining & Extractive Metallurgy Industry

This course covers a review of Extractive Metallurgy processes and associated pollution control practice. Current pollution abatement practices in the mining industry and mine reclamation practices are also included. The course covers modern technologies for control of sulfur dioxide, particulates, nitrogen oxides and others. In addition, control techniques for liquid wastes, acid mine drainage, and solid wastes are also included. Prerequisite: 2 year Science Diploma or equivalent.

EENG 8812 Petroleum Industry

This course covers environmental control practices in the Natural Gas and Petroleum industry. It includes a variety of topics in air and water pollution abatement practices. Some aspects of solid waste treatment are also discussed. Prerequisite: 2 year Science Diploma or equivalent.

EENG 8820 Separation & Identification Techniques

Environmental contaminants can vary from agricultural products which can include organo-chloride pesticides, or industrial by-products such as petroleum hydrocarbons and polycyclic aromatic hydrocarbons to a variety of trace metals. It is the purpose of this course to show how to develop methods for the separation, identification and quantification of agricultural and environmental compounds in air, water, soil and sediment samples. Prerequisite: 2 year Science Diploma or equivalent.

EENG 8822 Analytical Atomic Spectroscopy 1

This course covers the basic theory and practice of analytical atomic spectroscopy, with emphasis on inductively coupled plasma optical emission spectroscopy. Major topics include atomic spectra-emission, absorption, fluorescence, diffraction-grating spectrographs, single and multichannel detectors, RF induced plasmas, calibration standards, spectral interference's and matrix effects, and quality assurance and data handling. Prerequisite: BCIT Chemical Sciences Diploma or equivalent.

EENG 8823 Analytical Atomic Spectroscopy 2

This course is a continuation of Analytical Atomic Spectroscopy 1. Major topics include optimization of plasma operating conditions, other emission sources DCP, FAPES, flow discharge, arc, spark; sample induction pneumatic and ultrasonic nebulizers; ICP-MS mass selectors; separation and preconcentration strategies; sample preparation. Prerequisite: EENG 8822 or departmental approval.

EENG 8824 Gas Chromatography & Mass Spectrometry

In mass spectrometry, the mass spectrum is as unique to a compound as fingerprints are to people. When gas chromatography is combined with mass spectrometry (GC/MS), a technique is created with which the components of a mixture can be separated and identified. It is the purpose of this course to discuss the techniques of modern GC/MS as applied to the separation and identification of agricultural and environmental compounds. Prerequisites: 2 year Science Diploma and EENG 8822 or equivalent.

EENG 8900 Project Reports

Primarily intended for preparation of the final report for the Industry Sponsored Project, this course will provide the basis and format for all technical reports required in the program. Emphasis will be placed on the overall structure, organization of information and the logical progression of concepts. This course should be completed during the Common Core portion of the program. Prerequisite: EENG 7700 or departmental approval.

EENG 8901 Project Proposal

After selecting the research project topic, this course will help the student conduct a literature review to clearly define the problem and to prepare an effective proposal for the project. If by this time the student has selected an industry sponsor the proposal can be submitted to the department for approval. Prerequisite: EENG 8900.

EENG 8902 Technical Presentations

The ability to make an effective presentation is now more essential than ever for individuals wanting to advance their careers. This course will allow participants to analyze the needs of your audience and then integrate your objective to the content and audience. Video feedback will be used extensively to provide immediate and practical comments as you develop comfort and confidence in business presentations. Prerequisite: EENG 7700.

EENG 8903 Applied Research Project

In conjunction with an industry sponsor, the student solves a technical problem relating to the environment. The research project must contain elements that are innovative, experimental, or exploratory in nature. A department committee will supervise the progress of the project, provide guidance and direction where appropriate, and evaluate the final report and its presentation. Prerequisite: Completion of major elective studies and departmental approval.

Electronics

ELEX 1105 Circuit Analysis 1 (T)

Teaches the principles and methods of analysis related to DC circuits. Topics include SI units and terminology, voltage, current, work, energy, power, and resistance. Methods of analysis include mesh, superposition, nodal, Thevenin, and Norton. Transients in RC and RL circuits are analysed. Average and RMS values for sine waves and rectangular waves are calculated. Labs are synchronized with lectures so that theory is studied and confirmed by application.

ELEX 1110 Electronic Manufacturing Processes

Through the design and manufacture of specific electronic projects, students learn the skills required to do basic soldering, printed circuit repair and rework, high reliability soldering, design and fabrication of single and double-sided printed circuit (PC) boards. Upon successful completion, the student will be able to demonstrate a good understanding of the components used in the manufacture of electronic equipment, chassis and metal cabinet design, electronic drafting conventions, tools and techniques used in electronic fabrication, printed circuit design and manufacturing methods, tools used for printing wiring board (PWB) repair, high reliability soldering requirements, repair of heat and mechanically damaged PC boards, as well as techniques required in the design and manufacture of single and double-sided printed circuit boards.

ELEX 1115 Digital Techniques 1

Begins with a description of the fundamental theory of the decimal and binary number systems, then examines the binary (two states or levels) concept followed by the description of binary variables as related to mechanical switches. Digital logic circuits are discussed and their truth tables and Boolean output equations are generated. Various logic sources are defined and interfaced to combinational logic circuits comprised of electronic logic gates. A TTL data book will be utilized to facilitate combinatorial logic circuit design. Boolean identities and Karnaugh mapping will be used to minimize algebraic expressions. Combinational digital logic will be designed and constructed implementing NAND and NOR gates using their proper Demorgan's equivalent logic symbols (Duality of Gates).

ELEX 1205 DC Circuit Analysis for Robotics

Teaches the principles and methods of analysis related to DC circuits. Topics include SI units and terminology, voltage, current, work, energy, power and resistance, Series, parallel and series-parallel circuits are analysed and designed. Methods of analysis for more complex circuits include superposition, mesh, nodal, Thevenin, Norton, and T to Pi conversion. RMS values for sinewaves are calculated. Labs are synchronized with lectures so that theory is studied and confirmed by application.

ELEX 1215 Digital Techniques 1 for Robotics

Teaches digital numbering systems and the design of combinational logic circuits. Numbering systems are binary, octal, hexadecimal, BCD, Excess 3 and Gray Code. Comparison of numbers and addition of 2's complement numbers are covered, as well as ASCII and parity. Truth tables and Boolean algebra are used in the design of circuits and to minimize component counts. Electronic logic gates are investigated for function and specifications. Combinational logic circuits are designed and built using NAND and NOR gates; proper DeMorgan's equivalent logic symbols are used. Encoders and decoders are introduced.

ELEX 1810 Electrical Systems

Teaches the students the electrical basics needed to help plan the electrical system for a given building with the electrical designer. Students practice reading and working with common electrical drawings and specifications. Students will learn basic Canadian Electrical Code standards and industry practices relating to single and three-phase systems electrical systems in residential and commercial buildings. Prerequisite: PHYS 2140.

ELEX 2105 Circuit Analysis 2 (T)

Introduces the behaviour of electrical circuits and networks when driven by a single-phase alternating current (AC) source, preparation for courses in electronics and power systems. The course includes the sine wave (average and effective values) power and power factor, resistance, capacitance and inductance as elements in single-phase AC circuits; phasor diagrams, impedance, admittance, voltage, current and power diagrams, analysis of AC circuits with complex algebra; resonance and resonant circuits, high and low-pass filters; and, the application of circuit laws and theorems to single phase AC circuits, couple circuits. The circuits theory is verified using multimeters, sine wave generators and dual trace oscilloscopes. Prerequisites: ELEX 1105 and MATH 1431.

ELEX 2115 Digital Techniques 2 (T)

Builds on the knowledge gained in ELEX 1115. Studies the utilization of logic gates in larger combinatorial circuits; magnitude comparators; combinational arithmetic hardware; sequential logic devices (D, J-K, and T flip-flops); asynchronous and synchronous counters; count decoding and displays; shift registers; serial and parallel data manipulation circuits; gathering and interpretation of electrical specifications from data books (noise margins, propagation delay, and loading considerations); interfacing techniques to discrete devices; digital data multiplexing; and parallel bus structures. Prerequisites: ELEX 1105, ELEX 1115, COMM 1143, MATH 1431 and ELEX 2120* (*recommended to be taken concurrently).

ELEX 2120 Electronic Circuits 1

Introduction to semiconductor circuits. Explains how electronic circuits work and how to analyse, design, modify and combine them to perform complex functions. Topics include bipolar and field-effect transistor devices and circuits for use in various current and voltage amplifier configurations. Students will also study oscillators; power amplifiers; power supplies and switching devices. Prerequisites: ELEX 2105 (concurrently), MATH 1431 and COMM 1143.

ELEX 2125 C Programming

Introduces DOS, and the "C" programming language. Programming assignments are based on engineering applications. Students will document and debug software using available software libraries.

ELEX 2205 AC Circuits for Robotics

Introduces the behaviour of electrical circuits when driven by a single-phase AC source as preparation for courses in electronics and power systems. The course includes DC applied to capacitors and inductors; the sine wave, average and effective values, power and power factor; resistance, capacitance and inductance in AC circuits; phasor, impedance, admittance, and power diagrams; analysis of AC circuits using complex algebra; resonance and resonant circuits; high and low-pass filters; the application of circuit laws and theorems to AC networks; and transients in RC circuits. Circuit theory is verified in the lab using multimeters, sine wave generators and dual trace oscilloscopes. Prerequisite: ELEX 1205, MATH 1342, (or MATH 1431 concurrently).

ELEX 2220 Digital & Electronic Circuits

The first half of this course covers sequential logic devices such as D, J-K, and T flip-flops, counters, shift registers; electrical specifications; noise margins; propagation delay and loading considerations; interfacing to discrete devices; data multiplexing; bus structures; memory devices. The second half is an introductory electronic circuits course that provides the foundation for subsequent electronics courses in the Robotics program. The course covers diodes and bipolar junction transistors; common emitter and common collector circuits and transistor switching; transistor biasing; field effect transistors; CMOS; frequency response of amplifiers; DC power supplies; and power amplifiers. Lab work emphasises logical circuit layout and wiring and the use of common test equipment to analyse and troubleshoot electronic circuits. Prerequisites: ELEX 1205, ELEX 1215 and MATH 2342* (*may be taken concurrently).

ELEX 2805 Illumination

Deals with lighting units, terminology and calculations, point-by-point method, zonal cavity method, types and characteristics of light sources, lighting fixtures (luminaires), photometrics, quantity of light, quality of light, and economics of lighting. Prerequisite: ELEX 1810.

ELEX 2825 Process Instrumentation (Food Tech)

Presents the principles and practices of automatic control systems for food processing plants. The operation and application of common measurement systems for pressure, temperature, and flow are described. The principle of negative feedback and closed loop control strategies are introduced. Principles of Programmable Logic Controllers (PLC) are presented so that food technologists can communicate their needs to PLC programmers. Prerequisite: PHYS 2145.

ELEX 2830 Process Measurement

Introduces standard methods of applying commercial instruments to the measurement of pressure, level, flow, and temperature variables. The course includes an introduction to the principles of regulators and process controllers. Emphasis is placed on lab exposure to industrial instrumentation equipment.

ELEX 2835 Instrumentation for Mechanical Systems

Introduces basic instruments used for measuring pressure, temperature, level, density and flow. Instrument static and dynamic performance. Instrument application to industrial processes. Design of pneumatic and hydraulic measurement and control equipment using high-gain amplifiers and negative feedback. Basic principles of automatic control process, dynamic behaviour and controllability. On/off, proportional, integral and derivative control. Control strategy. Ratio, cascade, multivariable and feed forward systems. Introduction to computer control. Prerequisite: MECH 1120.

ELEX 2845 Electrical Equipment

Introduces industrial electrical equipment. Topics include AC and DC motors and their application to electromechanical drive systems; protecting and controlling motors; industrial electrical power systems and related equipment; sources of energy; transformation into primary and secondary voltage levels, distribution of power throughout the plant; switching; voltage control and power factor correction; Programmable Logic Controllers and industrial applications of PLC's.

ELEX 2860 Electronic Prototype Manufacturing

Through design and manufacture of specific electronic projects, teaches the skills required to do basic soldering, printed circuit board repair and rework, high reliability soldering and fabrication of a single-sided printed circuit board. Upon successful completion of the course, the student will be able to demonstrate knowledge of components used in the manufacture of electronic equipment; chassis and metal cabinet design; safe use of tools, and techniques used in electronic fabricating and PWB repair; high reliability soldering, and repair of heat and mechanically damaged PC boards.

ELEX 2865 Introduction to Computer Hardware (T)

Assembler and C programming for interfacing digital and analog I/O. Explores ports, buffers, latches, decoding, memory, 8254 timer chip, 8259 Programmable Interrupt Controller and the 8250 UART. Prerequisites: COMP 2510 and COMP 2720.

ELEX 2990 Cooperative Education Workterm 1

The application of theory and labs from Levels 1 and 2 to the industrial electronics setting. This is a paid position acquired through the Cooperative Education office. This position must be a minimum of 12 weeks to qualify for credit, and may be a maximum of four months.

ELEX 3205 Data Acquisition/Signal Conditioning

Examines the application and design of precision analog interface and signal conditioning systems. Topics include the specification, design and evaluation of amplifier systems commonly used in transducer interfacing applications; high accuracy and stability signal conditioning design techniques and analog signal transmission with emphasis on the 2-wire current loop. A strong practical approach is ensured by lab exercises and projects. Prerequisites: ELEX 2105, ELEX 2120 and MATH 2431.

ELEX 3210 Sensors for Measurement & Control

Introduces the principles and techniques used in the industrial measurement of pressure, level, density and temperature. Topics will include pressure and temperature transmitters, humidity transducers and nuclear density gauges. Labs will apply the principles of these transducers and the latest in smart transmitter technology to various industrial and commercial applications. Prerequisites: ELEX 2120, PHYS 2143 and MATH 2431.

ELEX 3215 Process Control Devices/Techniques

Examines the principles and practices used in the design and application of common industrial process control components and systems. Topics include automatic process control principles using open and closed loop systems; basic feedback design principles of electronic, pneumatic and hydraulic devices that are incorporated into transmitters, signal converters, positioners and power amplifiers; control valve specification and sizing. Lab exercises will analyse the design and performance of manufacturers' control equipment applied to steam and liquid processes. Prerequisites: ELEX 2120, 3210*, MATH 2431 and PHYS 2143 (*may be taken concurrently).

ELEX 3305 Microcontroller Systems 1

Applies knowledge gained in ELEX 1115/2115 to perform a detailed study of a microcontroller system. This includes internal architecture, memory devices, machine/assembly/high level language programming, an operating system, software development tools, input and output ports, A to D converters, interrupts and the serial peripheral interface. Throughout the course, a single board microcontroller system is used to facilitate a detailed analysis of hardware and software involved. Prerequisites: ELEX 2115, ELEX 2125 and (ELEX 3520 or ELEX 3205 or ELEX 3320).

ELEX 3310 Pulse Techniques

Introduces pulse signal circuits such as clippers and clamps, transistor switches, astable and monostable multivibrators, Schmitt triggers, ramp generators, DC to DC converters, and FSK and BPSK Modulation using phase locked loops. Both discrete transistors (bipolar and FET) and CMOS integrated circuits are used in building these circuits. Each circuit is analysed in detail and its practical application is considered. Prerequisites: ELEX 2105, ELEX 2115, ELEX 2120 and MATH 2431.

ELEX 3314 PC Hardware with C Programming

Designed as a PC based hardware/software course. It consists of programming in the C language into a ready made interface to activate digital and analog I/O. The course includes Text Screen set up, Bit Manipulation Techniques, Construction of Code that will carry on a dialog with the user, operation of external I/O Interfaces, the structure of Personal Computer, interfacing devices to PC buses, Pointers, Command Line Arguments and File Operations. Prerequisites: ELEX 2115 and ELEX 2125.

ELEX 3316 Applications Software

This course covers the process from conception to production of an electronic project. Students will use commercial software packages to draw a schematic, generate a net list, layout and verify a printed circuit board, produce photo-ready artwork and prepare mechanical drawings. Prerequisites: ELEX 1110 and ELEX 2115 or ELEX 2120.

ELEX 3320 Electronic Circuits 2 (Control)

A continuation of ELEX 2120. The course begins with the differential amplifier and its small signal analysis and performance. This material forms an introduction to linear integrated circuits, particularly the operational amplifier and its circuit applications. These include an introduction to active filters, comparators, sinewave oscillators, differentiators and integrators and simple function generators. Use is made of s-plane methods of analysis where appropriate. The course continues with a introduction to feedback systems. Topics include the operational amplifier as a feedback system, simple position control servos, phase locked loops, and a general analysis of feedback amplifiers. Prerequisites: (ELEX 2105 or ELEX 2135), MATH 2431 and ELEX 2120.

ELEX 3321 Electronics Circuits 2 (Robotics)

The course begins with the differential amplifier and its small signal analysis and performance. This material forms an introduction to linear integrated circuits, particularly the operational amplifier and its circuit applications. These include an introduction to active filters, comparators, sinewave oscillators, differentiators and integrators and simple function generators. Use is made of s-plane methods of analysis where appropriate. The course continues with an introduction to feedback systems. Topics include the operational amplifier as a feedback system, simple position control servos, phase locked loops, and a general analysis of feedback amplifiers. Prerequisites: ELEX 2120 and MATH 2342.

ELEX 3325 Electrical Equipment & Plcs

Introduces electrical power distribution systems and electromechanical devices. The topics include single and three phase power distribution systems, transformers, rectification and filtering, DC motors and generators, stepper motors, relay and PLC motor control. Prerequisites: (ELEX 2105 or ELEX 2135) ELEX 2120, MATH 2431 and PHYS 2143.

ELEX 3330 Programmable Logic Devices

Introduces user-programmable logic devices including PALs, FPLAs and EPLDs. Lab work will cover basic concepts and applications using design software such as PALASM and logic simulation. Students are encouraged to incorporate PLD design into their Level 4 project. Prerequisite: ELEX 3305* and ELEX 2115 (* may be taken concurrently).

ELEX 3520 Electronic Circuits 2 (Telecom)

Provides further knowledge of linear and non-linear electronic circuits with emphasis on their application in telecommunications. Topics include tuned amplifiers, control of gain, stability of tuned amplifiers, clippers and clamps, timer circuits, switching power supplies, differential and operational amplifier circuits and active analog filters. In a series of labs, students confirm lecture theory and further improve their hands-on skills in the application and use of test instruments. Prerequisites: (ELEX 2105 or ELEX 2135) and ELEX 2120 and MATH 2431.

ELEX 3525 Data Communications

This course covers the history and overview of Datacom; protocols; terminal and communications equipment; messages, codes and transmission channels; asynchronous modems, synchronous transmission, modulation, PC communications and programming, ADSL, USB, cable modems. Prerequisites: C programming knowledge, AC/DC circuits, Digital circuits. Prerequisites: ELEX 3305* and 3314* (*may be taken concurrently).

ELEX 3530 Telecommunications 1

In this course, the make-up of an information signal is developed and the theory of modulation is explored. Analog telecommunications circuits commonly used for amplitude, frequency and phase modulation and demodulation are studied. The building blocks for transmitters and receivers are identified and related to circuits studied in this and other courses. The schematic diagram of a modern microprocessor- controlled radio is used as a model for detailed analysis. Prerequisites: ELEX 2115 and ELEX 3520* (*may be taken concurrently).

ELEX 3535 Digital Signal Processing
Introduces the student to Digital Signal Processing Techniques. Topics include continuous and discrete time systems, Z-transforms, and Fast Fourier Transform. In addition the course includes the design and implementation of Digital Filters. A filter design package such as Matlab is used. The filter designed by the student on the package will be tested on a DSP56002EVM board. Prerequisites: ELEX 2120, ELEX 3305* and MATH 3431. (*may be taken concurrently).

ELEX 3990 Cooperative Education Workterm 2
The continuation of work experience in a paid position within industry/business, acquired through the Cooperative Education office (minimum 12 weeks, maximum four months duration). The combination of successful completion of ELEX 3990 and ELEX 4990 will add the notation COOPERATIVE EDUCATION to the Diploma of Technology offered by Electronic Engineering Technology.

ELEX 4205 Microprocessors for Measurement and Control
Investigates applications of the microprocessor to industrial process control systems. Topics include the design of hardware and software systems to implement basic binary control functions as well as more advanced PID types. This course will also include a discussion of analog controller circuits. The lab component will provide practical experience in microprocessor circuit design, interfacing of analog and digital I/O and software design. Prerequisites: ELEX 3205, ELEX 3305 and ELEX 3215* (* may be taken concurrently).

ELEX 4210 Analysers for Process Automation
Covers a number of techniques used in the area of industrial process measurement applications. Flow measuring devices such as head devices, turbine and magnetic flowmeters are investigated. Analytical techniques to measure gas composition (including zirconium oxide oxygen analysis and gas chromatography), pH and conductivity are investigated. Applications of strain gauges are discussed. In the lab, students will analyse and calibrate typical industrial measuring devices. Prerequisites: ELEX 3210 and CHEM 3303.

ELEX 4215 Strategies for Industrial Process Control
Examines the practical application of automatic control systems to industrial processes. Common industrial processes are introduced and their basic operating characteristics identified. Appropriate control strategies are discussed for a wide variety of processes including heat exchangers, boiler systems, evaporators, distillation columns and pH systems. These processes will be used to demonstrate the application of the most common multiple-loop control strategies cascade, feedforward, ratio, selective and adaptive systems. Prerequisites: ELEX 3215, ELEX 4210* and CHSC 3342 (*may be taken concurrently).

ELEX 4220 PLCs & Distributed Control Systems
Examines the application of programmable control devices to industrial automation. Interlock and sequence control systems are designed using ISA and JEDEC symbologies, and implemented using programmable logic controllers (PLCs). Microprocessor-based configurable controllers are applied and programmed for process control systems. Distributed control system architectures are examined. Industrial Networking standards and their application to plantwide automation are also examined. Project work involves the design and implementation of systems using typical industrial programmable control devices. Prerequisites: ELEX 4205* and 4215* (*may be taken concurrently).

ELEX 4225 Industrial Control Projects & Computer-Aided Design (CAD)
Examines process control system design and documentation techniques including CAD. Current ISA, SAMA and ASME symbologies are used in the preparation of control system documents such as process and instrument drawings, loop diagrams, functional diagrams and specification sheets. The role of these documents in the management of instrument projects is also examined and CAD systems are used for their preparation. Hazardous area classification and system design for hazard reduction and intrinsic safety are also examined. Project work involves all aspects of control system design from concept to evaluation. Prerequisites: ELEX 4210, ELEX 4215, ELEX 4220, COMM 2443 (all may be taken concurrently), and CHSC 3342.

ELEX 4315 Applied Electronic Circuits
Introduces practical industrial video applications for acquisition and display of data. The fundamentals of video raster scan and vector displays are reviewed and video cameras are used in image measurement and digital image storage. Image generation on a video monitor is discussed and simple digital circuits are used to generate pictures. Data acquisition and display, image storage in RAM, alphanumeric ROM character generators and CRT controllers are all introduced in lectures and lab projects. Assembly language programming is used with the 68HC11 microcontroller to create graphic displays and to monitor and control high resolution frame storage. Prerequisites: ELEX 3305, ELEX 3320 and ELEX 3314.

ELEX 4320 Industrial Electronics
Commences with rectifier transformer RMS current and KVA requirement calculations and moves on to the design of L-C filters for single and three-phase diode and thyristor rectifier DC power supplies. Students then study the design and feedback control of series, shunt, inverting, flyback and line voltage switching power supplies. Motor types and their speed control strategies will be discussed. To keep pace with industry's greater use of variable frequency induction motor drives, students will study transistor and thyristor inverter designs. The use of SCRs and TRIACs for power control, SCR chopper circuits for DC motor drives and SCR inverters for DC-AC conversion will also be studied in detail. Thyristor DC motor speed control circuits, their feedback control theory and error and stability control will be studied in detail. BODE phase and gain margin criterion will be used for stability analysis. Prerequisites: ELEX 3320 or ELEX 3515 or ELEX 3210 or ELEX 3310 or ELEX 3205 and PHYS 2143.

ELEX 4325 Microcontroller Systems 2

Continues the work done in ELEX 3305 on the HC11 single chip microcontroller and its use in Control and Data Acquisition applications. The main topics covered are handshaking protocols; HC11 timer system and its applications; DC Motor and Stepper Motor Control; SPI and SCI Data Communication; HC11 in expanded multiplexed mode; use of logic analyser and program simulator for fault-finding and analysing instruction execution; interrupt prioritization. Prerequisites: ELEX 3305 and ELEX 3310.

ELEX 4330 Technical Project (Control)

Students research, design and prototype a technical project within their field of interest. A formal written report and oral presentation are required. Projects may be undertaken individually or in small teams. Prerequisites: ELEX 3325 or ELEX 3405 and ELEX 4305, ELEX 4340*, ELEX 4315*, ELEX 4320*, ELEX 4325*, COMM 2443*, (*may be taken concurrently) and OPMT 1165** (**must be taken concurrently).

ELEX 4336 Feedback Systems

Introduces linear feedback theory and practice as applied to motor position and speed control. Topics include block diagram representation and block diagram reduction of closed-loop systems; the characteristics and transient behaviour of closed-loop control systems. Classification of systems into type, sensitivity to parameter variation, and system stability. Design of compensated motion control systems based on the Root Locus method and the Frequency Response method are discussed. The Z-transform is introduced as an aid in the design of digital rather than analog controllers. Students use engineering software to aid them in problem solving. Both analog and digital motion control systems are designed, assembled and tested. Prerequisites: ROBT 3341, ROBT 3351, ROBT 3356, MATH 3342 and ELEX 3321.

ELEX 4340 Data Communication

Introduces the protocols used in digital communication and computer networks. The ISO-OSI reference model is presented with emphasis on the physical, data link, network and application layers. Topics include RS232D and RS485 interface standards; NRZ and Manchester encoding; synchronous PC terminal emulation using the C programming language; VRC, checksum, and CRC error detection schemes; modem modulation techniques and the Hayes AT command set; data telemetry and A/D conversion; XModem and IPX protocols; Novell Network file server and workstation software installation; Ethernet LAN software, hardware and traffic considerations. This course is intended for the electronic technologist involved in hands-on work with data communications at the chip level. Prerequisites: ELEX 3305, ELEX 3310, ELEX 3320 and ELEX 3314.

ELEX 4405 Industrial Systems

Teaches the design of electrical systems for industrial plants and commercial buildings. Topics include lighting systems, feeder calculations and ratings, motor branch feeders, motor control centers, switchboards, unit substations, demand factors, voltage levels, grounding, ground fault and system protection and coordination together with all appropriate sections of the Canadian Electrical Code. Students learn how to apply the Canadian Electrical Code to the design of lighting and power distribution systems for commercial and industrial buildings. Prerequisite: ELEX 3325 or ELEX 3405.

ELEX 4410 Power Systems

Commences with an overview of present and future energy sources followed by the circuit analysis of electrical power transmission systems. Topics include hydro, thermal, nuclear, solar, wind and tidal power; synchronizing and load sharing of generators and systems; transmission and distribution line parameters; the per unit method of circuit calculation; transmission and distribution line voltage regulation; determination of available short circuit currents; protective relaying. Prerequisite: ELEX 3325 or ELEX 3405.

ELEX 4415 Electrical Equipment & PLCs

Continues from ELEX 3325 with a more detailed study of AC and DC motors and their applications. This is followed by a study of electrical protection that begins with review, then expands upon fuses and circuit breakers and the nature of electrical abnormalities. A detailed study is made of electrical protective devices. The final section of the course deals with electrical control and applications including motor starting equipment and relay and programmable control systems. Students will receive hands-on experience with programmable controllers. Prerequisite: ELEX 3325 or ELEX 3405 or permission of the program head.

ELEX 4430 AutoCAD & PLC Projects

Students will learn to program large scale industrial PLC and simulate control systems. Students will have the opportunity to use AutoCAD to prepare drawings for Industrial Systems projects. Prerequisites: ELEX 4415*, COMM 2443 and ELEX 4320* (* may be taken concurrently).

ELEX 4525 Radio Frequency Circuit Design

Teaches how to design HF and VHF circuits. Topics include impedance matching networks; wideband transformers; synthesis of low pass, high pass, band pass and bandstop Butterworth and Chebychev filters; introduction to microstrip circuits; high frequency modeling of transistors; small-signal amplifier design using Y and S parameters; stability analysis; design of oscillators and RF power amplifiers; use of feedback in design of wideband amplifiers; noise performance of amplifiers. Labs are project-oriented, requiring students to design, build and test various circuits applying theoretical knowledge. Prerequisites: ELEX 3520, ELEX 3530 and ELEX 4545* (*may be taken concurrently).

ELEX 4530 Telecommunications 2

Introduces the concepts of several widely-differing transmission systems. Topics include electromagnetic wave propagation, spread- spectrum and frequency-hopping systems, video signal transmission, cellular and PCS radio systems, and satellite radio links. An introduction to the General Purpose Interface Bus (GPIB) is included.

Prerequisites: ELEX 3305, ELEX 3530 and ELEX 4545* (*may be taken concurrently).

ELEX 4540 Local Area Networks

Covers the inner workings of LANs with emphasis on the lower ISO layers. Hardware and software networking concepts are taught in the context of IEEE 802.3 Ethernet and IEEE 802.5 Token Ring. Topics include network topology and components, transmission media, cable testing, encoding methods, medium access control, Novell Netware installation and configuration, and LAN troubleshooting. LAN to WAN topics include interconnection components such as bridges, routers, and gateways. A series of computer networking lab experiments complement lecture topics. Prerequisites: ELEX 3305, ELEX 3314 and ELEX 3525.

ELEX 4545 Transmission Devices

Introduces the various transmission media and systems used in modern telecommunications networks. Topics include open-wire and coaxial transmission lines, waveguides, fibre-optic lines, elemental and reflection-type antennas, microwave frequency transmission devices, and light-wave transmission systems. Prerequisites: ELEX 3530 and PHYS 2143.

ELEX 4550 Wide Area Networks

Introduces the North American telecommunications network. Telephony topics include the evolution of the telephone system, operation of the telephone set, units of measurement used in telephony, traditional signalling techniques, switching and traffic concepts, central office switching equipment, frequency division and time division multiplexing, with emphasis on PCM. Networking topics include the most common protocol and architectures such as HDLC, X.25, TCP/IP, ICMP, ISDN, SONET, and ATM. Prerequisites: ELEX 3305, ELEX 3314, ELEX 3525 and ELEX 4540* (*may be taken concurrently).

ELEX 4855 Electronic Image Displays

Introduction to the techniques and mechanisms for digital image acquisition, display, storage and processing. System design is presented with reference to economic and technical considerations. Topics include image display capabilities and requirements, image archiving, scanning method of image acquisition devices and a system overview with emphasis on system hardware fault analysis. Prerequisites: BMET 2215, BMET 3300 and COMP 3151.

ELEX 7010 Engineering Statistics

Covers basic probability theory, discrete and continuous random variables, probability distributions (binomial, geometric, hypergeometric, Poisson, uniform, exponential, normal, and Erlang-k distributions), statistical inference, sampling and sampling distributions, confidence interval estimates and testing of hypotheses, simple and multiple linear regression, experimental design and analysis of variance, and quality control. Prerequisite: Diploma of Electronic Engineering Technology or equivalent.

ELEX 7020 Multivariable Calculus & Dynamic Systems

This course begins with a review of advanced calculus concepts such as functions, limits, continuity, sequences, derivatives and integrals. The partial derivative and multiple integrals are then introduced and applications are then introduced. The ordinary differential equation is then covered. First, second and higher order linear differential equations are covered with emphasis on modeling of engineering systems in the electrical, mechanical, heat transfer, fluid mechanics and control systems fields. Computer simulations of real systems and numerical methods programming problems form part of the assignments. Dynamic systems (time as the independent variable) are emphasised throughout the course.

ELEX 7030 Thermodynamics

This course introduces students to the fundamental concepts of heat, work and energy. The first law of thermodynamics is introduced and used to analyse engineering devices such as compressors, turbines, mixing chambers, cooling towers, heat exchangers and reciprocating engines. Both air, steam and refrigerants are used as working fluids. The second law of thermodynamics is used to evaluate the direction in which real processes occur. The concept of entropy as a property is introduced and used to evaluate irreversibilities in real processes and to quantify the efficiency of devices. Power and refrigeration cycles are introduced and the first and second laws are used to perform engineering analysis of the cycles. Laboratory demonstrations form part of the course.

ELEX 7040 Engineering Materials

Overview of materials used in engineering-metals, ceramics, plastics, semiconductors and wood. Examines microstructure of materials and macroscopic properties such as modulus of elasticity and tensile and shear strengths. Topics such as phase diagrams, solid state transformations, fracture, corrosion and sizing are included. Some laboratory demonstrations.

ELEX 7110 Transform Methods

Modeling and analysis of physical systems, Fourier, Laplace and z-transform modeling. System responses, sampling, state space models, Kalman filters, observability, controllability feedback interconnections, Nyquist stability, system identification, computer simulation. Labs with various processes form an integral part of the course.

ELEX 7120 Linear Algebra & Vector Calculus

Covers the basics of vectors, matrix operations, systems of algebraic and differential equations, eigenvector/ eigenvector problems, as well as integral theorems (Green's Theorem, Stoke's Theorem) and vector calculus. Applications in electromagnetism, fluid flow and partial differential equations are considered.

ELEX 7210 Physical Systems & Signals

Signal representation, identification, discrete Fourier transform, sampling, FIR and IIR filter analysis and design, windowing methods, DTFT and FFT computations, multirate filters, filter banks, subband decomposition and coding, wavelets, quadratic mirror filter banks. Labs in machine vision (image processing), voice processing, filter design, data compression and analysis of data.

ELEX 7220 Feedback Systems

Linear controller design in a variety of application areas. Model equations from first principles, empirical models. Continuous and discrete time frameworks. PID control analysis, transform controller design, state feedback design, the linear quadratic Gaussian regulator problem, dead time compensation, sensitivity analysis, predictive control. Hands-on labs form an integral part of the course.

ELEX 7230 Electromagnetism

This course covers the theory of electromagnetism, including field concepts, Maxwell's equations free space and guided wave propagation, transmission lines and radiation from simple structures. Application examples in high-speed circuit board design, ionosphere modeling, and antenna theory are included. Computer simulations are used to help students visualize the concepts presented in the course.

ELEX 8010 Data Communication

Overview of data communication. ISO/OSI seven-layer protocol model. Role and function of communication protocols, particularly at the physical and data-link layers. Protocol operation, error detection and control, encoding, modulation techniques and data compression. Hands-on data communication programming and hardware labs are incorporated into the course. Students will be expected to complete 6 lab projects.

ELEX 8020 Computer Architecture

This course is currently under development.

ELEX 8110 Telecommunication System Design

This course covers fundamentals of communication theory and concepts required for understanding the design of telecommunications networks. Network traffic may be voice, data, video, facsimile, telemetry or any combination of these. Switching and transmission techniques are covered.

ELEX 8120 Signal Theory & Processing

This course covers the concepts of discrete-time signals and systems. The digitalization and reconstruction process is introduced, followed by a rigorous treatment and application of transform methods. This serves the topic of FIR and IIR filter design. Adaptive filter design methods are also covered, in the context of implementation using DSP hardware. Hands-on digital signal filter design labs using commercial hardware are an integral part of the course.

ELEX 8130 Computer Networks

This course analyses the various communication protocols that have been defined to create communication environments in which computers can exchange information in an open way. Course topics include protocol structures, inter-networking, high-speed networks and network management issues. Error control and correction, and queuing theory are also presented. Students will perform hands-on labs and programming assignments using BCIT's telecommunications lab hardware.

ELEX 8140 Mobile Communications

Mobile propagation phenomenon, modulation techniques and system design considerations. Cellular, spread spectrum, microwave and satellite communication. Access techniques, analog and digital transmission, fading and shadowing, noise and interference, signal-to-noise ratio requirements. Microwave application including traditional applications, cellular interconnection, video transmission and LAN interconnection. Applications to current commercial practise is emphasised.

ELEX 8150 Microwave & Fiber Optic Engineering

Transmission lines and waveguides, microwave devices, travelling wave devices. Theory of radiation, antennae and wave propagation, microwave scattering theory. Fiber optic communication and integrated optics. High frequency electronics and radio frequency design.

ELEX 8160 Electric Machines

Electrical Machines deals with the theory, construction, testing and applications for industrial electrical equipment. Electrical equipment studied include transformers, motors, and generators. Motor control and programmable logic controllers are also covered. An introduction to a three phase power circuit analysis will be taught along with machine theory. Hands-on labs with electrical equipment form an integral part of the course.

ELEX 8170 Industrial System Electrical Design

Industrial systems commences with a study of safety considerations for electrical power systems. The Canadian Electrical Code, building codes, and IEEE standards are used for assigned design projects in the areas of commercial and industrial power distribution, protective device coordination and protective relaying, lighting design, and grounding system design. Projects will include considerations for communication between protective relays, HVAC systems and PLC control systems.

ELEX 8180 Advanced Process Control

This course covers advanced process control concepts such as cascade control, decoupling control, minimum variance control, self tuning control and dead time compensation methods. Expert systems, neural network and fuzzy logic techniques are also covered. Applications in local industries are emphasised. Students will be required to complete a major control design and analysis project as part of the course.

ELEX 8190 Fluid Power Control

This course begins by covering the functioning and properties of the main components and fluids used in the fluid power control field. Students are then introduced to the dynamic analysis of real world hydraulic and pneumatic systems as well as the design of fluid power systems. Interfacing computer control and fluid power systems is also covered, with industrial PLCs being used as the main control tool. Laboratory exercises in BCITs fluid power labs form a main component of the course.

ELEX 8210 Motion Control Systems

This course begins with the modeling of the kinematics and dynamics of motion applied to real world machines. The standard components used in mechanical drive systems such as motors, gears, belts, sheaves, chains, sprockets, bearings, couplings, shafts and brakes are discussed, with sizing considerations emphasised. The design of feedback control systems for mechanical motion control is then covered. This includes the selection of sensors and an introduction to the multivariable control problem. Labs involving commercial motion control software and hardware form an integral part of the course. Computer simulation of mechanical motion control systems as well as sizing exercises using manufacturers' catalogues will form the assignment portion of the course.

ELEX 8220 Industrial Processes

This special topics course presents an overview of the main processes and practices in a major B.C. industry such as the pulp and paper industry, the mining industry, the manufacturing sector, or the electronics sector. Guest lecturers are planned. The student will be required to perform a major technical and economic analysis in a specified area.

ELEX 8260 Advanced Electric Machines

This course presents advanced concepts and industrial practice with electric machines. Computer control via PLC and DCS systems as well as the analysis and selection of electrical equipment such as DC motor, induction motor adjustable frequency drive, stepper motor and synchronous motor systems are covered. Maintenance of electrical machinery is also covered. Hands-on labs are integrated with the course lecture material.

ELEX 8270 Power System Analysis

Power System Analysis commences with a description of the major components of a utility system and follows with an analytical analysis of systems. Generation and energy sources, transmission systems and transmission line characteristics, computation of voltage regulation, fault calculations using symmetrical component methods, power system stability and system modeling, determination of protective relay settings, are major topic areas. Projects with real-world power system analysis scenarios form a major part of the course.

ELEX 8275 RF Design Engineering

This course teaches how to design HF and VHF circuits. Topics include impedance matching networks; wide band transformers; synthesis of low pass, high pass, band pass and bandstop Butterworth and Chebychev filters; introduction to microstrip circuits; high frequency modeling of transistors; small-signal amplifier design using Y and S parameters; stability analysis; design of oscillators and RF power amplifiers; use of feedback in design of wide band amplifiers; noise performance of amplifiers. Labs require students to design, build and test various circuits applying theoretical knowledge.

ELEX 8290 Entrepreneurship & Engineering Economy

This course begins with a coverage of the basics of engineering economy supply/demand concepts, accounting procedures, terminology, the time value of money, capital and cash flow concepts, depreciation, income tax, breakeven, sensitivity and risk analysis, decision models, etc. The second part of the course will be delivered by a series of guest lecturer's—entrepreneurs from various sectors of the B.C. economic community. The focus will be on those technologies that are particularly relevant to the B.C. economy. The lecture topics will focus on entrepreneurship, business plans, research funding, feasibility studies, venture capital, liability issues, and international trade.

ELEX 8300 Industry Project

The student will complete the industry project in a workplace setting and choose a project that involves applied research or technology transfer. The project will be innovative, experimental, or exploratory in nature. Activities can range from directed study projects to the preparation of a proposal, project plan and the development of formal deliverables including a final report demonstrating the practical application of knowledge and skills in the local high technology economic sector.

English

ENGL 1177 Academic Writing

Study and application of the principles of university level discourse with emphasis on expository and persuasive writing. Prerequisite: Grade 12 English.

Electroneurophysiology

ENPY 1152 Electroneurophysiology 1

Provides the basic electrical and electronic knowledge and skills needed by technologist practitioners of electroneurodiagnosis. Emphasis will be on dealing with problems encountered in the clinical environment.

ENPY 2250 Electroneurophysiology 2

Introduces the student to devices and techniques used in clinical EEG laboratory practice. Correct placement and application of electrodes for this technique are taught so that the student is qualified to act as an assistant technologist for summer employment. A comprehensive overview of the field is presented so that students can begin to select their areas of specialization.

Prerequisites: ENPY 1151 and ENPY 1152.

ENPY 3351 Introduction to Clinical EEG Practice

Provides hands-on patient contact under direct supervision at local hospital EEG laboratories, in preparation for the fourth term practicum experience.

ENPY 3352 Electroneurophysiology 3

Provides exposure to clinical techniques in evoked potentials (including intraoperative monitoring), polysomnography and seizure monitoring. Prerequisite: ENPY 2250.

ENPY 3353 Nerve Conduction Techniques

Provides basic training in neuromuscular disease processes, nerve conduction studies (NCV) and electromyography. Prerequisite: ENPY 2250.

ENPY 4450 Electroneurophysiology Practicum

Spends an appropriate amount of time in each of the following clinical areas EEG, EMG, polysomnography (diagnosis of sleep disorders). Program will be tailored to the specific student. Clinical work may be out of town. Prerequisites: ENPY 3350 and ENPY 3351.

Environmental Health

ENVH 1100 Introduction to Environmental Health

This course introduces the student to the role, duties, responsibilities and behaviour of the PHI/EHO. Relevant professional organizations and government agencies are described. The structure of the provincial and federal judicial systems, the development of legislation and the general application of legislation are examined. The student is also introduced to blueprint reading.

ENVH 1124 Pest Management

An introduction to pests of public health significance. Through lectures and laboratories, the student examines the life history, health significance and methods of identification of pests encountered by the graduate. Current chemical, physical and biological control methods are examined in detail.

ENVH 1143 Pools & Recreational Water

The student is introduced to the health concerns associated with swimming pools and bathing beaches. The operational characteristics and requirements of different pool types is examined in order to provide the student with the necessary knowledge and skills to protect the public health. The section on recreational bathing beaches focuses on assessment and monitoring of the beach water and its surrounding environment. Various provincial regulations and national standards governing these topics are examined.

ENVH 1210 Soils

This course provides an introduction to the development and properties of soil. These properties are used to determine the soil's capacity to move liquid waste and domestic sewage. This determination includes basic geological information, soil formation, profiles, structures, textures, porosity, pH, permeability, etc. Interpretation of soil and air photo maps is also included.

ENVH 1220 Hydrogeology

This course provides an introduction to the concepts and methods used in hydrogeology which are most pertinent to the needs of the Environmental Health professional. These needs relate to the role of the Environmental Health Officer/Public Health Inspector in preventing and solving ground water contamination problems. These principles are used to assess risk to both health and the environment.

ENVH 1300 Food Hygiene

Provides the student with the knowledge and skills required to protect public health in matters relating to food processing, handling, storage, and food facility design and equipment. Emphasis is placed on legislative control and enforcement, inspection techniques, and the causes and investigation of foodborne illness. This course has an off-campus practicum requirement.

ENVH 2100 Environmental Health Legislation

Builds on the concepts introduced in ENVH 1100. A wide variety of legislation, relevant to the field of environmental health is examined. Students practice interpreting and applying selected pieces of legislation and examine the practical limitations that will be encountered in enforcement situations. Topics covered include housing, institutional and community care facilities, personal services establishments and emergency measures. Prerequisite: ENVH 1100.

ENVH 2200 Water Supply

Examines the methods and processes used to develop and supply a safe drinking water supply. Both small and large scale water supply and distribution systems are discussed. Chemical and bacteriological sample results are interpreted. The steps used in investigating and controlling a waterborne illness are also presented. Prerequisites: ENVH 1210 and ENVH 1220.

ENVH 2210 Sewage Disposal Methods

Describes the methods of collecting and disposing of liquid waste without causing a public health hazard. Both residential and commercial/large scale flows are examined. The relative effectiveness of primary, secondary and tertiary treatment is considered. The role of the PHI/EHO in approving and inspecting wastewater treatment and sewage disposal systems is covered in detail. Prerequisites: ENVH 1210 and ENVH 1220.

ENVH 2700 Biostatistics

Introduces concepts of descriptive and inferential statistics that are relevant in the health field. Topics include the organization and graphical presentation of data, frequency distributions, measures of central tendency, hypothesis testing, correlation and regression, and analysis of variance. An appropriate software package is utilized in this course. Prerequisite: MATH 1821.

ENVH 3100 Applied Law

Presents a study of how the legal system is (or should be) utilized by PHI/EHOs as one of the tools of their profession. This course builds on the knowledge gained from ENVH 1100 and ENVH 2100 by focusing on the practical realities of enforcement of regulations. Topics covered include collection and presentation of evidence, preparation of information, ambiguities, liability, appeals, freedom of information and the use of ticketing, injunctions and other remedies. Actual case studies are used to illustrate the importance of these topics.

ENVH 3200 Land Use

Focuses on the responsibility and duties of the PHI/EHO in land development. The procedure by which land is subdivided and developed is examined. Other topics include the implications of using land for the disposal of solid waste and design of a sanitary landfill site.

ENVH 3350 Noise & Vibration

Reviews relevant topics in acoustics, audiometry, noise dosimetry and noise control within buildings. The student is introduced to basic methods of sound measurement and the assessment of hearing loss. At the end of this course, the student is able to estimate noise in the work environment and recommend simple sound control measures associated with the use of enclosures, damping and absorbent materials. Prerequisites: MATH 2881 and PHYS 2288.

ENVH 3450 Occupational Hygiene

Allows the student to identify, monitor, evaluate and recommend control measures for common chemical and physical hazards in the workplace. It also provides the student with an overview of occupational diseases, causes and prevalence, methods of spread and prevention. Explores concepts of permissible levels, radiation, temperature and pressure extremes, contaminated water and food supplies, asbestosis, silicosis and white finger disease. Prerequisites: MATH 2881 and PHYS 2288.

ENVH 3500 Human Relations

This course teaches students how to function effectively in a team situation and discusses how to employ good human relations skills in carrying out the duties and responsibilities of a PHI/EHO. Interactive techniques such as role playing and interviewing are examined. The student will be introduced to the relevant concepts used to produce an educational presentation and/or a promotional program in the environmental health field.

ENVH 3600 Environmental Assessment

This course introduces the student to common chemical and physical factors that potentially constitute environmental health hazards. Examples include gases and vapors, noise, and radiation (including light). Through lectures and laboratory exercises the student is able to recognize these factors, evaluate the degree of the hazard using appropriate environmental sampling equipment, and be aware of possible control measures. This course has an off-campus practicum requirement. Prerequisite: MATH 1821.

ENVH 4300 Food Equipment & Processing

Addresses a wide range of food processing and preservation techniques relative to the survival and growth of microorganisms in foods. Examples of foods that are potentially hazardous are discussed in detail. Legislation pertaining to the commercial food industry is examined. The operation, maintenance, cleaning and disinfection of common food facility equipment is described. Prerequisite: FOOD 3020.

ENVH 4600 Indoor Air Quality

Examines chemical, physical and biological factors relating to indoor air quality. The lecture and lab exercises build on the concepts introduced in ENVH 3600. The sources of gases and vapors, particulates and microorganisms in homes, commercial premises and facilities will be discussed. Issues relating to survey design and data interpretation are addressed. Options for improving indoor air quality are examined. This course has an off-campus practicum requirement. Prerequisite: ENVH 3600.

ENVH 7001 Solid & Hazardous Waste

This course examines the disposal of solid and hazardous wastes. Topics in the solid waste section include monitoring a disposal site, land reclamation and dealing with illegal disposal sites. Special wastes such as septage and agricultural wastes are considered. The hazardous waste section includes topics such as designing, monitoring and inspecting a hazardous waste management facility. Potential health risks are discussed. In addition to developing core competencies in environmental health, this course enables students to enhance their critical thinking, problem solving, communication and interpersonal skills. Prerequisite: ENVH 3200.

ENVH 7002 Outdoor Air Quality

This course builds on the concepts covered in ENVH 4600 as they apply to outdoor air quality. Students examine the role of the PHI/EHO in conducting investigations and recommending control measures. The potential health risks associated with outdoor air are also discussed. Students develop investigative skills and creative problem solving and diagnostic abilities within the context of outdoor air quality assessment. Prerequisite: ENVH 4600.

ENVH 7266 Epidemiology

Students apply critical appraisal skills in examining sources and uses of epidemiologic data for public health field work and health services planning, evaluation and administration. This course provides practical experience in outbreak investigation using case studies. Data collection methods, designs for applied research studies, techniques for data analysis, and scientific communication are explored. Upon completion of this course students are able to conduct field investigations under supervision, assess the validity of scientific reports and prepare reports for publication. Students enhance their problem solving, critical thinking, reading and communication skills within the context of epidemiology and biostatistics. Prerequisite: ENVH 2700.

ENVH 7400 Industry Project 1

Students apply team-building, communication, organizational skills, problem solving and critical thinking to the development of a proposal for an industry sponsored/related project. The project proposed in this course is conducted and presented in ENVH 7410. Students are encouraged to develop close contacts with the industry in order to develop proposals relevant to the field. Students conduct a literature review, write a proposal and present the proposal orally. This course has an off-campus practicum requirement.

ENVH 7410 Industry Project 2

Students will continue to develop the team-building, communication and organizational skills applied in ENVH 7400. The project proposed in that course is carried out. A written report is prepared and an oral presentation made. This course has an off-campus practicum requirement. Prerequisite: ENVH 7400.

ENVH 7500 Practicum 1

This course consists of 12 weeks of practical experience (off-campus practicum) at a health agency or other approved agency. The practical experience is coordinated by a supervisor who holds the C.P.H.I.(C). The student is exposed to and participates in a range of basic inspection programs. Successful completion of this practicum is one of the requirements for national certification.

ENVH 7606 Information Technology in Environmental Health

This course focuses on the application of computerized information systems in environmental health organizations. Through projects and assignments students critically evaluate the information technology needs of an organization, propose solutions using problem solving skills, constructively challenge assumptions and assess scientific and business literature using reading skills. This is a guided learning (distance education) course.

ENVH 8001 Environmental Health Risk Assessment

Students examine the concepts of risk assessment, risk perception and risk communication as they relate to the environmental health field. Using case studies, students apply communication, problem solving, critical thinking and teamwork skills. Prerequisites: ENVH 7001 and ENVH 7002.

ENVH 8400 Research Methods

In this course students examine the components of the research process and prepare a research proposal. Students work independently under the guidance of a committee to select a research topic in a specialty area and develop a detailed research proposal. Upon successful completion of this course, the student conducts the research project in ENVH 8410 (Applied Research Project). In addition to developing core competencies in the research process, students enhance their communication, problem solving, critical thinking and reading skills. This course has an off-campus practicum requirement. Prerequisite: ENVH 7266.

ENVH 8410 Applied Research Project

This course focuses on the application and integration of knowledge and skills acquired in ENVH 8400 (Research Methods). Students independently complete the research project under the supervision of a committee, prepare a formal research report and present the research findings. Students utilize time-management strategies, oral and written communication skills and critical thinking/problem solving abilities. This is a directed studies course in guided learning (distance education) format which has an off-campus practicum requirement. Prerequisite: ENVH 8400.

ENVH 8500 Practicum 2

This practical experience focuses on the application and integration of environmental health concepts and principles in a real-life work situation. Students enhance their skills in critical thinking, problem solving, decision-making, communication and interpersonal relationships by participating in a variety of programs within an environmental health or other approved agency. Students prepare interim and final reports based on their field experience. The practicum is 12 weeks long and students are expected to work the same hours as the personnel at the agency to which they are assigned. This course consists of an off-campus practicum requirement. Prerequisite: ENVH 7500.

Financial Management

FMGT 1100 Accounting 1

Covers the full accounting cycle for individuals with little or no accounting background. Topics include accounting as an information system; introduction to accounting theory; income measure; traditional record keeping procedures; the accounting cycle; special journals; cash; investments and receivables.

FMGT 1105 Accounting 1 for Financial Management

Provides Financial Management students with a theoretical and practical foundation in basic accounting and as a preparation for FMGT 2105. Topics include an introduction to accounting theory; income measurement; record-keeping procedures; adjusting and closing entries; financial statement preparation; the accounting cycle; merchandising accounting; inventory costing; accounting systems and cash.

FMGT 1110 Financial Management 1

Covers basic accounting procedures; closing the books; adjustments; working papers; merchandise operations; statement and ledger organization; special journals; forms of business organization; accounting principles; accounting for cash, accounts receivable, inventory and capital assets; analysis of financial data and financial statements.

FMGT 1152 Accounting for the Manager

Covers the accounting function and the services it provides to the manager. Topics include how to interpret statements, reports, budgets, etc., in managerial decision-making.

FMGT 1154 Accounting for Health Managers

Provides students with a basic understanding of the concepts and principles of accounting. Specific topics include financial statements, the recording process, budgeting methods, zero-based budgeting and cost-volume-profit analysis.

FMGT 2100 Accounting 2

Examines financial and management accounting techniques, detailed financial statements, management reports and the requirements of professional accountants. Prerequisite: FMGT 1100. (Note: Students intending to proceed into Financial Management's full-time day program must achieve a mark of at least 70 per cent in this course.)

FMGT 2105 Accounting 2 for Financial Management

Continues from FMGT 1105. Topics include temporary investments; receivables, capital assets; liabilities; partnerships; corporations; bonds; statements of changes in financial position; financial statement analysis; manufacturing accounting; departmental accounting; cost-volume-profit analysis. Note: Full time Financial Management students who receive less than 65 per cent in this course will be removed from the full-time program and will not be re-admitted until they reapply to the program and complete FMGT 2100 with a grade of 70 per cent or better. Prerequisite: FMGT 1105 or (FMGT 1100 with 65 per cent or better).

FMGT 2110 Financial Management 2

Covers managerial accounting, cost terms; planning and control; using cost data in decision-making. Specific topics include job order costing, process costing, cost behaviour, cost-volume-profit analysis, standard costs, budgeting, pricing products and services, relevant costs and capital budgeting. Prerequisite: FMGT 1110.

FMGT 2540 Working Capital Management

Enables students to understand the relationships between current assets and current liabilities in different types of organizations, to appreciate the trade-offs inherent in a firm's working capital policy, and to carry out a basic analysis of a firm's working capital management in comparison to others. Prerequisite: FMGT 1105 or FMGT 1100.

FMGT 2710 Computerized Accounting

Presents a practical, specialist course for Financial Management students with an introductory financial accounting background. This subject begins with completion of a manual practise set and ends with completion of a series of exercises which employ a basic debit/credit software package. The work done includes conversion from manual to computer accounting, general ledger, accounts receivable, accounts payable, payroll and system modules. One major integrating assignment will be completed using the software. Prerequisite: FMGT 1105 or FMGT 1100.

FMGT 2910 Finance Reports

Provides Financial Management students with skills in formal reporting. They will have the opportunity to analyse an organization first-hand, talk to key personnel and investigate that firm's financial and organizational make-up. Operating as part of a small syndicate, students will make a formal oral presentation to a large group in a theatre setting, using audiovisual techniques and equipment. Prerequisite: FMGT 1105 or FMGT 1100.

FMGT 3110 Financial Accounting 1

Enables students with basic accounting knowledge to broaden their understanding of the theory and process of accounting. This course and FMGT 4110 prepare them for career advancement and advanced study in accounting. Prerequisite: FMGT 2100 or FMGT 2190.

FMGT 3210 Cost/Managerial Accounting 1

Emphasises the role of the management accountant, cost terms and purposes, cost-volume-profit relationships, job order costing, budgeting, responsibility accounting and standard costs. Prerequisite: FMGT 2100 or FMGT 2190.

FMGT 3221 Management**Accounting Administration**

Covers the management accountant's role in decision-making, planning and control of company operations through budgeting, standard costing and evaluation systems. Emphasis is on alternative methods for product costing, cost allocations, performance measurement and decision-making models. Prerequisite: FMGT 2100 or FMGT 2180 or FMGT 2190.

FMGT 3222 Management Accounting(MKTG)

Presents a specialist subject for Marketing Management students in the Professional Sales, Advertising and Tourism programs. Spreadsheets are used to develop a series of templates to handle financial statement analysis, product costing, budgets, performance reports and capital asset planning. Control of decentralized operations and variable costing are also covered. Prerequisite: FMGT 2100 or FMGT 2180 or FMGT 2190.

FMGT 3224 Managerial Accounting (OPMT)

Concentrates specifically on cost accounting for operations management. Topics include basic cost concepts, systems of cost accumulation, accounting for manufacturing overhead with emphasis on activity based accounting, standard accounting for manufacturing overhead with emphasis on activity based accounting, standard cost systems and the analysis of cost variances. Variable costing is also dealt with. Cash and capital budgeting are discussed in detail. Prerequisite: FMGT 2100 or FMGT 2180 or FMGT 2190.

FMGT 3310 Auditing 1

Covers the meaning and purpose of the audit function and an introduction to techniques and procedures. Prerequisite: FMGT 2100 or FMGT 2190.

FMGT 3410 Taxation 1

Introduces individuals with little or no income tax knowledge to the basics of Canadian income tax. The course constitutes the first half of taxation with FMGT 4410 completing it. Topics include tax information sources, residency, classes of taxpayers, employment income, business income, property income and capital cost allowance rules. Capital gains rules will be introduced if time permits. Prerequisite: One of FMGT 2100, FMGT 2105, FMGT 2180 or FMGT 2190.

FMGT 3510 Finance 1

Covers control and financial management of the business firm, profit planning, cash and capital budgeting and inventory control. Prerequisite: FMGT 2100 or FMGT 2190

FMGT 3550 Business Finance for International Trade & Transportation Logistics 1

Familiarizes students with the role finance plays in business and industry. Students will obtain a basic understanding of the interrelationships of finance with the other functional aspects of business. Teaches students common decision-making tools in finance to enable them to react intelligently under varying conditions within a business environment of ever increasing complexity. Special emphasis will be given to the services provided by financial institutions to firms that take part in international trade. Prerequisite: FMGT 2100 or FMGT 2180 or FMGT 2190.

FMGT 3560 Finance 1 Administration

Allows those with little or no knowledge of financial management to study the various methods of optimizing the economic position of a firm. Middle management people in business finance will learn to make the best decisions on the financing of a firm. Topics include control and financial management of the business firm, profit and cash-planning, the cost of capital and working capital management. Prerequisite: FMGT 2100 or FMGT 1152.

FMGT 3610 Security Analysis 1

Introduces investments. The Financial Management technology has entered into a partnership with the Canadian Securities Institute. This course, product of the partnership, is the CSI's Canadian Securities Course. Topics include the nature of marketable securities, factors which influence their price and a review of the various methods employed to evaluate their worth. In addition, the operation of stock exchanges and investment dealers and the regulatory environment in which these institutions operate is discussed. Finally, the purpose and function of the Investment Dealers Association is examined with a particular focus on the role it plays in the establishment of standards of conduct of licenced stock brokers. Successful completion of the course earns the student credit for the CSC with the Securities Institute. Prerequisite: One of FMGT 2100, FMGT 2105, FMGT 2180 or FMGT 2190.

FMGT 3720 Advanced Computer Applications 1

Allows students to develop expertise in the AccPac accounting software package. In addition to G/L, A/R and A/P modules, the students will use the Financial Reporter to design custom statements. Prerequisites: OPMT 2650 and OPMT 2660.

FMGT 4110 Financial Accounting 2

Helps students develop sufficient accounting knowledge for an intermediate-level financial accounting position and exemption (subject to achieving a prescribed mark) from the equivalent course offered by the professional accounting bodies. Prerequisite: FMGT 3110.

FMGT 4210 Cost & Managerial Accounting 2

Emphasises direct costing, relevant costs, cost allocation, capital budgeting, inventory planning and valuation, joint and by-product costs, process costing, payroll, factory ledgers and decentralization and transfer pricing. Prerequisite: FMGT 3210.

FMGT 4310 Auditing 2

Teaches the student general auditing principles and specific audit procedures. Enables the student to critically assess accounting procedures. Prerequisite: FMGT 3310.

FMGT 4410 Taxation 2

Expands the student's study of Canadian income tax begun in FMGT 3410, including the complexities and problem areas involved in tax planning. Topics include capital gains rules and tax computations for individuals (including proprietors and partners), corporations and trusts. Corporate surplus distributions, international income, assessment (including returns, appeals, reassessment and payment) and GST are also introduced. Prerequisite: FMGT 3410.

FMGT 4430 Selected Topics in Tax

Covers topics in taxation that are either not covered in Taxation 1 and 2 or not covered in depth. Topics have included GST, buying and selling a business, taxation of high technology corporations, taxation in the mining and forestry industries, U.S. taxation and an insight into Revenue Canada. Prerequisite: FMGT 3410.

FMGT 4510 Finance 2

Instructs students on how to raise capital to finance a firm. Topics include the cost of capital, short, medium and long-term financing, leasing, refinancing, security analysis, the Canadian capital and money markets and pension portfolios as they affect business decisions of the Canadian firm. Prerequisite: FMGT 3510.

FMGT 4520 Enterprise Finance

Familiarizes the student with the fundamentals of raising funds. Emphasis is placed on various sources of funds with particular focus on the types, their benefits and costs. Topics will include bank financing, government funding and venture capital. Prerequisite: FMGT 3510.

FMGT 4525 Financial Planning

Equips the student with the basic knowledge and skills to provide advice of a financial nature to individuals. The primary topics include taxation, risk management, pension plans, trusts, investments and estate planning. Prerequisite: FMGT 3610.

FMGT 4531 Security Analysis 2

Covers corporate evaluation, asset and liability management, financial intermediaries, and money market instruments. The focus of all four areas will be international as well as domestic investment banking. Prerequisites: FMGT 3510 and FMGT 3610.

FMGT 4535 Financial Services

Provides the financial planning student with the marketing and communications skills essential to success in the financial planning profession. The course covers the marketing of financial planning products and services. In addition, it will introduce the student to the institutional environment in which many financial planners operate. Prerequisite: FMGT 3610.

FMGT 4550 Business Finance for International Trade & Transportation Logistics 2

Continues from FMGT 3550 on the role finance plays in business and industry. Students will obtain a basic understanding of the interrelationships of finance with the other functional aspects of business. Teaches students common decision-making tools in finance to enable them to react intelligently under varying conditions within a business environment of ever-increasing complexity. Special emphasis will be given to the services provided by financial institutions to firms that take part in international trade. Prerequisite: One of FMGT 2100, FMGT 2180 or FMGT 2190.

FMGT 4560 Finance 2 Administration

Instructs students in raising capital to finance a firm. Topics include capital budgeting; short, medium and long-term financing; leasing; security analysis; the Canadian capital and money markets as they affect business decisions of Canadian firms. Prerequisite: FMGT 3560.

FMGT 4570 Money & Banking

Examines central banking and monetary control, financial assets and financial markets, objectives and techniques of monetary policy, money and the international economy. Prerequisites: ECON 2100 and ECON 2200.

FMGT 4610 Security Analysis 2

Covers corporate evaluation, asset and liability management, financial intermediaries, and money market instruments. The focus of all four areas will be international as well as domestic investment banking. Prerequisites: FMGT 3510 and FMGT 3610.

FMGT 4620 Security Fundamentals

Introduces the fundamentals of investing including market mechanics, the investment setting, technical and fundamental analysis of common stock, preferred stock and corporate bonds. Prerequisite: One of FMGT 2100, FMGT 2105, FMGT 2180 or FMGT 2190.

FMGT 4710 Microcomputer Systems 2

Continues from FMGT 3720 emphasising the solution of practical problems. It is expected that students will develop a level of familiarity with software programs and applications such that they will use them in their other course areas. Prerequisite: FMGT 3720.

FMGT 4730 Computerized Accounting for Managers

An introduction to the use of Enterprise Information systems in support of management decisions. The course uses Great Plains Dynamics software plus several generic third-part products in a task-approach to understanding the structure and functions of Windows-based EISs. A hands-on, practical approach is used, and materials are included in the course fee. Prerequisites: A good grasp of Windows functionality and a background in Accounting.

FMGT 4750 Advanced Microcomputer Applications 2

Begins with an evaluation of the needs of a small business and will progress through the various stages. Students will also learn the payroll cycle including submissions to government. Students will prepare a mini research paper into a current topic in computer technology. Prerequisite: FMGT 3720.

FMGT 4910 Projects in Industry

Presents an experiential course for students in the Professional Accounting and Microfinancial programs. Level 4 students form syndicates and carry out a real problem solving assignment. Projects can be either in government or private sector settings and may be identified by the syndicate or chosen from projects solicited by the department. Each project will be supervised by a faculty member. Prerequisite: Completion of Level 3.

FMGT 7120 Advanced Accounting

Reviews GAAP and objectives of financial reporting. Examines corporate combinations, including consolidations for wholly-owned subsidiaries, non-wholly-owned subsidiaries (both in the year of acquisition and subsequent years) and pooling of interest. Consolidations will be examined for up to two subsidiaries. Accounting for foreign currency transactions, fund accounting and branch operations. Prerequisite: FMGT 4110 or FMGT 4190. (Students are advised not to enrol in this course until they have achieved a mark of at least 65 per cent in either prerequisite courses).

FMGT 7121 Advanced Accounting

Students will be expected to acquire a working knowledge of the current CICA Handbook recommendations as well as alternative approaches to each issue addressed. They will apply this knowledge to situations presented in case studies or complex questions. In reviewing assignments and analysing case studies, particular emphasis will be placed on how the accountant exercises professional judgement to resolve a problem, what resources may be available to assist him/her to reach an appropriate solution, and finally how the results should be communicated to the client. Prerequisite: FMGT 4110.

FMGT 7210 Advanced Management Accounting

Examine in-depth, topical areas from the discipline of management accounting with reference to and synthesis of applicable case material. Includes constraints, budgets, cost-benefit analysis, goal congruence, management control systems, transfer pricing, performance measurement, total quality management, linear programming, regression analysis and ethical decision-making. Prerequisite: FMGT 4210.

FMGT 7221 Manufacturing Cost Accounting

Students will learn how to use a variety of systems to account for manufacturing costs. They will also learn how accounting information can be used in planning operations, controlling activities and making decisions in a manufacturing organization.

FMGT 7310 Advanced Auditing

Addresses issues and challenges faced by the auditing profession in today's environment including the assessment of risk of an audit, the use of computer technology in completing the audit file and the increasing litigation against the profession. Students will be expected to use the assigned textbook and other sources to research selected topics. Case studies will be used extensively. Prerequisite: FMGT 4310.

FMGT 7410 Taxation of Close Corporations

This is an integrative tax course which requires students to examine the combined impact and timing of relevant tax statutes (i.e. Income Taxes, GST, PST, PTT), probate fees and transaction costs on closely held corporations and their shareholders. Because these shareholders may have some discretion on when and in whose hands income is taxed, participants will be evaluating taxation alternatives as between shareholders, their operating companies, and other vehicles such as holding companies and family trusts. This will require students to acquire and demonstrate a detailed knowledge of the taxation of individuals, corporations and trusts. Prerequisite: FMGT 4410.

FMGT 7510 Advanced Finance

This course builds on the fundamentals of finance which are covered in FMGT 3510 and 4510. It does so by approaching the subject of finance in a more evaluative and strategic manner, looking at such questions as what makes companies perform better, how can companies avoid pitfalls and how can they achieve their goals in the short term. In the search for answers to these questions, we will consider what financial markets want from companies and explore how a company's interest rate risk and foreign exchange risk can be managed. Prerequisite: FMGT 4510.

FMGT 7710 Management Information Systems

Provides an understanding of the relationship between information, technology, accounting information systems, business strategy and organizational improvement. Students will examine information technology as an enabler and facilitator of business strategy and an accounting and control tool to track performance and improve managerial decision-making. Cases and assignments will focus on small to medium-sized Canadian organizations looking for appropriate solutions to information technology and accounting issues. Prerequisites: BUSA 1100, FMGT 4210 and FMGT 4710.

FMGT 7910 The Business Environment

In this course the student will acquire the skills necessary to operate in a complex professional world that offers problems with no textbook solutions. Specifically, the course will deal with the economic and legal environment, risk management, ethical behaviour in business, cultural diversity, international trade, and problem solving through critical thinking. The student will relate what he/she has learned to some of the dominant industries in B.C.

FMGT 8120 Accounting Theory

Reviews the history of accounting and the theories underlying current accounting practice. Alternative theories and methods are critically assessed and possible future directions evaluated. Prerequisite: FMGT 7120 or FMGT 7121.

FMGT 8910 Integrative Business Management Practice

Designed to fulfill the role of a "capstone" to the degree program. Its overall objective is to enhance the students' skills by supplementing their knowledge of accounting with a thorough understanding of the management techniques and practices required of accountants as members of the senior executive team. Includes a major project related to the student's own work situation. Prerequisites: Seven of the following courses: FMGT 7910, FMGT 7121, FMGT 7210, FMGT 7310, FMGT 7410, FMGT 7510, FMGT 7710 and FMGT 8120.

Food Technology

FOOD 1030 Biology

Presents a study of the principles underlying living phenomena including the organizational attributes of living matter. Development of systems will be compared from one-celled organisms to higher plants and animals. The economic importance of various classes of plants and animals is included.

FOOD 1090 Introduction to Food Technology

Introduces the field of food science and technology. The sciences used to provide knowledge for food technology, the importance of food in providing proper nutrition and the opportunities for employment in the food industry will be discussed.

FOOD 1160 Food Safety: The HACCP System

A two-and-a-half day workshop of benefit to employees whose job is to ensure the safety and quality of food, especially potential HACCP plant coordinators from areas such as QC, production, sanitation and management. The focus is on demystifying HACCP (Hazard Analysis Critical Control Point) and the role it plays with ISO 9000 and TQM. Participants are taught the skills necessary to implement a HACCP program to meet both their company's needs and government expectations. Discussion groups are formed and practical problems tackled using the team approach. Prior to class, participants are required to review introductory information on HACCP and complete a company floor plan. Those not currently employed in the industry are given an alternative assignment to be completed prior to the start of class. A Certificate of Completion is issued to students who successfully complete an in-house assignment and exam. Prerequisite: Some knowledge of the food processing industry and factors relating to food safety.

FOOD 1241 Zoology 1 for FWR

Presents a general classification of the animal kingdom. Basic vertebrate zoology; the development of the vertebrate from embryo to adult; the study of the vertebrate body including the skeletal, muscular, digestive, circulatory, urogenital and endocrine systems. This course focuses on the theoretical aspects of the subject area.

FOOD 2010 Food Processing 1

Introduces the principles and processes of canning, freezing, dehydrating and fermentation of foods; the use of salt, sugar and additives to preserve food; and the importance of food packaging. Experimental portions of food will be preserved by various methods during lab periods. Prerequisites: FOOD 1090, BIOT 1020 or microbiology training.

FOOD 2020 Food Microbiology

Presents the application of microbiology to food manufacturing; the isolation of micro-organism significant to food processing; maintaining high microbiological standards in processed foods; spoilage control; assessing microbiological test results and report writing to management. Prerequisite: BIOT 1020.

FOOD 2241 Zoology 2 for FWR

Presents a general classification of the animal kingdom. Basic vertebrate zoology; the development of the vertebrate from embryo to adult; the study of the vertebrate body including the skeletal, muscular, digestive, circulatory, urogenital and endocrine systems. This course is a "lab" course and builds on the theoretical material presented in FOOD 1141. Prerequisite: FOOD 1141.

FOOD 3010 Food Processing 2

Presents the study of food manufacturing processes in the fish, meat, fruit and vegetable, cereal, dairy, beverage and confectionery industries. Principles and techniques of proper handling and preservation of products in these industries will be emphasised. The use of ingredients such as sweeteners, flavourings, colouring and preservatives will be discussed. Prerequisite: FOOD 2010.

FOOD 3020 Food Microbiology for Environmental Health

This course provides an overview of the laboratory techniques used in the detection, enumeration and identification of food-related microorganisms of importance in the field of environmental health. Topics include basic microbiological safety procedures, aseptic techniques, sample collection techniques, proper plating methods and isolation techniques. Sampling will be done on a variety of foods and food contact surfaces. Control techniques such as food preservation and the use of sanitizing agents will also be discussed. Prerequisite: BHSC 2223.

FOOD 3030 Quality Control 1

Provides an assessment of food quality. Responsibilities and organization of a quality control department in the food industry; statistical procedures for sampling; use of control charts; federal and government regulations; an introduction to tri-stimulus colourimetry and measurement of colour in foods. Prerequisite: MATH 2441.

FOOD 3040 Food Analysis 1

Introduces the theoretical and practical aspects of sampling and sample preparation. The proximate analysis of foods and biological materials. An introduction to carbohydrate and protein chemistry with selected analyses. Prerequisite: CHEM 2203.

FOOD 3250 Sanitation for Food Processing

Stresses the good manufacturing practices, personal hygiene, HACCP systems relating to the sanitation of food plants. Properties of appropriate cleaners and sanitizers are studied together with the proper use of equipment for cleaning. Sanitary and safety design of food processing plants and equipment as well as appropriate waste management are discussed. Prerequisite: Completion of Level 2.

FOOD 4010 Food Processing 3

Continues the study of food manufacturing processes in the fish, meat, fruit and vegetable, cereal, dairy, beverage and confectionery industries. Principles and techniques of proper handling and preservation of products in these industries will be emphasised. The use of ingredients such as sweeteners, flavourings, colouring and preservatives will be discussed. Prerequisite: FOOD 3010.

FOOD 4020 Process Systems for Food Technology

Presents the acquisition and handling of materials for food processing. Operations used in food processing systems such as heat transfer and product separation are studied. Dehydration, packaging, fluid and solids handling systems used in food processing plants are discussed. Prerequisite: PHYS 2145.

FOOD 4030 Quality Control 2

Covers the sensory evaluation of food; facility design and selection of taste panels; statistical analysis of data; laboratory measurement of consistency and texture of foods. Prerequisite: FOOD 3030.

FOOD 4040 Food Analysis 2

Introduces the chemistry and practical laboratory analysis of lipids, vitamins and minerals. Methods for the determination of food additives, detection of food contaminants (e.g. aflatoxin), and the characterization of food processing waste water will also be addressed. Prerequisites: FOOD 3040 and CHEM 3311.

FOOD 4390 Directed Studies for Food Technology (Practicum)

Works on an appropriate industry-related practicum project under the supervision of a faculty advisor. Course requirements will include literature review, methodology and progress reports, as well as final oral and written technical reports. Prerequisites: Completion of Term 3 courses in Food Technology.

Geomatics

GEOM 7105 Introduction to Autocad Land Development Desktop

This course provides an introduction to the creation and management of surveying/ engineering projects and associated drawings using Land Development Desktop software. Lectures will discuss the implementation of project standards to streamline the process from data collection to production of final plans. Labs will cover operational aspects of the software.

GEOM 7115 Autodesk Survey

This course will teach you how to efficiently collect and process survey field data through the establishment of data collection and processing standards. This course includes a short field project but focuses on the implementation of data collection standards, downloading/ importing of data, and the adjustment/ analysis of field measurements. Prerequisite: GEOM 7105.

GEOM 7125 Autodesk Civil Design

Equips candidates with the skills to proficiently use Autodesk Civil Design software to design various engineering services for a land development site. Candidates will design horizontal and vertical roadway alignments, use templates to create finished grade surfaces from the roadway alignments, use grading tools to calculate cut and fill material volumes and assemble the roadway and site design information to create a complete drawing of the development site. Prerequisite: GEOM 7105.

GEOM 7205 GPS for Resource Surveys

This course provides a comprehensive conceptual and practical introduction to GPS technology as used in resource surveys in B.C. It covers GPS techniques for accuracy requirements greater than 1-2 metres. Participants will learn fundamental concepts of GPS positioning, how to use GPS equipment and software, and how to minimize GPS errors and correctly integrate GPS data with data from other sources. Upon successful completion of this course, students will receive a RIC (Resource Inventory Committee) training certificate, which will qualify them to perform GPS resource surveys within B.C.

GEOM 7230 Project Planning

This course helps students prepare for a geomatics project. The student's primary task is to find an industry sponsor and topic. Students will review literature on the project topic, practice technical presentation skills, use project management software, and write a project proposal.

GEOM 7305 High Accuracy Satellite Positioning

This course introduces the concepts and procedures for using satellite systems to perform high accuracy positioning. It provides an overview of static, kinematic and real time surveying techniques. Topics include signal structure, code and phase observables, phase ambiguities, accuracy, modes of operation, project planning, hands-on operation, data downloading, conversion, exporting and processing with an emphasis on network adjustment. Prerequisite: SURV 5208 or departmental approval.

GEOM 7307 Advanced Digital Mapping

This course presents a broad range of techniques and products currently used in the field of digital mapping. It provides training in the application of photogrammetry with an emphasis on project planning and management. The topics covered include mapping project design, digital data capture editing, and terrain modelling, cartographic presentation, orthophoto production; project planning and management.

GEOM 7330 Cadastral Surveys and Land Registration Systems

Students are introduced to concepts of land use and land ownership under English common law and are practically engaged in researching and interpreting legislation and case law. This course also explores the role of the land surveyor and the contribution of the surveying profession to land development. Students must have Internet access and e-mail. Prerequisite: Basic understanding of Land Surveying.

GEOM 7340 Advanced Residential Site Planning

This course will provide an understanding of a step by step subdivision design process from the initial site analysis, to subdivision design, and finally the development of a formal land development proposal. CAD software will be used for the basic subdivision design, and the development of a final plan for committee review. Topics covered will include, site analysis, environmental impact assessment, site grading, contouring, and storm water management, suburban street design, cost estimates for land development, and the plan submittal and approval process.

GEOM 8230 Geomatics Project

Participants will undertake a major independent project in a selected area of Geomatics technology, in consultation with industry sponsors and faculty advisors. Participants will solve technical problems, demonstrate thorough knowledge of the project topic, and present the project results by writing a technical report and making an oral presentation.

GEOM 8310 Hydrographic & Ocean Surveying

This course will provide an understanding of the following topics in sufficient depth as to allow the student to plan, carry out, and evaluate proposals for an oceanographic/hydrographic survey; tides, salinity, temperature, speed of sound, waves, currents, oceanographic instruments, marine positioning, underwater acoustics, acoustic techniques (echo-sounder, sweep systems, sidescan sonar), correction of echo sounding measurements (calibration, heave correction, etc.) non-acoustic techniques (lead line, mechanical sweeps, photographic techniques, airborne EM sounding, magnetic anomaly detection, laser bathymetry), and data management.

GEOM 8320 Satellite Surveying Project Management

This course will help you design a satellite surveying plan based on accuracy and area of interest specifications. Topics include consideration of GPS performance, observation methods, error sources, site selection, observation strategy, cost estimation, and refinement of observation strategy in response to accuracies achieved.

GEOM 8332 Survey Law Land Use Planning

This course examines the relationship between land surveying and law and how laws affect the land surveying profession. Topics include boundary evidence, riparian rights, title to land, the multipurpose cadastre, global and local land use planning initiatives. Prerequisite: GEOM 7330.

GEOM 8342 Advanced Topics in Adjustments & Statistical Testing

This course introduces advanced topics in adjustments and statistical testing. It assumes that students understand procedures of parametric and conditional models together with their stochastic models. Topics include observables, parameters and their stochastic properties; Gauss-Markov linear mathematical models; the method of least squares and the maximum-likelihood method; the process of adjustment for a general mathematical model; derivation of the parametric and conditional mathematical models from the general model; post adjustment testings of linear hypotheses including detection of outliers by "global tests" and localization of non-stochastic errors by local tests (data snooping); internal and external reliability measures; surveying control networks and problem of datum, changes of datum by S-transformations; pre and post adjustment testing of observables; optimization of control networks with respect to accuracy, reliability and economy measures.

Geographic Information Systems**GIST 5100 Fundamentals of Geographic Information Systems**

Discusses fundamental GIS concepts and terminology, the role of GIS in spatial data management and digital mapping, the multipurpose cadastre and resource GIS, methods of data collection and input, data modelling and representation, storage and retrieval of spatial data, concepts of database systems, manipulation and analysis features of GIS.

GIST 5108 Fundamentals of Mapping

Examines the technologies associated with the acquisition and modeling of primary coordinate data for GIS base maps. Topics include coordinate systems and map projections, mapping systems, photogrammetric mapping, global positioning systems and accuracy of spatial data.

GIST 5119 Technology Assessment

Presents hardware and software for GIS and related technologies. System comparison and evaluation for project implementation.

GIST 5120 Project Planning

Allows students to research project topics, present a project proposal, establish supervisors, identify sources of data and begin data acquisition.

GIST 5128 ARC/INFO GIS 1

Introduces operational aspects of GIS software using ARC/INFO GIS in an NT workstation environment. Topics include data entry and editing, data analysis, and fundamental GIS operations. Working problems are drawn from resource management and urban applications.

GIST 5130 Technical Topics in Computer Systems

Reviews trends in computer system architecture, hardware and software, operating systems, programming languages and application programs. Concepts of data communications and networking, and introductory mathematics for computing.

GIST 6100 Technical Issues in GIS

Examines a variety of data structures and algorithms used in GIS. Covers such topics as digital elevation modeling, spatial interpolation, generalization, data standards, digital data exchange and data integration. Prerequisite: GIST 5100.

GIST 6101 Selected Topics in Geographic Information Systems

Examines current topics in GIS such as rule- and knowledge-based systems, error in GIS, visualization, three and four dimensional GIS, object-oriented databases and programming and multimedia. Prerequisite: GIST 6100.

GIST 6102 Customization and Modeling

Examines raster and vector methods of modeling with GIS software; customization of GIS software: macro programming, menu development and applications programming interfaces. Prerequisites: GIST 5100 and GIST 6128.

GIST 6108 Digital Mapping

Examines standard practices for compilation, transformation, editing and storage of digital spatial data. Prerequisites: GIST 5108 and GIST 6121.

GIST 6110 Management Issues in GIS

Covers GIS project management, GIS integration with external systems, data acquisition and conversion issues, training issues and spatial data management. Prerequisite: GIST 6100.

GIST 6118 Remote Sensing

Teaches students to use PCI software on UNIX workstations to perform image processing and analysis on satellite data, geocode and classify images, and integrate images with GIS. Prerequisite: GIST 6121 or equivalent statistics course (may be taken concurrently).

GIST 6120 Project

Continues from GIST 5120. Students will implement and manage a major independent project. Prerequisite: GIST 5120 and permission of the department.

GIST 6121 Applied Mathematics 2

Provides students with basic knowledge of statistical methods currently used. The course includes the fundamentals of descriptive statistics, measures of central tendency, measures of dispersion, probability, discrete probability distributions, expectations, variances, continuous probability distributions (normal, student, chi squared, fisher, tau distribution), confidence intervals, hypothesis testing, comparison problems of means and variances, ANOVA test, simple linear regression, Helmert's transformation. This course is a required foundation course for the GIS Advanced Diploma program. Prerequisite: GIST 5121.

GIST 6128 ARC/INFO GIS 2

Continues from GIST 5128, covering customization, edge matching, digital terrain modelling, analytical GIS functions and importing and exporting of data. Prerequisite: GIST 5128. Previous programming experience is helpful (GIST 5001).

GIST 6132 GIS Database Systems

Introduces students to workstation database systems using Oracle RDBMS, and how these can be used with ARC/INFO GIS software. Prerequisites: GIST 6128 (may be taken concurrently) and COMP 1271 (or CDCM 2372) or equivalent database software.

GIST 6135 GIS System Management

Covers account management, system backup, startup and shutdown procedures, system accounting, system security. Introduction to networking, distributed GIS databases in a heterogeneous computing environment. Prerequisite: GIST 5130 or equivalent industry experience.

GIST 7028 Desktop Geographics

This course provides an introduction to desktop GIS technology currently used in industry. Lectures examine GIS applications, the nature of software, data sources and conversion issues, software functionality and integration with other software. Labs provide a practical introduction to ArcView, a commercial desktop mapping program that has wide application in such areas as planning, policing, resource management, and business.

GIST 7100 Fundamentals of GIS

This lecture course provides an overview of Geographic Information Systems technology. Topics include fundamental concepts, terminology, and technologies associated with GIS, applications of GIS, the role of GIS in spatial data management, data modelling, concepts of file and database systems, raster and vector spatial data models, architecture of GIS software (geo-relational, object-oriented), methods of data collection and input, manipulation and analysis features of GIS, general management issues, trends in GIS.

GIST 7128 Arc/Info Level 1

Introduces students to vector GIS concepts and how they are implemented in software. Lectures will cover basic concepts of GIS, planning a GIS project and the vector data model. Labs will cover operational aspects of GIS software. The students will design and develop a digital spatial database, perform spatial analysis, create a map, and generate a report.

GIST 7130 Technical Topics in Computer Systems

GIST 7130 focuses on developing skills for solving the diverse problems of GIS computer systems. Students will use the UNIX operating systems and compare to Windows operating systems, explore client-server relationships, write utility programs for GIS data conversion and formatting, and gain an understanding of the science that lies behind computer application.

GIST 7142 Cartography

This course is designed to provide the student with the the fundamental principles of map compilation and design independent of any computer mapping or GIS technology. Topics basic to all maps will be introduced such as spatial reference systems, scale, projections, generalization and symbolization. Various methods for representing statistical data will also be explored.

GIST 7159 Mapping Using Microstation

Computer Aided Drafted (CAD) is an important enabling technology for GIS, and is widely used in industry and government for mapping. This course examines CAD and its role with respect to GIS, the architecture of CAD systems, drawing organization and maintenance issues, and a comparison of features of CAD and GIS software. Labs will be devoted to gaining insight into the advantages of CAD through the practical use of industry standard software. Prerequisite: Basic understanding of GIS.

GIST 7201 Image Interpretation

The increasing availability of digital and analog imagery for GIS and mapping necessitates analysts have an understanding of image interpretation. This course will provide an overview of image interpretation and give the student basic skills in identifying natural and cultural features and processes.

GIST 7202 GIS Component Programming

An emerging trend in GIS is component software development. This course introduces students to component programming for GIS; its role and importance, comparison to object technology, and current models (OLE/COM, OMG, CORBA). Students will also learn about current commercial products and their features and gain practical experience using ESRI MapObjects in a Visual Basic environment.

GIST 8100 Technical Issues in GIS

Fundamental GIS algorithms and spatial information data structures are explored. Students will utilize C programming skills in a software project environment to gain an understanding of the science that lies behind GIS computer applications.

GIST 8101 Selected Topics in GIS

Examines current topics in GIS. Topics vary with each course but typically might be GIS Software for database query, view and analysis; object oriented GIS; error in GIS; visualization; three-dimensional GIS; multi-media; GIS on the Internet and cartographic modelling. Successful completion of this course will help you research GIS issues, make technical presentations and write technical papers using HTML, and compare and contrast recent advanced in selected GIS topics.

GIST 8108 GIS Digital Mapping

This course examines sources of digital mapping data, mapping data standards, digital mapping compilation procedures and mapping systems.

GIST 8118 Remote Sensing

Examines current satellite image acquisition systems, image display and enhancement, image geocoding and image classification and remote sensing applications in GIS. Digital image processing and analysis techniques are studied in theory and in practice using digital image processing software.

GIST 8128 ARC/INFO GIS Level 2

Lectures will introduce the concepts and models of rubber sheeting, DEM/TIN, network and proximity analysis. Students will also be introduced to issues and problems associated with data conversion (from CAD software, databases, ASCII files of spatial and non-spatial data) to vector GIS data in a geo-relational environment.

GIST 8132 GIS Database Systems

To provide students with a conceptual and practical understanding of issues in the design, implementation and interoperability of GIS and database software.

GIST 8138 GIS Customization & Modelling

Focuses on the principles of interface design, developing skills for creating user interfaces and applying these in the creation of raster GIS applications.

GIST 8212 GIS Customization 2

Provides an introduction to customizing desktop GIS through proprietary programming languages and external software or utilities. Students learn to assess the limitations of different approaches, and develop customized, portable applications.

Health Information Systems

HINS 5205 Health Informatics

Introduces health care professionals to the knowledge and skills of information processing and communication technology necessary to support their role as information technology users. The knowledge and skill levels will be explored within three domains - methodology and technology for the processing of data, information and knowledge, health system organization and informatics. This course assists learners to develop competencies recommended by the International Medical Informatics Association (IMIA) and the National Nursing Informatics Project. The evolving nature of roles and responsibilities of information technology users including the contribution of informatics to the expanding knowledge base of health care will be explored. This course is offered by on-line distance learning. Prerequisite: Completion of the second year of the nursing program.

Health Management

HMGT 4140 Budgeting in Health Care

Terminology, principles and tools to prepare an operating and capital budget in a B.C. health care organization.

HMGT 4150 Human Resource Management

Staffing process including job analysis and description, recruitment and selection, interviewing, training and performance appraisal, and management, progressive discipline, and staff reorganization.

HMGT 4160 Health Labour Relations 1

Industrial relations in B.C.'s public sector and health care unions. B.C. Labour legislation and the function of bargaining units, collective bargaining, application of the contract and resolving disputes.

HMGT 4210 Health Care Organizational Behaviour 2

This course will continue from Health Care Organizational Behaviour 1 with more emphasis on group behavioural concepts and organizational concepts that impact on practical management. It investigates the variables of group dynamics such as conflict, power and politics. It introduces and analyses the concept of the behaving organization. It assesses the effects generated by internal and external variables on organizational behaviour. Prerequisite: HMGT 4110.

HMGT 4310 Conflict Management in Health

Interpersonal styles of conflict management, structural approaches to managing conflict, the use of negotiations to resolve conflict, and third-party conflict resolution. Prerequisite: HMGT 4110.

HMGT 4410 Managing Organizational Change & Development

Effect of different approaches on the success of change activities. Apply models for change to practical management situations, especially those involving individuals and organizations resistant to change. Prerequisites: HMGT 4110 and HMGT 4210.

HMGT 4450 Team Building for Health Care Managers

Principles of team building and their application. Improve and develop the effectiveness of groups working together temporarily or permanently. Prerequisite: HMGT 4110.

HMGT 5120 Health Care Principles of Management

Roles and functions of management. Knowledge and skills required for planning, organization and control in health care agencies.

HMGT 5130 Information Systems in Health Care 1

A general overview of health information systems for students in health administration. The design and conceptual foundation of information systems, theories and methods, administration of technology.

HMGT 5140 Financial Administration for Health Care Managers

Accounting tools and concepts of health care systems cost accounting, program accounting and management reporting.

HMGT 5170 Health Care Law 1

Origins and principles of law, legal role of health paraprofessionals and significant legal themes.

HMGT 5180 Canadian Health System

Canadian Health System at federal, provincial, and municipal levels. Systems theory and its use in understanding the health system. Acute and long-term care institutional elements, community, environmental and occupational health, health promotion and disease prevention, and health staffing issues.

HMGT 5230 Information Systems in Health Care 2

Continues from Information Systems in Health Care 1. Includes insights into the future of health information systems. Prerequisite: HMGT 5130 or equivalent.

Human Resource Management

HRMG 3010 Human Resource/Industrial Relations Management

Introduces the major human resource and industrial relations processes and issues in the B.C. workplace with emphasis on the value of the worker and the overall effectiveness of modern human resource management. The course develops an understanding of the skills and abilities required for effective interviewing, performance management, compensation reviews, labour contract negotiations, training and development programs, grievance and collective agreement administration. It also reviews relevant employment laws.

HRMG 3050 Management Workshop

Explores day-to-day management issues. Specific topics include organizational behaviour, industrial relations, interviewing skills, job evaluation and the introduction of change.

HRMG 3060 Human Resource Management OCHS

Provides students with a working knowledge of recruitment and selection performance appraisals, job evaluations and job descriptions.

HRMG 3100 Human Resource Management

Designed for persons interested in management and/or supervision. It develops an understanding of significant human resource management processes and systems utilized in today's business and government organizations. Employment-related legislation and current human resource management issues are surveyed. Topics cover human resource management processes with some emphasis on practical application of the techniques studied. Prerequisites: BUSA 1100 and ORGB 2100.

HRMG 3105 Human Resource Management (T)

Develops an understanding of the significant human resource management programs and systems utilized in today's business and government organizations. Covers the major human resource management functions with some emphasis on practical application of the techniques studied. Recommended for all persons interested in management and/or supervision. Prerequisite: ORGB 2205 or permission from the instructor.

HRMG 3110 Human Resource Management in Organizations

Introduces and familiarizes students with concepts of human behaviour in the workplace, including negotiations, conflict resolution, and the impact of behaviours that supervisors have on operating effectiveness.

HRMG 3130 Competency Design & Analysis

Develops knowledge and skills at defining and describing workplace competencies, tasks and requirements and their links to other human resource management processes. Methods of job analysis, redesign/re-engineering and position analysis are explored. Practical techniques for creating effective work assignment/descriptions and specifications are introduced.

HRMG 3150 Human Resource Management Systems 1

Introduces systems and procedures associated with human resource information collection, storage with emphasis on use for strategic and organizational human resource planning purposes. Course presents an overview of management functions, H.R. information systems, and applied H.R. research techniques. Two hours a week of microcomputer laboratory time are included for preparation of course assignments that use computer applications. Prerequisites: BUSA 1600 and ORGB 2100.

HRMG 3170 Human Resource Dynamics Workshop

Concentrates on the development of skills for building and maintaining effective relationships, including conflict resolution and team skills. Explore the contemporary issues facing HR practitioners and develop approaches for assisting managers and supervisors to resolve HR matters. The course provides a "learning lab" atmosphere, using role-play and small group work. Prerequisite: ORGB 2305 or ORGB 2100.

HRMG 3200 Industrial Relations

Presents a detailed analysis of selected labour/management problem areas with emphasis on the solution of practical problems in industrial relations.

HRMG 3205 Labour Relations 1

Designed for those involved in, or associated with, labour relations as management or union. Covers the collective bargaining process and day-to-day contract administration. Related laws, typical contract clauses, grievance procedures, responsibilities of the supervisor and the shop steward, and current activities in the labour relations field. Students will learn to approach their responsibilities for matters covered by collective agreements with more confidence and expertise. Prerequisite: ORGB 2205.

HRMG 3220 Industrial Relations for OCHS

Presents an introductory analysis of the fundamental issues and facts of labour-management relations. Special emphasis is given to collective agreement content and interpretation, bargaining and basic labour economics.

HRMG 3300 Recruitment & Selection

Presents skills development course emphasising the interpersonal skills necessary for successful selection interviews. Training techniques include role-playing, individual counseling and feedback.

HRMG 3401 Benefits Administration

Benefits planning from a total compensation perspective. A review of various benefit plans including health and insurance, pension, stock/share purchase, RRSPs, paid time off, workers' compensation, and contemporary issues such as pension reform, mandatory retirement and employee assistance programming.

HRMG 3500 Training and Development

Develops ability to design and implement a training program with emphasis on practical problems of training in industry. Prerequisites: HRMG 3150 and HRMG 3170.

HRMG 4150 Performance Management Systems

Continues from HRMG 3150 covering practical performance management systems and advanced HRIS systems management considerations. Current human resource management policy issues such as employment equity, affirmative action programming, employment testing and business ethics are also addressed. Two hours a week of microcomputer laboratory time are included for preparation of course assignments that use computer applications. Prerequisite: HRMG 3150.

HRMG 4200 Collective Bargaining

Introduces the fundamental issues and facts of labour-management relations. Special emphasis is given to collective agreement content and interpretation, bargaining and basic labour economics.

HRMG 4401 Compensation Management

Introduces wage and salary administration techniques including job analysis evaluation, compensation surveys, and pay-for-performance systems. Contemporary issues such as pay compression, pay equity and confidentiality are addressed.

HRMG 4600 Human Resource Planning

Presents the techniques for utilizing people potential within organizations. Topics include human resource demand and supply, analysis, future projections, sources of supply, identifying training needs, related strategic management objectives, budgeting and costing. Prerequisite: HRMG 3150.

HRMG 4900 Directed Studies

Designed to give students practical experience in completing a special human resource assignment in an organizational setting.

Liberal Education**LIBS 7001 Critical Reading and Writing**

Develops advanced skills in critical analysis, close reading, and composition through analysing and evaluating written materials from a variety of disciplines, composing documents, and discussing principles of critical analysis. Documents might be selected from technical and business journals, correspondence, and reports; newspapers and magazines; non-fiction prose; and literature, film, video, and the Internet. The course format includes lecture, discussion and both individual and group activities. Prerequisites: Equivalent of 3 credits of university/college composition or 6 credits of BCIT Communications.

LIBS 7002 Applied Ethics

Refines the abilities and attitudes required for ethical conduct in the world of work. Through lecture, small group discussion and exercises in ethical decision-making, student will develop skills in critical analysis, logical consistency, moral judgement and communication. The goal is to prepare graduates who possess honesty and integrity, in addition to technical competence. Also, the course helps students have the ability to be team-players who are tolerant and flexible and have respect for others. Combining these traits is not always a simple matter. Tolerance and personal integrity are uneasy companions, for tolerance requires that you accept behaviour or proposals that you are not inclined to accept, while one's sense of personal integrity demands that you not bend your principles to suit those around you. Integrity can harden into fanaticism, however, while tolerance can soften into moral flabbiness. Ethical decision-making therefore requires judgement and a clear grasp of the procedure one might utilize in thinking critically about right and wrong.

Mechanical Manufacturing**MANU 3310 Material Removal Processes**

Evaluates material removal processes based on their relative merits; priorities of each process will be examined. Students will receive hands-on knowledge of various machine tools used for metal removal. Prerequisite: MECH 1210.

MANU 3312 Computer Aided Manufacturing

Investigates programming and operating procedures of Computer Numerical Control (CNC) machine tools. Part and machine setup procedures will be examined and proved on BCIT's CNC equipment. Computer Aided Manufacturing (CAM) techniques for programming will be studied in depth. Prerequisites: MECH 1210 and MECH 2201.

MANU 3314 Tool Design

Examines the design of special purpose tooling, process planning, design considerations of various types of jigs, fixtures, gauges, metal cutting dies, feed mechanisms, presses, scrap strip-layout and the use of standard tooling components. AutoCAD and Carr Lane tool design assistance software will be utilized. Prerequisites: MECH 1210, MECH 2201 and MECH 2240.

MANU 3316 Advanced Materials

Investigates application of materials for 'extreme services' such as high temperature, corrosion or cryogenic applications as well as non-traditional materials and processes currently found in modern manufacturing. These include plastics, composites and their forming processes as well as powder metallurgy and ceramics. Prerequisites: MECH 1210, CHSC 2205 and MECH 2240.

MANU 3318 CNC Programming

Investigates the operation and application of computer numerically controlled (CNC) machine tools to manufacturing industries. Programming of CNC milling machines and lathes using manual and Computer Aided Manufacturing (CAM) methods will be studied. Prerequisites: MECH 1210 and MECH 2201.

MANU 3410 Metrology

Includes linear and angular as well as surface texture and flatness measurements using block gages, sine bars, optical instruments, electronic comparators and precision measuring instruments. Course covers fundamentals and application of inspection and mass production gaging such as 'Go' and 'NoGo' gages and 'Air Gages'. Prerequisites: MANU 3310 and MANU 3314.

MANU 4410 Material Joining Processes

Investigates methods of material joining using various welding processes. Practical part of the course is focused on application of CSA W59 standard and welding procedure specification and qualification according to CSA W47.1 standard. Prerequisite: MECH 1210.

MANU 4412 Production Planning

Examines the relative merits of different manufacturing processes from quality, reliability and productivity point of view. The choice of production equipment and the sequence of operations to achieve the most economic production are addressed. Cost analysis of process plan for any given quantity of parts is used for production cost estimating. Prerequisites: MANU 3310, MANU 3312 and MANU 3314.

MANU 4450 Automated Manufacturing

Investigates the techniques and equipment used in the automation of the manufacturing process. Robotics, automated part feeding mechanisms, programmable logic controllers (PLC's) and automated inspection techniques will be examined. Prerequisite: MANU 3312.

MANU 4490 Manufacturing Projects

Allows students to work in conjunction with an engineering company to solve problems that local industry has encountered. Generally this will encompass the design and manufacture of specialized equipment using CAD/CAM techniques, CNC machine tools and conventional machine tools. Prerequisites: MANU 3310, MANU 3312 and MANU 3314. (Note: COMM 2449 MUST be taken concurrently).

Mathematics

MATH 1151 Computer Skills & Applications for Biomedical Electronics

Covers the basic functional components of personal computer systems, operating systems and the use of MS-DOS and Windows for file organization and handling. The use of spreadsheets for organizing and analysing numerical data, implementing numerical methods, producing graphics and printing reports. Basic computer programming concepts, program design, algorithms, input/output, control of program flow (branching, looping, decision-making). Prerequisite: MATH 12 C+.

MATH 1342 Technical Math for Robotics

Covers trigonometric functions, identities, solution of triangles, graphing and addition of sinusoidal functions. Complex numbers, rectangular/polar conversions, phasor representation of sinusoidal waveforms. Common and natural logarithms, logarithmic/semilogarithmic graphs, decibels, exponential growth and decay. Systems of linear equations, determinants, matrices. Rotations and transformations in 3 dimensions. Applications to electrical networks, circuit transients, AC theory, and motion in space. Prerequisite: MATH 12 C+.

MATH 1401 Technical Mathematics for Building

Covers radian measure, trigonometric functions, solution of triangles and vectors. 3D trigonometry and geometry. Irregular areas and volumes. Exponential functions and financial mathematics. Logarithms and noise levels in buildings. Corequisites: PHYS 1140 and CIVL 1200.

MATH 1411 Technical Mathematics for Chemical Sciences

Covers graphical linear programming with applications from chemical sciences and industry; exponential/logarithmic theory and transformations, common and natural logarithms, logarithmic/semilogarithmic graphs with application to growth and decay functions, exponential and logarithmic equations with various applications from chemical engineering; trigonometric functions of any angle, vectors, solution of triangles, graphs of trigonometric functions, trigonometric identities and equations with applications. Prerequisite: MATH 12.

MATH 1421 Technical Mathematics for Civil & Structural

Reviews basic algebra. Solution of equations and systems of equations. Trigonometry, vectors, radian measure with application to statics. Irregular areas and volumes. Functional variation. Logarithms and solution of logarithmic and exponential equations. Prerequisite: MATH 12 C.

MATH 1431 Technical Mathematics for Electronics

Covers systems of linear equations, determinants, application to DC networks. Logarithmic and exponential functions, application to electric transients, decibels. Logarithmic and semilogarithmic graphs. Trigonometric functions, identities, solution of triangles applied to impedance and admittance diagrams. Complex numbers, rectangular/polar conversions and phasor representation of sinusoidal waveforms applied to AC networks. The derivative, differentiation, implicit differentiation, maxima/minima applied to electrical functions. Prerequisite: MATH 12 C+.

MATH 1441 Technical Mathematics for Biological Sciences

Covers exponential/logarithmic theory and transformations, common and natural logarithms, logarithmic/semilogarithmic graphs. Variation, straight line equation, curve fitting. Delta-process, the derivative, differentiation rules, curve sketching, applied maxima/minima and other applications of the derivative, the differential, antiderivatives, indefinite integral, definite integral and area under a curve. Introduction to microcomputers using MS Excel. Prerequisite: MATH 12 C.

MATH 1451 Technical Mathematics for Renewable Resources

Covers measurement accuracy and precision, word problems, ratio, proportion and variation; mensuration including applications of geometry, trapezoidal and Simpson's rules; functions and graphs, quadratic, logarithmic and exponential functions, graphs on logarithmic scales. Prerequisite: MATH 11 C+.

MATH 1461 Technical Mathematics for Wood Products Manufacturing

Covers numerical computations. Linear and quadratic equations with emphasis on applied word problems. Plane and solid figure geometry problems concerning shaping of wood material. Trigonometry of right and oblique triangles, vectors. Logarithmic functions, logarithmic and exponential equations and applications from growth and decay processes.

MATH 1471 Technical Mathematics for Petroleum 1

Covers graphical linear programming. Exponential/logarithmic theory and transformations, common and natural logarithms and logarithmic/semilogarithmic graphs. Radian measure and its applications. Trigonometric functions of any angle, vectors and solution of triangles, graphs of trigonometric functions, identities, trigonometric equations and inverse functions. Prerequisite: MATH 12.

MATH 1491 Basic Technical Mathematics for Mechanical

Introduces differential and integral calculus of polynomial functions including appropriate support topics from algebra, analytical geometry, plane geometry, solid geometry, trigonometry and the theory of logarithms and exponential functions. There will be strong emphasis on illustrating the mathematics with applications from technology, engineering and the physical sciences. Prerequisite: Recent Math 12 or equivalent, with a "C+" or better or 65 per cent or higher in MATH 0001.

MATH 1501 Technical Mathematics for Mining

Covers graphical linear programming. Exponential/logarithmic theory and transformations, common and natural logarithms and logarithmic/semilogarithmic graphs. Radian measure. Trigonometric functions of any angle, vectors and solution of triangles, graphs of trigonometric functions, identities, trigonometric equations and inverse functions. Prerequisite: Math 12.

MATH 1511 Technical Mathematics for Geomatics

Technical mathematics with emphasis on its application to surveying trigonometric functions of any angle, solution of triangles, identities and trigonometric equations; spherical trigonometry; systems of linear equations; analytic geometry. Prerequisite: MATH 12.

MATH 1751 Technical Mathematics for Nuclear Medicine

Emphasises the integration of problem solving strategies with mathematical and calculator skills in the context of relevant nuclear medicine applications. Topics include unit conversions (Ci to Bq), ratio/proportion (radiation), logarithms, exponential growth and decay (physical, effective, biological half-lives, transmission of shielded radiation), graphing techniques (logarithmic), appropriate curve fitting (least squares), curve stripping, introduction to differential and integral calculus and first order differential equations (decay formulae) and an introduction to descriptive statistics. Prerequisite: MATH 12 C+.

MATH 1781 Technical Math for Biomedical Engineering

Covers systems of linear equations and determinants with application to electrical networks. Logarithmic and exponential functions including the study of electrical transients, dB gain, logarithmic and semilog graphing. Trigonometric functions and the graphs of the sinusoidal functions right triangle geometry with application to impedance and admittance diagrams. Complex numbers, rectangular/polar conversion and AC circuit applications. Number base conversion and binary number operations with a brief introduction to Boolean logic and Karnaugh mapping. Prerequisite: MATH 12 C+.

MATH 1791 Technical Mathematics for ENPY

Unit conversion, percentages, percentage change and relative change. The equation of a straight line. Systems of linear equations in two and three variables with applications to chemical mixtures and electric circuits. Exponential and logarithmic functions with applications to population growth, human physiology, radioactive decay, decibels, electric transients. Time constants and half-life. The use of semi-log and log-log graphing to fit experimental data to power-law and exponential models. Angular measure and right-angle trigonometry. Graphs of the sine and cosine functions. Introduction to AC circuits voltage triangles, impedance triangles, RMS values. Prerequisite: MATH 12 C+.

MATH 1821 Technical Mathematics for Environmental Health

Emphasises the integration of problem solving strategies with mathematical and calculator skills in the context of relevant environmental health applications. Topics include unit conversions, ratio/proportion, percentages (ppm, ppb), area/volume calculations for regular/irregular shapes and solids, linear, logarithmic and exponential functions with appropriate curve fitting (least squares) and trigonometry. Applications include pesticide mixtures, fluid/air flow, volumes and/or areas related to pools, hot tubs, toxic spills and septic fields, noise relationships, radioactive decay, rinsing problems, running log mean and transit/clinometer calculations.

MATH 1841 Technical Mathematics for Prosthetics/Orthotics

Emphasises the integration of problem solving strategies with mathematical and calculator skills in the context of relevant health applications. Topics include formula manipulation, unit conversion, ratio/proportion, percentage (ppm, ppb), area/volume calculations, linear, logarithmic and exponential functions, systems of linear equations, vectors, and trigonometry. Applications include chemical mixtures, center of gravity, radioactive decay, muscle tension/extension, composite effect of forces applied to the body.

MATH 1881 Technical Mathematics for OCHS

Emphasises the integration of problem solving strategies with mathematical and calculator skills in the context of relevant occupational health and safety applications. Topics include unit conversion (metric and imperial, ppm, ppb), ratio/proportion, area/volume calculations, linear, logarithmic and exponential functions with appropriate curve fitting (least squares), vectors and trigonometry. Applications include chemical mixtures, rinsing problems, fluid/air flow, container volumes, noise relationships, force diagrams, radioactive decay, scaling drawings. Prerequisite: MATH 12.

MATH 2342 Calculus for Robotics

Covers the derivative, differentiation rules, applied maxima/minima and implicit differentiation. Antidifferentiation, the indefinite and the definite integral including area, mean value and RMS value. Differentiation and integration of trigonometric, logarithmic and exponential functions. Infinite series. Fourier series, evaluation of Fourier coefficients and line spectrum. Applications to DC and AC circuits and waveform analysis. Prerequisite: MATH 1342.

MATH 2401 Analytic Geometry & Calculus for Building

Analytic geometry with application to building and architecture. Differentiation and relevant applications (applied maxima/minima, related rates and differentials). Indefinite integral, definite integral, fundamental theorem of calculus, and applications (areas, means, volumes, arc length, centroids, moment of inertia, work, etc.). Prerequisite: MATH 1401.

MATH 2411 Calculus for Chemical Sciences

Covers differential calculus with emphasis on rates of change in problems concerning the chemical sciences. Applied maximum and minimum problems. Indefinite integrals. The definite integral as a tool to find area under a curve and volumes of solids of rotation. Prerequisite: MATH 1411.

MATH 2412 Statistics for Chemical Sciences

Covers organization and graphical presentation of data, frequency distribution, measures of central tendency, concepts of probability, discrete and continuous variables and their probability distributions, normal approximation to the binomial distribution. An introduction to quality control. The course uses examples taken from actual chemical data. Prerequisite: MATH 1411.

MATH 2421 Calculus for Civil & Structural

Covers straight line, log graphs and the conic sections. Limits, derivatives of algebraic and transcendental functions. Application of derivatives. Indefinite and definite integrals. Calculation of areas, volumes, centroids, moments of inertia, deflection of beams, fluid pressure. Prerequisite: MATH 1421.

MATH 2431 Calculus for Electronics

Covers implicit differentiation, related rates and approximation using differentials with application to electronic technology. Antidifferentiation, the indefinite and definite integral including evaluation of areas, average value and RMS value of a periodic waveform. Differentiation and integration of trigonometric, logarithmic, exponential and damped sinusoidal functions. Integration techniques including change of variables, integration by parts and partial fractions. First and second order differential equations with application to electronics technology. Fourier coefficients and line spectrum. Prerequisite: MATH 1431.

MATH 2441 Statistics for Biological Sciences

Covers organization and graphical presentation of data, frequency distributions and measures of central tendency, variation and other measures. Probability theory and laws. Random variables, discrete and continuous probability distributions. Sampling, estimation and hypothesis testing with both large and small samples. Method of least squares, regression and correlation including related estimation and hypothesis test. Prerequisite: MATH 1441.

MATH 2453 Statistics for Renewable Resources

An introductory level course in statistics. Includes descriptive statistics, measures of central tendency, variation and skewness; probability laws and distributions; inferences from one and two samples; correlation and regression, estimation of sample size, and hypothesis tests from large and small samples. Estimation of parameters from various sampling designs is presented. These methods are applied to examples chosen from the RENR field. Prerequisite: MATH 1451.

MATH 2461 Statistics and Quality Control for Wood Product Manufacturing

Covers descriptive statistics. Probability theory, discrete and continuous variables and their distributions, sampling, point and interval estimates of the population mean and hypothesis testing. The analysis of paired data. Regression and correlation. Quality control. All concepts are supported by examples from wood products manufacturing and research papers from the industry are discussed. Prerequisite: MATH 1461.

MATH 2471 Calculus for Petroleum

Covers limits, the derivative, differentiation rules for algebraic, trigonometric, logarithmic and exponential functions; curve sketching, implicit differentiation, higher order derivatives, applied maxima/minima, related rates and differentials. Antidifferentiation, the indefinite integral and the definite integral including areas and volumes. Tables of integrals. Industrial applications. Prerequisite: MATH 1471.

MATH 2491 Calculus for Mechanical

Continues from the differential and integral calculus that was presented in MATH 1491. Topics include calculus of the transcendental functions; curve sketching; maxima and minima; areas and volumes; centroids and moments of inertia; calculation of work and force due to fluid pressure; functions of several variables and partial derivatives; ordinary differential equations. Applications from technology, engineering and the physical sciences. Prerequisite: MATH 1491 or equivalent.

MATH 2501 Calculus for Mining

Covers limits, the derivative, differentiation rules for algebraic, trigonometric, inverse trigonometric, logarithmic and exponential functions; curve sketching, implicit differentiation, higher order derivatives, applied maxima/minima, related rates and differentials. Antidifferentiation, the indefinite integral and the definite integral applied to area, volume, centroid and other applications. Tables of integrals. Industrial Applications. Prerequisite: MATH 1501.

MATH 2511 Calculus for Geomatics

Covers differentiation rules for algebraic, trigonometric, inverse trigonometric, logarithmic and exponential functions; related rates, differentials and approximations used in surveying, radius of curvature; selected integration, arc length, the spiral curve; Taylor and Maclaurin series; 3D analytic geometry, partial differentiation with applications in geomatics. Prerequisite: MATH 1511.

MATH 2751 Statistics for Nuclear Medicine

Emphasises statistical data treatment and decision-making with illustrative nuclear medicine/health applications. Topics include modeling with probability distributions (Binomial, Poisson, Normal), Bayes' Rule, statistical inference (estimation and hypothesis testing, p-values), regression and correlation. Applications include descriptive presentations, statistical quality control measures in laboratory work (CV, Accuracy, Chi-squared test on Scintillation Spectrometer), Predictive-Value Positive of Tests, using radioactive counts in estimation/testing, and confidence banding. Prerequisite: MATH 1751.

MATH 2782 Calculus for Biomedical Engineering

Covers rules of differentiation, rates of change, related rates, differentials, implicit differentiation with application to electrical and mechanical problems. Definite and indefinite integral, calculation of mean and RMS values for various electrical waveforms. Integration techniques. Fourier Series. First and second order linear differential equations with constant coefficients applied to electrical circuits. Prerequisite: MATH 1781.

MATH 2792 Computer Applications & Statistics for Electroneurophysiology

Covers descriptive statistics, basic probability concepts and probability distributions including the binomial, Poisson and normal distributions. Sampling and sampling distributions, point and interval estimates for mean and proportion (large and small samples). Hypothesis testing. Linear regression and correlation. Introduction to Microsoft Excel. Fourier Series and line spectrum. Prerequisite: MATH 1791.

MATH 2841 Statistics for Prosthetics & Orthotics

Covers descriptive statistics, probability theory, the normal distribution. All concepts are supported with examples concerning relevant health statistics. Prerequisite: MATH 1841.

MATH 2881 Statistics for Occupational Health & Safety

Presentation of data in tabular and graphical form. Frequency distribution, measures of central tendency and variation. Probability, discrete and continuous data. Binomial and Normal probability distributions. Sampling, confidence limits, and hypothesis testing. Regression, correlation, and chi-square test. Applications to data and problems relevant to Occupational Health Technology. Prerequisite: MATH 1881.

MATH 3342 Transform Calculus (Robotics)

First and second order differential equations. Step and impulse functions. Laplace transforms and inverse transforms. Solutions of differential equations by transforms. Z-transforms of discrete signals and inverse Z-transforms. Applications to electrical circuits, signal processing, analysis of circuits and systems. Prerequisite: MATH 2342.

MATH 3411 Numerical Methods for Chemical Sciences

Uses computer software (Maple and/or Excel) to solve relevant chemical sciences applications using optimization (simplex), curve fitting, systems of linear equations, algebraic and transcendental equations, numerical integration, and statistical data analysis. Prerequisite: MATH 2411.

MATH 3421 Applied Linear Algebra and Calculus

Analysis of structures and stability using linear algebra; applications of linear algebra to mechanics; introduction to optimization; calculating moments, centroids, fluid pressure; and, solving distributed load problems. Prerequisite: MATH 2421.

MATH 3431 Transform Calculus for Electronics

Step and impulse functions. Laplace transforms of functions and mathematical operations. Partial fractions. Inverse Laplace transforms. Solutions of differential equations. Systems and stability. Solutions of applied problems appropriate to the electronics technology. Prerequisite: MATH 2431 or MATH 2434 or MATH 2435.

MATH 3441 Microcomputer Applications for Food Technology

Covers advanced methods of statistical analysis relevant to Food Technology, including ANOVA, linear and multiple regression, factorial analysis and aspects of experimental design via simple projects and exercises implemented in a MS Excel workbook. Prerequisite: MATH 2441.

MATH 3471 Differential Equations for Petroleum

Covers elementary differential equations and separation of variables. First and second-order equations with constant coefficients. Steady-state and transient solutions. Solution by numerical methods. Applications to fluid flow, mixing and dilution, heat conduction, heating and cooling, deflection of beams and pipes, free and damped oscillating systems. Prerequisite: MATH 2471.

MATH 3491 Numerical Methods for Mechanical

Numerical integration and solution of differential equations with application to sheer and bending moments; numerical differentiation with application to signal processing; solution of non-linear equations applied to geometric problems; the use of linear programming software (e.g. job allocation and scheduling problems); matrix methods applied to computer graphics. Use of spreadsheets to solve practical problems. Prerequisite: MATH 2491.

MATH 3492 Statistics

Introduces students to the concepts of probability modeling (systems reliability) estimation methods, statistical tests of significance and linear correlation and regression effects (energy analysis) in an applied setting. Students will prepare data presentations using the statistical tools in Microsoft Excel. Prerequisite: MATH 1491.

MATH 3501 Numerical Methods & Computing for Mining

Covers solution of problems related to the Mining Technology using Microsoft QuickBasic. Introduction to critical path scheduling and allocation of resources. Use of computers to solve problems in calculus. Calculus of multivariate functions. Prerequisite: MATH 2501.

MATH 3511 Matrix Methods for Geomatics

Matrix algebra and its use in least squares adjustments. Matrix calculus with Taylor Series linearization, eigenvalues and eigenvectors, quadratic forms and error ellipses. Prerequisite: MATH 2511.

MATH 3782 Statistics for Biomedical Engineering

Descriptive statistics. Estimation, central limit theorem, standard errors, confidence intervals, hypothesis testing, the t-distribution. Linear regression and correlation. Empirical curve fitting. Introduction to quality control. Computer packages will be discussed. Prerequisites: BMET 2200 and MATH 1151.

MATH 3942 Math Foundations for TTED

This math course and its counterpart MATH 4943 concentrate on skills necessary for the teaching of applied math in mechanical, electronics, and general technology material at the secondary level. Topics include Imperial and SI units and percent; determining perimeters, areas, and volumes; mean and standard deviation; manipulating linear and rational expressions and equations; functions and graphs the straight line; slope and distance.

MATH 4421 Statistics for Civil & Structural

Covers organization and graphical presentation of data. Elements of probability. Discrete and continuous probability distributions. Estimating. Testing of hypothesis. The Weibull distribution. Flood frequency analysis. Prerequisite: MATH 2421.

MATH 4471 Statistics & Numerical Methods for Petroleum

Covers organization and graphical presentation of data, frequency distributions and measures of location and dispersion including mean and standard deviation. Probability theory and laws. Random variables, discrete and continuous probability distributions with an introduction to Quality Control techniques. Sampling, estimation and hypothesis testing with both large and small samples. Regression, correlation, confidence bands. Linear programming. Prerequisite: MATH 1471.

MATH 4491 Statistical Quality Control

Descriptive statistics, the Hypergeometric, Poisson, Binomial and Normal probability models; an introduction to hypothesis testing, tolerances and fits; sampling distributions, capability analysis (Cp, Cpk, Cr) and design of acceptance sampling plans, use of Mil-Std 105E, risks in sampling, statistical process control (SPC), use and interpretation of control charting for \bar{x} -bar and R or S, percent defective (p-charts), number of defects (c-charts), short run SPC including charts for individuals, target charts and charting part families. MATH 4491 provides a sound foundation for students hoping to eventually challenge the American Society for Quality Certified Quality Technician and Engineer examinations. Prerequisite: MATH 1491.

MATH 4501 Numerical Methods/Statistics

Linear programming using the Simplex and other methods applied to coal blending and optimum assignment. Descriptive statistics, probability distributions (Binomial, Poisson, Normal), estimation, confidence intervals, regression and correlation. Geostatistics with semi-variograms, average grade of ore above cut-off, estimation of ore grade and kriging. An important component of this course is computer work with standard spreadsheet and geostatistical software. Prerequisite: MATH 1501.

MATH 4511 Statistics for Geomatics

Data organization, estimation, hypothesis testing, propagation of measurement error, error ellipses and bivariate normally distributed data as used in least squares adjustments. Prerequisite: MATH 3511.

MATH 4602 Mathematics for CAD/CAM

Covers mathematics relevant to CAD/CAM systems parametric representation of curves in space including Bezier curves and cubic splines; matrix approach to spatial transformations including translation, scaling, rotation, reflection and shearing; viewing transformations including orthogonal, isometric, perspective and stereoscopic. The synthetic camera; image rendering including hidden line removal algorithms, edge and face visibility tests, lighting and shading models; overview of constructive solid geometry; animation basics. Methods are implemented using mathematical and graphics software packages. Prerequisite: MATH 2491.

MATH 4943 Advanced Mathematics for TTED

A continuation of MATH 3942. Topics include radians; right-angle trigonometry; binary and other number systems; manipulating power, exponential and radical expressions and equations; factoring; solving quadratic equations; rational expressions; solving inequations and systems of equations; solving mixture, investment and other word problems.

Mechanical**MECH 1100 Engineering Graphics 1**

Engineering graphics is the means by which technologist communicate technical ideas and engineering designs and is the primary means of communication in the design and manufacturing process. Technologists must be able to visualize and interpret technical drawings as well as produce technical sketches. For effective graphical communications, there are standards and conventions that must be followed.

MECH 1104 Computer Aided Design

Covers techniques for producing and reading mechanical drawings using industry standards and the development of drawing skills using computer aided techniques. Topics include orthographic projection, auxiliary views, dimensioning and the hierarchy of drawings. Introduces the computer hardware and operating systems necessary in a computer aided design environment.

MECH 1105 CAD Graphics

Computer Aided Design (CAD) software and related computer hardware is used to create precise, technical drawings for design and manufacturing. Technologies must be able to use CAD tools to effectively and efficiently produce technical drawings that adhere to industry standards and CAD practices.

MECH 1141 Engineering Mechanics 1

Engineering mechanics is the technical foundation for areas such as machine design, stress analysis, hydraulics, and structural design. The study of forces on and in structures and machine components that are at rest or moving at a constant velocity is known as statics. For rigid bodies in static equilibrium, the internal and external forces can be determined.

MECH 1171 Computer Applications & Programming

The use of computers integral to all disciplines for engineering technologies. Technologists must be able to use computer to communicate, solve problems, and analyse data using commercial application software and operating systems. Where software solutions do not exist, technologists need to be able to create or modify application programs.

MECH 1210 Manufacturing Processes

Covers the basics of major manufacturing methods used today. Topics include metal cutting, welding, forming, casting, plastics processing, methods of numerical control and robotics programming as well as methods of measurement and inspection. The course addresses the principles upon which modern manufacturing processes are based.

MECH 1220 Energy Systems

Many mechanical machines and devices such as pumps, compressors, engines, heaters and coolers deal with energy transfer and fluid flow. Mechanical technologists are particularly involved with the conversion of energy from one form to another and the use of fluids (gas or liquid) to transfer energy.

MECH 1800 Interpret of Engineering Drawings OPMT

Introduces students to engineering drawing as a method of communication. Students will learn how to read various types of blueprints and how to communicate using drawings. Emphasis is on visualization, dimensioning and freehand sketching.

MECH 1900 Interpretation of Technical Wood Drawing

Designed for persons with little or no experience in engineering graphics. Students learn to produce by sketching basic orthographic and pictorial drawings. A strong emphasis will be placed on the understanding of engineering graphics rather than developing drawing skills. The latter part of the course will deal with blueprint reading in areas of wood products manufacturing.

MECH 1910 Manufacturing Processes

Covers the basics of mechanical and electronic manufacturing methods. Topics include metal cutting, welding, forming, casting plastics, electronic fabrication and assembly, as well as methods of measurement and inspection.

MECH 2201 Engineering Graphics 2

The modern design and manufacturing process involves an integrated team approach called concurrent engineering. For engineers and technologists to work in teams, drawing conventions are followed to facilitate the technical communication process by allowing data sharing amongst the team members. CAD systems are used to produce 2-D and 3-D models for visualization, analysis, and for the production and distribution of the technical documentation of the design process. Prerequisites: MECH 1100 and MECH 1105.

MECH 2204 Technical Graphics for Plastics

The modern design and manufacturing process involves a team approach to solving production problems. The engineering language is based upon drawing conventions and is used to facilitate this process. CAD (Computer Aided Design) systems aid in the process of technical documentation and communication. Prerequisite: MECH 1104.

MECH 2240 Strength of Materials

Structures and machine components should not fail as a result of the application of loads. Failure can occur as a complete fracture, excessive deformation, or become unstable and buckle. It is the technologists task to calculate load limits, specify materials and size components using the principles of strength of materials. Prerequisite: MECH 1141.

MECH 2241 Engineering Mechanics 2

Looks at another aspect of engineering mechanics; consideration of bodies in motion, dynamics. Dynamics consists of kinematics that is the analysis of the geometry of motion and the associated forces. For mechanical applications, the forces associated with motion are often very critical to the design. Prerequisite: MECH 1141.

MECH 2350 Fluid Power 1

Provides an understanding of pneumatic and hydraulic systems. Fluid power components, their symbols, function and construction are examined and used in the design, construction and testing of simple and sequential control systems. Sizing calculations for system components are covered. Prerequisite: PHYS 2164.

MECH 3320 Thermal Engineering 1

Covers first and second law of thermodynamics. Steady and non-flow energy equations, specific heats of gases, vapor tables, gas and vapor processes. Carnot, Rankine, and basic IC engine cycles. Air compressors. Heat transfer. Prerequisite: MECH 1120.

MECH 3325 Fluid Mechanics

Includes the basic principles of fluid properties, energy losses, Reynold's number, Moody diagram, flow measuring devices, dynamics of flow lift and drag and fluid statics. Prerequisite: MECH 1120.

MECH 3340 Machine Design 1

Introduces machine design, with emphasis on elementary design and analytical procedures for machine components. The course covers theories of failure, combined stresses, stress concentration, fatigue phenomena, welded and threaded connections. Problems are handles in both S.I. and Imperial units. Prerequisite: MECH 2240.

MECH 3345 Computer Aided Engineering (CAE)

Covers Computer-Aided Engineering (CAE) analysis techniques such as 3D solid modeling, surface modeling and finite element methods (FEM). Linear stress analysis in 2D and 3D are done by both the classical and the FEM approaches. Commercial FEM software packages are used for analysis and problem solving. Prerequisites: MATH 2491 and MECH 2240.

MECH 3440 Mechanical Equipment

Presents a study of mechanical transmissions using belts, chains and gear reducers in drive configurations, along with associated components and ancillary systems from an application, specification, selection, maintenance and safety point of view. Prerequisite: MECH 1141.

MECH 3445 Theory of Mechanisms

Covers topics on motions of mechanisms such as cams, rollers, gears, linkages and quick-return mechanisms. Relationships among displacements, velocities, accelerations and forces are described and illustrated using vector polygons. Location of the instantaneous centre of rotation. Analysis and animation of linkages by the use of computer softwares. Prerequisites: MECH 2241 and MECH 2201.

MECH 3451 Fluid Power 2

Introduces electrical control of fluid power systems. Describes and analyses complex hydraulic and pneumatic components and their applications. Covers sizing calculations for system components, and discusses maintenance and troubleshooting of components and systems. Prerequisite: MECH 2350.

MECH 3452 Fluid Power 3

Expands on control aspects by introducing digital and closed-loop control of fluid power systems, and provides understanding of the use of electronic components in hydraulics and pneumatics. Discusses hydrostatic transmissions, advanced hydraulic controls and methods of improving system efficiency. Prerequisite: MECH 3451.

MECH 3460 Engineering Economics

Emphasises the importance of making sound economic decisions when faced with alternative methods of solving technical problems. The course material provides the basic skills and concepts required to analyse comparative costs and to understand the time value of money (interest), inflation, depreciation, running costs, salvage value and tax considerations.

MECH 3850 Process Control for Wood Products

Use of computer controlled machines, electrical sensors, and automatic drives caused significant changes in woodworking equipment. In this course students will be introduced to typical sensors, electrical and fluid power actuators and controllers, found on woodworking machinery. A brief introduction to industrial data communications and systematic approach to troubleshooting will also be covered. Key topics, such as application of programmable logic controllers (PLCs) and control of hydraulic systems, will be supported with lab exercises and demonstrations.

MECH 4421 Thermal Engineering 2

Topics include analysis and selection of heat exchange equipment; design of pressure vessels according to ASME codes; selection of components for steam piping systems; analysis of various heat recovery systems and plant energy management. Prerequisite: MECH 3320.

MECH 4440 Machine Design 2

Continues from MECH 3340. Covers couplings, brakes and clutches, anti-friction and journal bearings, helical, bevel and worm gearing, power screws, springs and machine assembly topics. Introduction to mechanical vibrations with emphasis on critical speeds of rotating bodies and bulk materials handling systems. Prerequisites: MECH 2241 or MECH 2245 and MECH 3340.

MECH 4450 Mechanical Control Systems

Presents descriptions of components in a programmable logic controller (PLC). Create ladder logic diagrams and use high-level softwares for programming a PLC. Selection of hardware components such as encoders, proximity sensors and actuators. Study of DC motor characteristics and load requirements. Compares open and closed loop systems. Prerequisites: ELEX 2845 and PHYS 2149.

MECH 4491 Design Projects

Provides students the opportunity to develop engineering solutions to current industrial problems. Students work individually or in teams to analyse industry-sponsored projects and prepare solutions through drawings, calculations and design application software. Prerequisites: MECH 4495 and MECH 2201.

MECH 4495 Engineering Design

Describes and illustrates the engineering design process from concept to detailed design and presentation. The course covers design criteria, conceptual design techniques, evaluation of different design concepts and detailed designs. Topics of Design for Automation, and Assembly and Manufacture will be introduced. Preparation of design documents such as technical specification, bid documents and detailed drawings. Prerequisites: ELEX 2845, MECH 2201, MECH 2350, MECH 3340 and MECH 3345. Corequisite: COMM 2449.

Marine Emergency Duties

MEDI 1000 Marine Emergency Duties A1

Provides students with a basic understanding of the hazards associated with the marine environment; the prevention of shipboard incidents (including fires); raising and reacting to alarms; fire and abandonment situations; the skills necessary for survival and rescue. This course is designed for new entrants to the marine industry and for personnel who have not received any formal training in marine emergency situations.

MEDI 1020 Marine Emergency Duties B1

Teaches orderly abandonment of a vessel in an emergency situation; clearing the vessel; proper and effective use of equipment; coordinating survival activities during rescue operation. This course is designed for candidates for Master Minor Waters and Junior Officer certifications, and for certificated ratings.

MEDI 2000 Marine Emergency Duties A-2 Small Vessel Safety

Teaches small craft operators and their crew about hazards associated with the marine environment; prevention of accidents and fires; fighting shipboard fires; abandoning ship; survival and rescue; maintaining a state of readiness for an emergency. This course is designed for officers and crew of small commercial vessels (up to 40 tons gross tonnage). It is also recommended for pleasure craft operators.

Marine Engineering

MEOC 1160 Blueprint Reading 1

Students will complete freehand sketches using multiview orthographic, one and two point perspective, and isometric projections including title blocks, lists of materials, drawing notes and the drawing change system.

MEOC 1170 Computer Aided Drafting (CAD)

Students will be introduced to Computer Aided Drafting using industry standard computer software. A selection of marine related assignments will assist students in progressing through the various skill levels. A final project will be assigned requiring a blue print plotted to scale. Prerequisite: Basic computer knowledge is recommended.

Management

MGMT 8010 Demonstrate Self Awareness in Managerial Practice

This course will provide you with an accurate self image and the ability to objectively compare your strengths and limitations to the competencies demonstrated by effective managers. As a self-aware manager you will distinguish between situations where your style is effective and those situations where it must be modified. Studies of successful managers have repeatedly shown that one of the key competencies they possess is self-awareness. Successful managers engage in continuous learning. They maintain high levels of self-awareness, actively seek feedback from others, reflect on their experiences and learn from them. Successful managers integrate self-awareness, feedback and experiences to identify new development priorities, and they engage in self-managed activities to meet development needs.

MGMT 8110 Communicate Effectively

Communication skills are an asset from one-on-one discussions to large group presentations; from internal memos to company reports. The principles of clarity and persuasion, sensitivity to the audience facilitation, and both verbal and personal style are the foundations for competency in this role.

MGMT 8120 Build Effective Working Relationships

This competency addresses these concepts by encouraging the learner to consider the ever-present requirement to be ethical, demonstrate trust, model team-building behaviour and value diversity. The ability to relate well with others is the foundation around which other management competencies are built. By creating relationships with their colleagues and staff, managers establish trust, create respect, resolve conflicts and encourage the free flow of information. As work environments become increasingly complex, with workers taking on more responsibilities; with an increase in part-time and contract workers; and with the opportunities presented by a more diverse workforce, the manager's ability to relate becomes even more critical.

MGMT 8130 Information Systems in Health Care

This course is a review of health informatics for practicing health care managers. Use of health information management to perform management functions competently, fundamental knowledge of improvement of delivery of patient care through the appropriate application of health management information systems. Development of efficient, effective and state-of-the-art health management information systems under a well-defined managerial process. Historical survey of system development methodologies and analysis of the tools, techniques and methodologies available in managing the process system analysis, design and development.

MGMT 8160 Health Labour Relations

Introduction to the industrial relations environment in B.C.'s public sector and health care unions. This course provides a review and analysis of B.C. Labour Legislation and the function of bargaining units; application of contracts to resolving disputes within the collective bargaining process; examination of the bargaining process, trends and issues in public/health employee unionism; application of grievance procedures, and preparation for arbitration hearings; and management strategies for health care employers and managers.

MGMT 8170 Health Care Law

This course highlights the basic legal principles and governance systems in health care organizations in Canada/B.C. Relationship of health care provider and patient including individual security, self-determination and privacy, incompetency, negligence, confidentiality and breach of duty; consent to treatment, access to health information, liability, delegation of function and professional licensure and disciplinary processes of professional bodies are major issues covered in this course. This course also includes statutory provisions that impinge of the delivery of health care in B.C. Specific legal issues arising from AIDS and other communicable diseases; legal principles applicable to public health promotion and disease prevention; issues contained within B.C.'s acts are also covered.

MGMT 8180 Health Care Systems

This course reviews health systems at federal, provincial, and municipal levels. Systems theory and its use in understanding the health system. Acute and long-term care institutional elements, community, environmental and occupational health, health promotion and disease prevention, and health staffing issues.

MGMT 8210 Develop Leadership Roles

What is Leadership? The focus of this module is to determine leadership and management functions. The learner identifies strategies to become more effective in their leadership roles.

MGMT 8220 Foster Teamwork

Why Teams? When Teams? How Teams? Which Teams? This leadership course will show the value of fostering teamwork. The learner will learn to use a team effectively to meet their organizations goals.

MGMT 8230 Lead Effectively

The learner will examine the relationship between leadership styles and the successful implementation of leadership strategies to achieve team goals. The learner will apply these strategies to their work environment.

MGMT 8310 Prepare for Change

Change is fundamental to success and requires individual creativity and organizational innovation. In this module you will take the proactive stance of preparing your self and others for change.

MGMT 8320 Plan Quality Change

Customer focused means continually improving your services and products. How do we do this? Quality Leadership, demands constantly monitoring, controlling and improving systems and decision-making practices so that internal and external customers are provided with what they want, when and how they want it. The manager, in promoting and/or initiating these improvements, requires a focus on improvement and the ability to plan and monitor for continuous improvement through the knowledge and expertise of team members and external research. In this module the student examine change management methods in order to better understand the phases and nature of change.

MGMT 8330 Manage Change

This final module in Quality Change Management involves the student putting in motion their plans for change. Take control and manage the change. Deal with the factor that resist change and celebrate the success.

MGMT 8410 Manage a Work Unit's Human Resources

This module focuses on the proactive planning and development of people in an organization. A successful manager must extend their foundation of interpersonal skills to develop specific skills in the area of planning, acquiring and managing the performance of human resources.

MGMT 8420 Manage Financial Resources

This module develops the financial awareness and skills required of a manager to effectively plan and manage the activities of an operating unit or an organization, to achieving desired results. There is specific focus on understanding the financial parameters and risks that are relevant to evaluating decision alternatives and perceiving the impact of the outcomes of those decisions.

MGMT 8430 Manage Operational Performance

This course develops skills to effectively manage the activities of an operating unit to achieve desired results. Three foundation skills are examined and developed: The ability to define and manage projects successfully, the ability to apply the principles of Total Quality Management, and the ability to systematically analyse processes and design improvements which are cost/benefit justified. These foundation skills are integrated and applied to the process of establishing, leading and tracking operating plans for an organizational unit.

MGMT 8510 Know the Global Issues Affecting your Industry

The global economy, with its increase influence, presents a very complex environment with additional risks. You will evaluate the sources and resulting risk of these changes to your industry. The importance of developing a global perspective is a key element in understanding the increased complexity of managing in the 21st century. Understanding the key driving forces for your industry, is essential to able you to evaluate the position of your organization in this expanded global market place. The determination of offensive and defensive approaches to anticipated influences by new international competitors in domestic markets will be examined.

MGMT 8520 Determine Implications of Law & Organizational Regulations

Interpreting laws, regulations, and rules, and corporate responsibilities will be a focal point of this section of the program.

MGMT 8530 Organizational & Personal Ethics

You will acquire the ability to develop a network of internal and external information resources that will be required to facilitate corporate citizenship. Developing a citizenship plan will assist you in identifying and developing information networks. Accentuation will be on performing searches and conducting research based on information networks. Developing plans for effective utilization of networks relevant to industry and the developments of society as a whole, with respect to changing market and societal trends, will be practiced with workplace-applied learning activities.

MGMT 8610 Think Strategically

Strategic decisions are made in all organizations. Having a strategic mindset means the ability to consider a broad range of internal and external factors when solving problems. It is the ability to extract critical information, to analyse the information using sound judgement, to prioritize issues and to implement decisions in a manner to gain commitment and performance. There are models to help the strategic thinker and these models are addressed in this competency.

MGMT 8620 Formulate Strategies

In order to contribute a strategic perspective to one's work you need a model or models to refer to. Consider a broad range of internal and external factors when solving problems. It is the tool to extract critical information; to analyse the information creatively and to apply sound judgement to prioritize issues from a broad perspective.

MGMT 8630 Implement Strategies

In this module you will move from planning to doing. You will create and analyse strategic goals, including defining strategic goals, demonstrating goals and then summarizing improvements or changes to resources (human, plant, technology, and equipment) in order to carry out goals. The emphasis is on the concept of thinking in a strategic mode. The readings are enhanced with "tools" to build strategic skills and activities that are designed to promote strategic reasoning in an organization.

Medical Imaging

MIMG 7000 Technological Advances in X-Ray Imaging

Provides technology update of radiographic, fluoroscopic, and digital X-ray imaging systems. Topics include a history of diagnostic radiology; evaluation of current state-of-the-art X-ray tube and generator technology; X-ray absorptiometry systems; and, a description of quality improvement methodologies. Additionally, current developments in digital X-ray imaging systems such as computers and information technology; computed radiography; digital fluoroscopy; digital mammography; computed tomography; film digitizers and laser imagers; picture archiving; communication systems (PACS); and, teleradiology will be explored. This course includes a major project.

MIMG 7003 Digital Imaging and Information Technology in Radiology

This course provides a broad theoretical framework for understanding the principles and concepts relating to digital radiology imaging systems. First, the fundamentals of digital image processing are presented followed by a description of the technologies of major radiological image acquisition systems, archiving, communication, retrieval, display and processing. The course concludes with an overview of issues concerning a total digital radiology department. Prerequisite: Registered technologist in diagnostic radiology.

MIMG 7004 Advanced Topics in Patient Care

The course provides a solid theory base for the delivery of safe patient care in potentially unstable or unpredictable situations. A review of basic IV, oxygen, and suctioning theory precedes content on initiating an intravenous infusion, total parenteral nutrition, and pulse oximetry and ECG monitoring. A large section covers the purpose and significance of a variety of tubes, lines and specialized equipment. Common emergencies and pharmaceuticals specific to the medical imaging department are included as is an overview of pediatric growth and development. Prerequisite: Graduate medical radiation technologists in radiography or nuclear medicine or sonography.

MIMG 7005 Ethics in Health Sciences

Provides the practising health care professional with an introduction to the study of ethics in health sciences. It will not provide answers to specific ethical dilemmas but will help the student to acquire the tools needed for ethical deliberation and action.

MIMG 7006 Understanding Research in Health Sciences

Introduces students to the nature of scientific research through coverage of a number of topics. These include the major steps in the research process; research terminology; methodologies for both quantitative and quality research; research problems/questions/hypotheses; literature review; research designs and ethical considerations in conducting research. In addition, students will explore data collection techniques and analysis; communicating and reporting results.

MIMG 7007 Image Quality in Diagnostic Radiology

This course deals with three major components of image quality, namely, contrast, spatial resolution and noise. The physics and technology of both film-screen and digital imaging systems will be studied followed by a detailed examination of the physical characteristics of contrast, spatial resolution and noise in diagnostic radiology. In addition, various approaches to the measurement of image quality, as well as the perception of visual information will be considered. Included will be an exploration of selected research studies on image quality.

MIMG 7008 Research Project

Through readings and assignments, this course will address concepts relating to the preparation of a research proposal. These concepts will be illustrated through selected examples of both quantitative and qualitative research proposals in health sciences. The major focus of the course is to guide the student in conducting a research project identified in their research proposal.

MIMG 7009 Radiation Risks & Protection

Through readings, assignments and tutor support, this course will examine various aspects of radiation risks and place them in perspective with respect to imaging technologies. In addition, the course will deal with radiation protection issues such as radiation protection criteria, regulations and standards, dose-monitoring concepts, dose reduction technology, equipment specifications and shielding guidelines for diagnostic imaging. This course concludes with an introduction to the risks and protection considerations in magnetic resonance imaging as well as those involved in the use of non-ionizing radiation.

MIMG 7100 Imaging the Digestive System

Topics will focus on all aspects of digestive system imaging including the anatomy and physiology of the digestive organs, accessory organs, blood and nerve supply and digestive processes, digestive system pathologies, procedures in gastrointestinal radiology including pediatric GI radiography. Consideration of digital fluoroscopy is included together with the radiation protection aspects relative to imaging of the digestive system.

MIMG 7101 Advances in Special Procedures

Designed for technologists who desire a formal study of special procedures. The fundamentals of angiography are covered including the procedures, suite and patient considerations. Vascular anatomy is reviewed using DSA Images. DSA equipment and procedures are studied, including cardiac angiography, angioplasty, embolization, nephrostomy, biliary drainage and other interventional radiology examinations. The content is aimed at improving clinical performance in a special procedure.

MIMG 7103 Quality Assurance in Diagnostic Radiography

This course is currently under development.

MIMG 7200 Magnetic Resonance Imaging 1 Physical Principles

Examines the physical principles of MRI basic physics of NMR and the equipment needed to produce magnetic resonance images. Digital imaging concepts related to MRI will be introduced. The bioeffects and hazards of magnetic fields and radio frequency radiation, and guidelines for safe use of MRI will be discussed.

MIMG 7201 Magnetic Resonance Imaging 2: Image Production & Tissue Characterization

This course will deal with a detailed examination of how Magnetic Resonance Images are produced through a discussion of Pulse Sequences and Gradient Coils as well as Fast Imaging Techniques. In addition, factors which constitute the MR Image (tissue characterization), quality assurance, artifacts and an introduction to MRI anatomy of the central nervous system, thorax, abdomen, pelvis and extremities. Prerequisite: MIMG 7200.

MIMG 7202 Magnetic Resonance Imaging 3: Imaging Techniques Q.C. : & Artifacts

Through reading and assignments, this course will deal with Magnetic Resonance Imaging signal generation, detection and localization mechanism and will elaborate on the more commonplace Imaging methods used to produce MRI Images. A selection of the latest fast Imaging pulse sequences will be described along with quality assurance and quality control tests performed on MRI equipment. Finally, several MRI artifacts will be identified and discussed with respect to the patient and the technology. Mechanisms to minimize or eliminate recognized artifacts are described. Prerequisites: MIMG 7200 and MIMG 7201.

MIMG 7300 Computed Tomography

Physical Principles and Instrumentation Introductory course provides a broad theoretical framework for understanding the principles of Computed Tomography (CT). Lays the basic foundations for practical aspects of CT scanning.

MIMG 7301 Computed Tomography Clinical Applications

The practical aspects of CT scanning such as patient positioning, care and handling, as well as scanning protocols for the head, neck, chest, abdomen, pelvis and extremities are emphasised through lectures and clinical practice. Finally, practical aspects of the equipment and clinical applications of CT are emphasised. Prerequisite: MIMG 7300.

MIMG 7400 Breast Imaging 1/ Principles & Instrumentation

Through readings and assignments, this course will first trace the evolution of film-screen mammography and describe the physics and technology of breast imaging, including digital mammography. In addition, radiation dose and risk considerations; radiation protection; quality assurance/quality control; and, the Mammography Quality Standards Act will be discussed. Finally, the course concludes with an examination of current technical research activities in breast imaging including other techniques such as ultrasound, magnetic resonance imaging, digital tomosynthesis, laser computed tomography imaging, and nuclear medicine. Prerequisite: BCIT Medical Radiography Diploma or equivalent.

MIMG 7401 Breast Imaging 2/ Clinical Applications

Explores topics related to clinical breast imaging. Topics include anatomy and physiology of the breast, patient care and communication, patient positioning, technique, and film evaluation, clinical assessment, and breast pathology. Prerequisite: MIMG 7400.

Mining

MINE 1101 Introductory Geology

Presents a systematic introduction to the materials, processes and origins of the major classes of igneous, sedimentary and metamorphic rock. This includes the origin of Earth and deformation in the crust. The dependence of geology on other scientific disciplines is demonstrated and the distinction between reliable and conjectural concepts is emphasised. The geological evolution of B.C. is described. Laboratory work concentrates on the field identification of rocks and minerals.

MINE 1102 Mining Exploration

Discusses the roles of participants, the sources of funding, the objectives, and the strategies employed in mining exploration. The course describes various techniques, (including lithochemistry, geochemistry, geophysics, diamond drilling, and prospecting) and the details of their application.

MINE 1103 Introduction to AutoCAD

Introduces students to the basic concepts and drawing functions of AutoCAD.

MINE 1108 Graphical Communication

Teaches students to produce engineering style sketches. They learn general conventions for scales, orientation, dimensioning, orthographics and perspectives. Exercise applications include surveying, geological, mining and civil engineering topics.

MINE 2099 Mining Industry Experience

This is an optional course. Mining Technology students are eligible to apply for the Mining Industry Work Experience course in the first two weeks of September in Level 1. The program runs from May 1 to August 31 between Levels 2 and 3, and it consists of fully salaried work at a mining operation or with an exploration crew. It has been developed in collaboration with the mining industry of B.C. and the Mining Association of B.C. to provide field experience that complements classroom studies. Following successful completion, a Certificate is awarded by the mining industry to participants going on to graduate from the Mining program.

MINE 2101 Geomorphology

A raw material, process-product approach is used to describe the operation and interaction of the numerous processes that contribute to the landscape we see today. The systems examined extend from weathering and soil formation through to glaciation and beaches. At every opportunity, the human interaction is considered and the long-term outcome in terms of humans and the Earth is discussed. Laboratory work consists of the study of examples of landforms from B.C. using stereo-paired aerial photographs.

MINE 2102 Mining Methods

Presents a full description of mining methods with brief subjective descriptions of rock mechanics, fragmentation and mine services. Unit operations of drilling, blasting, loading and hauling are discussed in the context of organization, equipment, labour and supplies. Prerequisite: MINE 1108.

MINE 2108 Mine Drafting & Computer Graphics

Enables students to apply AutoCAD drafting fundamentals to the solution of mining problems. Exercise applications include surveying, geological, and mine engineering topics. Prerequisites: MINE 1108 and MINE 1103.

MINE 3101 Structural Geology

Reviews metamorphic geology, emphasising the way rocks respond to strain at the scale of the crystal. This leads into a descriptive analysis of the deformation of primary structures by earth processes resulting in folds, faults, joints, cleavage and shear zones. Laboratory work consists of simple exercises in the graphical solution of 3D problems in deformed layered rocks. Rock exposures are visited to collect data for an introduction to stereographic procedures. Prerequisite: MINE 1101.

MINE 3102 Blasting & Rock Mechanics

Covers blasting products, initiation systems, open pit and underground applications, control blasting and safety. Introduces rock mechanics fundamentals: data collection and rock mass classification, rock strength determination, stress field description, stability of mining excavations and support system application.

MINE 4101 Mineral Deposits

Defines the information required to explain a mineral deposit and examines the extent to which such information exists. The evidence for all likely processes is discussed and all deterministic theories are considered. In the second part, the various major types of orebody are described, and examples are studied in the laboratory exercises. A selection of the B.C. deposits are visited in two field trips. Prerequisites: MINE 3101.

MINE 4102 Mine Planning

Covers geological, ore reserve, mine modeling, mine economics cutoff grades, waste/ore ratios, capital and operating cost estimation, cash-flow and present value, and rate-of-return projections. Introduces fundamentals of mine services such as mine ventilation, materials handling systems, reclamation and pollution control.

MINE 4360 Environmental Applications

This course is a continuation of CHSC 3360. Topics include the review process, the application to perform work, the base line study, the impact statement, and the permit; positions of the stakeholders groups; impacts to surface topography, flora, fauna, wetlands, groundwater, surface drainage, and erosion; and, reclamation and long-term monitoring. Prerequisites: CHSC 3360 and MINE 2102.

Marketing Management

MKTG 1102 Essentials of Marketing

An introductory course designed to provide the student with an overview of the marketing concept and how it can be applied to any type of organization or service. Includes the controllable and uncontrollable elements of marketing, strategic planning, market characteristics, marketing research techniques, market segmentation and target market selection.

MKTG 1113 Introduction to Marketing

Introduces the marketing environment and marketing institutions. Detailed study of basic marketing functions, marketing research, product planning, selection of trade channels, merchandising, advertising, sales promotion and salesmanship. Embraces marketing of consumer and industrial goods.

MKTG 1420 Wood Products Sales and Distribution

Examines the major domestic and export markets for lumber and plywood, including ongoing changes in all types of distribution and transportation systems used by the forest products industry. The entire sales process, from telephone solicitation to complete documentation of FOB and CIF orders, is covered in detail.

MKTG 2202 Introduction to Marketing Communications

Presents an overview of promotional strategies; advertising, sales promotion, direct marketing, event marketing, publicity, trade shows and public relations. It is intended for those students pursuing the concentrated marketing program. The course examines those areas of promotion on the basis of where each fits in the promotional mix and when you should best use them. Prerequisite: MKTG 1102.

MKTG 2243 Sales Skills

Designed to cover the mechanics of salesmanship and the salesperson's role in the firm. Prerequisite: MKTG 1102.

MKTG 2309 Marketing Research 1

Examines the basic approaches to marketing research. Discusses the techniques and tools of this research and relates these tools to the decision-making process. Emphasis is on the use of marketing research in the total marketing decision concept. Special applications of marketing research to simulated real-life situations are examined. Prerequisite: MKTG 1102.

MKTG 2334 Applied Marketing & Selling

Focuses on applying the marketing concepts from the introductory marketing course. Emphasises the development of personal selling skills. Students will develop a comprehensive plan for marketing and selling a product or service. Prerequisite: MKTG 1102.

MKTG 3301 Computer Applications in Marketing

Examines decision support systems utilizing mathematical modeling methods, data bank access, and computer-based information. Prerequisite: COMP 2104.

MKTG 3306 Entrepreneurial Skills

Teaches the practical skills required to successfully launch a new venture with emphasis on how to assess new business opportunities such as Internet-related ventures, compose a business plan and obtain the necessary financing skills that an entrepreneur or an employee in a high growth company requires. Prerequisite: MKTG 1102.

MKTG 3311 Real Estate Principles 1

Includes law, estates and interests in land. The economic characteristics of urban real estate and the market, city growth and development, location factors in influencing the determination of land use and ownership, institutional lenders, the mortgage market and the functions of the real estate agency, salesperson and appraiser are covered. This course, combined with MKTG 4411 will prepare the students to successfully challenge the Real Estate Salesperson's examinations, administered by UBC.

MKTG 3312 Economics of Real Estate Markets

Covers the basic principles and concepts relating to urban land economics and provides the tools for analysing the impact of economics on real estate markets. Prerequisites: ECON 2100 and ECON 2200.

MKTG 3313 Introduction to Real Estate Finance

Presents the tools and techniques for analysis that assist decision-making in specific real estate problems including investment (purchase or sale), financing, development or redevelopment, leasing, income and property taxation and property management. In each of these areas, the use of mathematics of finance is central to analysis of the situation, the analysis of alternative courses of action and the comparison of costs/benefits, both today and in the future. Prerequisite: OPMT 1110.

MKTG 3317 Sales Promotion Management

Presents a study of promotional support activities used as part of an integrated marketing communications plan. Loyalty programs, couponing, specialty advertising, premiums and incentive programs are examples of the sales promotion tactics covered. Emphasis is on when and how to use them. Prerequisite: MKTG 2202.

MKTG 3320 Direct Response Fundamentals

Examines the concept of direct marketing and why it has become an essential part of today's marketing strategies. This course studies the elements of direct marketing and how to apply them in creating a direct marketing plan that is part of an integrated marketing campaign.

MKTG 3333 Real Estate Marketing & Management

Reviews, reinforces and expands on the more important marketing concepts and theories taught in the introductory marketing course and examines how these concepts and theories can be applied to the real estate industry in a wide variety of areas. Particular emphasis will be placed on the development of real estate selling, negotiation and communication skills, and development of real estate marketing programs and strategies. Prerequisite: MKTG 1102.

MKTG 3334 Advanced Sales & Negotiation

Builds on the basic selling skills acquired previously and develops analytical, negotiating and conflict resolution skills that are required in complex selling situations. All aspects of professional, ethical conduct leading to successful seller/client contractual relationships are addressed through lecture and role playing activities. Students will be exposed to the use of industry standard tools and techniques. Prerequisite: MKTG 2243 or MKTG 1219.

MKTG 3338 New Product & Service Development

Deals with the product/service development process, as it exists in ventures of all sizes. The course takes the student on a journey through several different industries to transfer the skills necessary to analyse and market new product or service concepts. Emphasis is placed on practical, introductory methods of assessment and implementation as opposed to abstract development models or complex product/service engineering concepts. Prerequisite: MKTG 1102.

MKTG 3339 Public Relations & Event Marketing

Presents a study of planning and executing public relations campaigns including communication's techniques, media relations, special events, trade and consumer shows, exhibitions and lobbying. The course focuses on both external and internal publics, tactical planning to meet realistic budget constraints and budget development. Students experience hands-on, practical application of the basic public relations tactics. Emphasis is placed on developing campaigns as part of an integrated marketing communications plan. Prerequisite: MKTG 2202.

MKTG 3340 DataBase Strategies & Applications

Examines how the database plays an integral part in prospecting and establishing customer relationships. This course focuses on planning, designing and managing a marketing database, as well as an introduction to analytical techniques used for analysing transactional and promotional data.

MKTG 3343 Sales Management

Covers general principles of sales management. Emphasis is given to the human resource with stress placed on selection, assimilation, training and supervision. Examination of sales research, planning, organization and analysis is made. Computer applications in sales management are also covered. Prerequisites: MKTG 1102 and MKTG 2243.

MKTG 3409 Marketing Research 2

Examines the basic approaches to marketing research. The course discusses techniques and tools of this research and relates these tools to the decision-making process. Emphasis is placed on the use of marketing research in the total marketing decision concept. Special applications of marketing research to simulated real-life situations are examined. Prerequisite: MKTG 2309 or MKTG 2341.

MKTG 3417 Design Production

Presents a practical "how-to" course that starts with business direction and finishes with actual print and broadcast advertising. It examines computer graphics, laser separations as well as basic art design techniques. Of interest to those in advertising positions, media sales and graphic/printing sales as well as those with a general interest in the area. Prerequisite: MKTG 2202.

MKTG 4318 Media Planning

Examines the development and execution of the media plan. Close contact is maintained by students with agency media buyers and other industry factors to ensure a practical direction to the course. Quantitative media planning techniques are evaluated in light of most recent computer applications. Provides marketable skills in media planning and buying, to qualify students for career entry consideration in advertising agencies. Prerequisite: MKTG 3218 or a minimum of one year's experience in an agency media department.

MKTG 4330 Real Estate Practice

Designed to apply the principles learned in MKTG 3311 on a practical basis. Students will learn to complete contracts required in real estate transactions; the forms of legal documentation concerning interest in land; land registration procedures; how to search a title or real property at a land title office. Prerequisite: MKTG 3311.

MKTG 4401 Marketing Planning

Examines how to develop a formal marketing plan including situation analysis, market and competitive conditions research, objective setting and action scheduling, using computer-based management systems. Prerequisite: MKTG 1102.

MKTG 4402 Relationship Selling

Covers professional selling skills utilizing buyer behaviour, product knowledge, time management and sales call planning tools. This course focuses on the interpersonal and intrapersonal intelligences. Prerequisites: MKTG 3334 and (MKTG 2243 or MKTG 1219).

MKTG 4404 Industrial Sales Practicum

No description available. Prerequisites: MKTG 3334 and MKTG 3343.

MKTG 4405 International Market Planning

Examines how to develop a formal international marketing plan including situation analysis, market and competitive conditions, transportation logistics, exchange rate fluctuations, research, objective setting and scheduling using computer-based management systems. Prerequisites: OPMT 3301.

MKTG 4407 Venture Development & Growth

Focuses on the practical skills used in the growth company environment by a manager or entrepreneur. Identifies the strategic options facing a growing business. Covers relationship and guerrilla marketing techniques that can be feasibly applied in a high growth business. Prerequisite: MKTG 3306 or MKTG 1324.

MKTG 4409 Entrepreneurial Skills Practicum

Acts as a showcase for students to demonstrate and develop their skills, conducting projects for actual entrepreneurial ventures. Prerequisite: MKTG 4407.

MKTG 4411 Real Estate Principles 2

Allows a graduate to challenge the Real Estate Salesperson's and Sub-mortgage Brokers pre-licensing exam. Prerequisite: MKTG 3311.

MKTG 4412 Introduction to Real Estate Appraisal & Investment Analysis

Designed for salespersons, appraisers, real estate brokers, lenders, builders, investors and assessors. On completion of the course, the student will have learned how to apply appraisal principles and techniques to actual appraisal problems. To become a professional appraiser, the student completing this course must add meaningful practical appraisal experience and further advanced training. The material will include such topics as principles of real estate value, elements of land economics, feasibility studies including investment analysis and the various indices used to measure a return on investment societies. Prerequisite: MKTG 3313.

MKTG 4413 Mortgage Finance

Enables students to demonstrate a knowledge of the macroeconomic aspects of Canada's mortgage market; structure and analyse both residential and commercial mortgage loan applications; be familiar with loan management, contemporary repayment arrangements, development financing, participation loans, leasehold financing and appraisal for mortgage lending. Prerequisite: MKTG 3313.

MKTG 4414 Introduction to ICI Sales & Property Management

Focuses on the unique characteristics of the Industrial, Commercial and Investment segments of the real estate industry. Through lectures, guest speakers, field trips and practical case studies the student will be better prepared to enter the IC&I or property management fields. Prerequisite: MKTG 3311.

MKTG 4415 Promotion Strategy & Planning

Presents a capstone course in which students work in teams of five or six to develop and present to a client a comprehensive promotion campaign with real world constraints. Students incorporate theoretical concepts of marketing and promotions into practical applications in developing their client's campaign. Students practise "pitching" the account in competition with other teams.

MKTG 4416 Marketing Communication Internship

Provides students with an assigned work experience position in a wide spectrum of industry sectors. On-the-job performance is fully evaluated. Prerequisites: All Level 3 and 4A courses (this is a capstone course).

MKTG 4418 Directed Studies

Provides students with one day a week allocated to carry out a major project. The project will be in a marketing area of the student's choice, carried out under the guidance of assigned faculty members. Prerequisites: MKTG 2309 and MKTG 3301.

MKTG 4420 Direct Marketing Dynamics

Examines the concept of direct marketing and why it has become a strategic part of the selling process. This course focuses on how to develop and execute direct marketing strategies and how to test and analyse the results. Emphasis is placed on lead generation and building a one to one relationship with your client base.

MKTG 4422 Web Site Design and Maintenance

Walks students through building a corporate information and e-commerce Web site. Students learn all phases of site design, including developing a creative strategy, an information structure and template design, in addition to advanced web design techniques such as adding rollovers and uploading files. Step-by-step tutorials for Dreamweaver and Photoshop teach students how to make distinction graphics, use tables and frames, including Javascript rollovers, as well as numerous other design and HTML features. Students explore leading direct marketing and interactivity concepts for Web site design.

MKTG 4423 Internet Marketing

Internet Marketing examines how the Internet landscape alters the strategies employed by forward thinking organizations to stay ahead of the competition. This course illustrates how the Internet is more than just an additional channel and how it's growth potential for selling products and service over the Web serve to heighten the demand for Internet marketers. Personalization and relationship (or 1:1) marketing are explored for their potential in building lasting relationships and loyalty.

MKTG 4424 Electronic Commerce

Electronic Commerce sales will exceed the 5 trillion mark by 2004, so its importance is obvious to business and marketers. This course helps students understand the obstacles, success factors and rewards of selling a company's products and services online. Students discuss the key technologies as drivers behind key Electronic Commerce areas such as security, financial transactions, promotion and distribution.

MKTG 4432 Customer Service Strategies

The course is designed to provide an overview of what companies must initiate to build a customer focused organization. Topics will include corporate image, customer interaction, employee empowerment and measuring customer satisfaction. Emphasis will be placed on practical methods of implementation. Prerequisite: MKTG 1102.

Medical Radiography

MRAD 1102 Medical Imaging 1

Introduces students to the standard equipment used in the production of a radiograph. Fundamentals of the photo-recording system are introduced. Also studied are the basic factors of X-ray exposure, transformers, simple electrical controls, X-ray film construction and the various film holders, automatic processing and sensitometry. Laboratory work related to all these subjects is included.

MRAD 1104 Radiographic Anatomy & Physiology 1

Presents a detailed study of the human skeleton. The body organs, glands, vessels and nerves are studied according to region. Throughout the course, emphasis is surface anatomy, the radiographic appearance of structures, and the details of structure and function that are pertinent to radiographic procedures.

MRAD 1105 Master Student Program

MRAD 1105 is a student success course designed to help students learn more efficiently, assume control of their learning and maximize their health during the learning process. The course will focus on increasing life skills, academic skills and awareness of resources that are available for assistance.

MRAD 1106 Radiographic Procedures 1

This will have two components: 1) introductory course to the field of radiography as it applies to basic principles and terminology. Emphasis will be placed on patient prep. care and positioning for upper and lower extremities, spine, pelvis, chest and abdomen; and 2) film imaging evaluation and structure identification of pertinent structures. The student will become familiar with factors affecting radiographic quality and develop the ability to adjust technical factors optimum quality radiographic.

MRAD 1107 Clinical Orientation

Introduces basic clinical skills and theory required for MRAD 1108. This course includes preparation of contrast media, radiation protection, medical terminology, emergency procedures, professional ethics and practice, and medical legal aspects of the clinical environment in the B.C. Health Care system.

MRAD 1108 Clinical Education 1

Orients students to the clinical area and provides them with an opportunity to gain experience in basic radiographic positioning and techniques relating to the chest, abdomen and upper and lower extremities as well as preparation of contrast media. Prerequisites: MRAD 1102, MRAD 1104, MRAD 1106, MRAD 1107, BHSC 1113, BHSC 1241, NURS 1180 and PHYS 1275.

MRAD 2200 Clinical Education 2

Provides students with practical experience in the following areas: upper and lower extremity (trauma patient), non-ambulatory chest with I.V. or drainage, non-traumatic vertebra, routine fluoroscopy and routine I.V.P.s. Prerequisite: MRAD 1100.

MRAD 2204 Radiographic Anatomy & Physiology 2

Continues on from MRAD 1104. Presents a detailed study of the human skeleton. The body organs, glands, vessels and nerves are studied according to region. Throughout the course, emphasis is surface anatomy, the radiographic appearance of structures, and the details of structure and function that are pertinent to radiographic procedures. Prerequisites: MRAD 1104 and BHSC 1113.

MRAD 2205 Case Studies 1

Designed to provide the bridge between classroom theory and clinical work. A case study is presented and students discuss all aspects of the case including the anatomy and physiology, positioning, radiation protection, imaging and equipment issues, technique and patient care. Students have the opportunity to develop analytical and planning skills in a laboratory setting.

MRAD 2206 Radiographic Procedures 2

Positioning for radiographic procedures related to the urinary, digestive, biliary systems as well as limited spine, thoracic cage and pelvic girdle radiography will be covered. Also, the skills required to evaluate the diagnostic and technical acceptability of the radiographs technique charts for various exams and for the variations of the normal patient will be developed. Prerequisite: MRAD 1106.

MRAD 2207 Pathology 1

Introduces students to pathologic terminology and the basic mechanisms underlying disease processes. The balance of the course deals with pathological conditions of bone. Laboratory sessions allow students to become familiar with the radiographic appearance of some of the more common bone pathologies.

MRAD 2212 Medical Imaging 2

Continues from MRAD 1102, this course includes details of X-ray circuits, mobile units, and rapid serial film units. Quality assurance includes processor monitoring, various tests on X-ray units and imaging equipment. Laboratory work related to these subjects is included. Prerequisite: MRAD 1102.

MRAD 3300 Clinical Education 3

Provides students with practical experience in the following areas upper and lower extremity (trauma patient), non-ambulatory chest with I.V. or drainage, non-traumatic vertebra, routine fluoroscopy and routine I.V.P.s. Prerequisite: MRAD 2200.

MRAD 3304 Radiographic Anatomy & Physiology 3

Continues on from MRAD 2204. Presents a detailed study of the human skeleton. The body organs, glands, vessels and nerves are studied according to region. Throughout the course, emphasis is surface anatomy, the radiographic appearance of structures, and the details of structure and function that are pertinent to radiographic procedures. Prerequisites: BHSC 2213 and MRAD 2204.

MRAD 3305 Case Studies 2

Continues on from MRAD 2205. Designed to provide the bridge between classroom theory and clinical work. A case study is presented and students discuss all aspects of the case including the anatomy and physiology, positioning, radiation protection, imaging and equipment issues, technique and patient care. Students have the opportunity to develop analytical and planning skills in a laboratory setting. Prerequisite: MRAD 2205.

MRAD 3306 Radiographic Procedures 3

Course instruction will cover positioning techniques in combination with appropriate technical factors and imaging theory required to produce diagnostic skull radiographs. Students will also learn how to evaluate the diagnostic acceptability of skull radiographs. Lab will reinforce theoretical components of the course. Prerequisite: MRAD 2206.

MRAD 3307 Pathology 2

Follows from MRAD 2207 and deals with pathological conditions affecting the remainder of the body. The student is also made aware of how pathology will affect technical factors used in the production of a diagnostic radiograph. Laboratory sessions allow the student to become familiar with the radiographic appearance of some of the more common pathologies. Prerequisite: MRAD 2207.

MRAD 3308 Radiation Biology & Protection

Begins with the fundamental concepts of radiobiology through a discussion of radiation interaction with tissue, radiosensitivity; radiation effects at doses greater than and within the diagnostic range, effects of radiation on the embryo and fetus, as well as low-level radiation effects. In the second part of the course, radiation protection concepts are introduced. First, the principles of radiation protection and the establishment of dose limits are described. This is followed by a discussion of various methods used to minimize radiation doses to both patients and personnel. Finally, the course concludes with equipment specifications and shielding guides for diagnostic X-ray installations.

MRAD 3309 Special Procedures

Includes discussion of the specialized radiographic procedures utilized to demonstrate the circulatory and central nervous systems as well as the digestive, biliary and genito-urinary tracts. Also included is a brief discussion of CT Scanning, mammography, trauma and interventional radiology.

MRAD 3312 Medical Imaging 3

Continues from MRAD 2212 with study of special tubes, artifacts, image presentation and rollfilm processing. Advanced imaging includes computer basics, computerized tomography (CT), digital imaging and magnetic resonance imaging (MRI). Allied imaging includes nuclear medicine and diagnostic sonography. Prerequisite: MRAD 2212.

MRAD 4400 Clinical Education 4

Provides the student with practical experience in the following areas skeletal radiography; trauma vertebra; fluoroscopy examinations; horizontal beam procedures; injectable contrast exams and mobile/operating room exams. Prerequisite: MRAD 3300.

MRAD 5500 Clinical Education 5

Provides the student with practical experience in the following areas skeletal radiography; trauma vertebra; fluoroscopy examinations; horizontal beam procedures; injectable contrast exams and mobile/operating room exams. Prerequisite: MRAD 4400.

Marine Safety & Seamanship

MSSM 1030 Bridge Watchman

Provides knowledge and skills to enter the marine industry, covering rope work wire rope, and chain work performed on board a ship, deck work related to securing a vessel, handling cargo, and maintenance; theoretical knowledge of regulations and requirements of the marine environment; maritime communications equipment and procedures; knowledge and skills to assist the Officer of the Watch with navigational tasks; Workplace Hazardous Materials Information system; and approximately 1 week practical training. (12 weeks).

MSSM 1050 Basic First Aid

Topics include principles of First Aid and Safety, general Anatomy and Physiology artificial respiration, wounds and bleeding, dressing and bandages, poisoning; choking, shock and unconsciousness, fractures, medical conditions, head and spinal injuries, burns, cardiopulmonary resuscitation, child and infant resuscitation, heart attack and stroke, check injuries, eye injuries and casualty management.

Mechanical Systems

MSYS 2380 Building Construction

Covers the principles of building construction encompassing a study of materials and methods. Examines typical systems of wood frame, masonry, concrete and steel construction with and overview of space planning and organization. Studies functional construction design problems and presentation techniques. Prerequisites: CHSC 2205 and MECH 2201.

MSYS 3382 HVAC Load Analysis

Establishes analytical backgrounds for calculating heating, cooling and ventilation loads required in occupied structures. Topics include the use of climatic data, comfort conditions, criteria and ASHRAE standards for determining heat loss /heat gains. Psychrometric processes will be used and computer-aided techniques will be demonstrated. Prerequisite: MECH 1120.

MSYS 3386 Heating Systems

Examines air and hydronic heating systems, their components and controls for institutional, commercial and residential buildings. Included are discussions relating to fuels, energy sources and combustion requirements, Design requirements and procedures are applied to pre-selected building assignments. Prerequisite: MECH 2201.

MSYS 3389 Plumbing Systems

Covers principles of plumbing systems with a strong emphasis on understanding components, materials and design layout as applied to potable water, storm and sanitary systems. Examples for sizing components and piping will be reviewed. Prerequisite: MSYS 3325.

MSYS 3860 Mechanical Equipment

Presents a study of mechanical equipment relating to the transmission, application and control of power, with particular reference to the wood processing industry. Topics include line shafting, flexible couplings, V-belt and roller chain drives, gearing, variable speed drives, hydraulic and pneumatic systems, centrifugal pump applications and lubrication and bearings.

MSYS 3880 Heating, Ventilating & Air Conditioning

Introduces the factors and concerns influencing indoor comfort and heat transfer in buildings, properties of air and air conditioning processes. Application of these principles will be applied to preparing load estimates for a small building of a non-specialized nature. Includes review of mechanical systems with descriptions of function and operation of components. Prerequisite: PHYS 2140.

MSYS 3980 Plumbing

Encompasses a study of principles and practices of plumbing systems with a strong emphasis on achieving an acceptable level of proficiency in understanding components, materials and design layout as applied to potable water, storm and sanitary systems in buildings.

MSYS 4410 Mechanical Systems Seminars

Addresses, through demonstrations, seminars, site visits and guest lecturers, topics of application, operating principles of various systems and specialty items associated with the mechanical systems. Prerequisites: MSYS 2380 and MSYS 3386.

MSYS 4470 Project Management

Covers building and construction industry infrastructure, project initiation, team organization, construction contracts, bidding processes, material take off and pricing includes cost accounting, scheduling, labour and labour relations and environmental health and safety. Applications are applied to examples of work using samples for cost and labour. Prerequisites: MSYS 2380 and MSYS 3386.

MSYS 4480 Air Conditioning Systems

Covers description and analysis of air distribution systems including fans, terminal air devices and noise. Discusses design details of HVAC systems and refrigeration systems. Prerequisites: MSYS 3320, MSYS 3382 and MSYS 3386.

MSYS 4485 Heating Systems 2

Covers hydronic heating systems; encompassing building zoning; piping systems, boilers, control of systems, with an overview of steam heat systems. Outlines systems design requirements and procedures. The above is applied to designs for preselected buildings. Prerequisites: MSYS 3385 and MSYS 3382.

MSYS 4486 Energy Management

Covers planning and implementation of energy management programs for institutional, commercial and industrial facilities. Topics include energy rate structures, utility metering and billing, energy-auditing, and system analysis techniques. Prerequisites: MSYS 3382 and MSYS 3386.

MSYS 4488 Fire Protection Systems

Includes fire protection systems regulations and codes of practice; fire hazard classification; detection, alarm and communication systems, stand pipe and sprinkler systems for buildings with an overview of HVAC Systems Fire and Smoke Control. Applications will be applied to design assignments. Prerequisite: MECH 3325.

MSYS 4490 Systems Projects

Overall competency in engineering design, project management, technical communication and teamwork skills is demonstrated by successfully completing a relevant industry project. Prerequisites: ELEX 2845, MSYS 2380, MSYS 3382 and MSYS 3386. Corequisite: COMM 2449.

Manufacturing

MTEC 7000 Parametric Modeling

Explores the use of parametrics and solid modeling in the design and production phase of manufacturing. Topics include advantages/ disadvantages of solid modeling and parametrics, dimensional and positional constraints, model construction, extracting working drawings, exchanging data with other applications, and determining mass properties. Prerequisite: MTEC 7045 and AICO 2000 or equivalent.

MTEC 7017 Inspection Methods for Quality Control

This course covers methods used to determine the quality of manufactured components. Topics include quality concepts, in-process gauging, non-destructive testing and coordinate measuring machines. Considerations such as measurement errors and inspection cost will be addressed. Students will design inspection plans for a variety of parts. Prerequisite: MANU 3410.

MTEC 7040 Introduction to the Finite Element Method

In this course, students will learn the tools necessary to analyse machine components and structures using finite element analysis (FEA). Students will analyse simple mechanical objects under static loading using both manual methods and commercial FEA software. Emphasis will be placed on modeling techniques and interpreting and verifying results. Prerequisites: MTEC 7045, MATH 2491 or MATH 2342.

MTEC 7041 Plastics Processes & Materials

Covers the three main processes used to shape and form thermoplastic materials Injection Molding, Blow Molding and Extrusion. The information presented focuses on the recent technological advances in machines and molds, process innovations, commodity and specialty materials and troubleshooting processing problems. Prerequisites: PLAS 3310, PLAS 4410 and PLAS 3440.

MTEC 7042 Plastic Product Design

This course focuses on the design of individual parts that go into making a product and how those parts are assembled into a product. The course begins by discussing the criteria for selection of the plastic material, how to analyse the requirements and the environment the product will be used in. Design guidelines for various processes are reviewed and applied in design exercises. Other aspects of the design such as assembly methods and surface finishing and texturing are reviewed. Part drawings are prepared in sufficient detail to work with molders and toolmakers, and guidelines for effective communication with vendors are discussed. Prerequisite: MTEC 7041.

MTEC 7045 Industrial Design Process

Provides a detailed investigation of the engineering design process. Students will learn methods to establish design criteria, generate alternatives and evaluate the alternatives against the criteria. Topics include creativity, brainstorming, divergent thinking and consideration of function, ergonomics, serviceability and aesthetics in design. The course will include a study of the bidding process and the preparation and evaluation of bid documents. Project documentation, patents, and copyrights will also be discussed. Prerequisite: Previous knowledge and experience in Computer Aided Design.

MTEC 7047 Advanced Engineering Materials

This course provides an overview of common material standards CSA, AISI, SAE, ASTM and UNS (Unified Numbering System). Thermodynamics of polymorphic transformations will be used for development of heat treating process specification to achieve required physical and mechanical properties of heat treatable materials. The laboratory part of the course deals with microscopic examination of different alloys, effects of heat treatment on microstructure composition as well as testing of selected mechanical properties. ASM Material Selector database will be used to support methods of material selection algorithm development as a tool for material failure prevention. Prerequisite: MANU 3316.

MTEC 7051 Introduction to Machine Vision

Provides an introduction to machine vision using state-of-the-art techniques and equipment. Topics include image acquisition, filtering, enhancement, thresholding and edge detection. Emphasis is placed on the use of software to preprocess images. Prerequisites: MECH 1171, MTEC 7052 and MATH 1342 or MATH 1491.

MTEC 7052 Manufacturing Control Systems

This course covers control systems related to manufacturing operations. Topics include motion control position and velocity feedback under computer control, the use of PLC in a production setting, interfacing with production sensors and actuators, logic programming, timing and counting sequences. Finally, data highways in a production setting are covered. Prerequisite: MECH 1210.

MTEC 7065 Manufacturing Processes for Wood Products

This course gives students an overview of the manufacturing process used in secondary wood products industry. Topics include production of dimensioned lumber, plywood, laminated/stranded/particle lumber and board, paper and processes of secondary wood manufacturing. Prerequisite: WOOD 1040.

MTEC 7090 Research Methods

This course covers research methodologies and approaches appropriate for a graduation project in the area of the student's specialization. Topics include scientific approaches for research and data collection, literature and database searches, the use of available analytic software resources, and data presentation and analysis. Various information resources will be explored including emerging resources such as technical society publications and the Internet. Students may use this course to begin research on their graduation project.

MTEC 7092 Degree Project Planning and Management

This course prepares the bachelor degree candidate for the graduation project. Topics include identifying a suitable project, identifying a faculty/industry project supervisor, writing a project proposal, developing a method of tracking project progress and orally presenting a project proposal for approval.

MTEC 8012 Advanced CAM Applications

Further the student's knowledge of Computer Numerical Control (CNC) using CAM software for programming parts requiring machining in 3 dimensions. Topics include defining alternate coordinate systems to assist in complex geometry creation, surface modeling and machining, fourth axis contouring and fourth and fifth axis positioning. Some of the programs may be proved out on BCIT's CNC machine tools. Prerequisite: AICO 1010.

MTEC 8015 Fixture & Tool Design

Further knowledge of tooling methods used to increase manufacturing productivity. Covers modern methods of prototype manufacture and the use of currently available techniques to reduce manufacturing cycle times. Prerequisites: MTEC 7045 and MTEC 8012.

MTEC 8045 Design for Manufacture & Assembly

Explores the techniques used to reduce production and assembly costs for manual and automated production. Topics include practical techniques for selection of materials and processes, design considerations for production, manual assembly and automated assembly, and Boothroyd and Dewhurst methods. Students review case studies and analyse several production assemblies. Prerequisites: MTEC 7045 and OPMT 1411.

MTEC 8050 Manufacturing Automation Systems

This course explores the use of automation equipment in the production environment. Students will analyse applications and select and program suitable automation equipment, design workholding and part presentation devices and investigate sensing systems used in automated workcells. Prerequisites: MANU 4450 and MTEC 7045.

MTEC 8051 Applications in Machine Vision

In this course, students will apply machine vision to an industrial inspection task. Application areas will include measurement and gauging, assembly verification, and defect detection. Topics will include machine vision hardware, computing hardware/software tradeoffs, software and algorithms for machine vision, programming environments, and integration of machine vision into manufacturing systems. Prerequisites: MECH 1171 and MECH 7045.

MTEC 8055 Computer Aided Process Planning

In this course, students will plan production methods for the manufacture and process of machine component parts. Economic considerations, design specification and processing capabilities will all be assessed for their impact on the manufacturing process. Group technology classification methods will be used to simplify the planning process. Computer Aided Process Planning software will be utilized to further automate the planning function. Prerequisites: MTEC 7047, MANU 4410 and MANU 4412.

MTEC 8090 Mechanical Degree Project

The student will complete the industry project in a workplace setting and choose a project that involves applied research or technology transfer. The project will be innovative, experimental or exploratory in nature. Activities can range from directed study projects to the preparation of a proposal, project plan and the development of formal deliverables including a final report demonstrating the practical application of knowledge and skills in the manufacturing sector.

Nuclear Medicine

NMED 1020 Radiopharmaceuticals 1

Presents a study of the preparation and quality control of radiopharmaceuticals in routine use. Emphasises the radio nuclide generator. Dosage forms and calculation and dispensing of doses are covered.

NMED 1040 Introduction to Nuclear Medicine Technology

Presents an overview of the many components that comprise Nuclear Medicine Technology and its role in the health care system. In addition, medical terminology is studied comprehensively.

NMED 1116 Nuclear Medicine Laboratory Skills

Provides the base theories and principles of operation, use, and care of equipment and instruments found in a nuclear medicine laboratory. In addition, laboratory safety and WHMIS regulations are emphasised. Blood handling and procurement are introduced.

NMED 2025 Radiopharmaceuticals 2

Discusses the clinical application of specific radiopharmaceuticals on a systematic basis. Pertinent aspects of pharmacology and antigen antibody reactions applicable to nuclear medicine are also dealt with. Prerequisite: NMED 1020.

NMED 2040 Applied Physiology 1

Involves familiarization with affiliated nuclear medicine departments of Lower Mainland hospitals, and a series of lectures given by technologists on the clinical applications of nuclear medicine techniques.

NMED 2050 Radiobiology & Protection

Presents a detailed study of ionizing radiation and its interaction with matter. The units and safety guidelines of radiation are also discussed. Emphasis is on the practical applications of radiation safety in the working environment.

NMED 2090 Clinical Experience 1

Clinical practicum in the nuclear medicine department of an affiliated hospital. The purpose is to further develop the skills necessary for students to function safely and competently in a nuclear medicine lab. Hands-on experience will be gained in all aspects of in-vitro and in-vivo procedures.

NMED 3010 Image Display

Designed to familiarize Nuclear Medicine Technology students with methods and materials used to visually display the spatial distribution of radioactivity in nuclear imaging procedures. The utilization of optical, photographic and computer visual displays will be covered in theory and practice.

NMED 3040 Applied Physiology 2

Instructs the student in all aspects of current applied physiology including criteria, methodology, instrumentation, patient problems and approach, data collection and manipulation. Prerequisite: NMED 2040.

NMED 3080 Clinical Experience 2

See NMED 2090. Prerequisite: NMED 2090.

NMED 4040 Applied Physiology 3

Continues from NMED 3040. The student is instructed in all aspects of current applied physiology including criteria, methodology, instrumentation, patient problems and approach, data collection and manipulation. Prerequisite: NMED 3040.

NMED 4080 Clinical Experience 3

See NMED 2090. Prerequisite: NMED 3080.

NMED 4090 Clinical Experience 4

See NMED 2090. Prerequisite: NMED 4080.

Nursing Critical Care

NSSC 7100 Introduction to Critical Care Nursing

Introduces participants to the critical care nursing specialty and the role of the critical care nurse. Conversation with a person who has experienced a critical illness assists learners in developing an understanding of the individual's experience of critical illness. An observational experience in a critical care unit provides insight into the patient's experience of illness, the role of the critical care nurse, and the context of critical care nursing practice. Theory related to partnership, health, comprehensive health assessment and clinical decision-making is presented.

NSCC 7200 Critical Care Nursing Theory 1

Builds on the participant's understanding of critical care nursing practice by examining the critical care nurse's role in the context of the patient's experience of selected critical illnesses. Specifically, participants will have opportunities to develop and apply nursing knowledge related to assessment, monitoring, interventions, health promotion, healing and comfort for individuals who experience an imbalance in oxygen supply and demand (eg. Angina, MI, CHF, respiratory insufficiency). Understanding of the individual's experience of a potentially life threatening illness is enhanced by the exploration of concepts such as transition, crisis and vulnerability. Prerequisite: NSCC 7100.

NSCC 7225 Cardiac Nursing Step-Down Theory

Expands participant's technology as practice of cardiac step-down nursing by providing an opportunity to further develop and apply nursing knowledge related to the patient's experience of selected cardiac health challenges. In a series of patient cases, the course focuses on developing partnerships with patients to assess, intervene, and to promote comfort and healing for individuals experiencing cardiomyopathy, inflammatory cardiac disorders, valvular heart disease, pacemaker and AICD therapy, and recovery from cardiac surgery. Prerequisites: NSCC 7100 and NSCC 7200.

NSCC 7300 Critical Care Nursing Clinical 1

Provides opportunities for participants to apply and integrate their nursing knowledge when providing nursing care for critically ill patients experiencing common health problems such as angina, MI, CHF, and respiratory insufficiency. Learners have the opportunity to further develop their comprehensive assessment abilities, monitoring skills, and clinical decision-making. Using a partnership approach, participants will seek to understand the patient's experience of critical illness, to promote comfort, and to facilitate healing. Post conferences explore health promotion and the influence of the critical care environment in patient care. Laboratory experiences focusing on airway management, care of the patient with a central line and cardiac arrest management are included. Prerequisites: NSCC 7100 and NSCC 7200 (75 per cent).

NSCC 7325 Cardiac Nursing Step-Down Clinical

Provides opportunities for participants to apply and integrate their nursing knowledge when providing care for cardiac patients experiencing health problems such as angina, MI, CHF, and respiratory insufficiency. Opportunities to care for post-operative cardiac step-down patients will also be provided. Application and analysis of practice frameworks support development of a systematic approach to nursing care. Learners will further develop their comprehensive assessment abilities, monitoring skills and clinical decision-making. Using a partnership approach, participants will seek to understand the patient's illness experience, to promote comfort, and to facilitate healing. Laboratory experiences focusing on airway management, care of the patient with a central line, pacemakers, and cardiac arrest management are included. Prerequisites: NSCC 7200 (75 per cent) and NSCC 7225 (75 per cent).

NSCC 7400 Critical Care Nursing Theory 2

Expands on the technology as practice of critical care nursing within the context of patients and family members' experience of critical illness. Exploring increasingly complex health problems (e.g. head injury, drug poisoning, acute respiratory failure, GI dysfunction) will provide opportunities to integrate and expand knowledge of assessment, monitoring, interventions, healing and comfort. Participants will examine concepts such as loss and grief, hope and suffering, ethical issues, and patient/family member's experience with potentially life threatening illness. Prerequisite: NSCC 7300.

NSCC 7500 Critical Care Nursing Clinical 2

Applies and integrates nursing knowledge to provide competent nursing care for increasingly complex critically ill patients and their family members (e.g. head injury, drug poisoning, acute respiratory failure, GI dysfunction). Learners have the opportunity to further develop their comprehensive assessment abilities, monitoring skills and clinical decision-making, and to create partnerships with patients, family members, colleagues and other members of the health care team. The significance of the context of the critical care environment as it relates to engaging in partnership will be explored. Laboratory experiences related to the care of the patient with mechanical ventilation, invasive hemodynamic monitoring, ICP monitoring and advanced cardiac arrest management are included. Prerequisite: NSCC 7400 (75 per cent).

NSCC 7600 Nursing the Complex Critically Ill Patient

Combines theory and 65-70 hours of precepted clinical experiences to provide participants with an opportunity to explore patients' and family members' experience of complex, critical illness. Learners are challenged to explore contextual factors such as the critically ill elderly, quality of life, withdrawal of treatment and culture and to analyse collaboration within the health care team. As well, learners select a case that presents complex physiological problems to expand their knowledge of imbalances in oxygen supply and demand, oxygenation and ventilation and cellular changes. Participants will implement their technology as practice in complex patient care situations. Prerequisite: NSCC 7500.

NSCC 7625 Post-Anesthetic Care Nursing

Combines theory and precepted clinical experiences focused on post-anesthetic care nursing. Participants will study concepts related to anesthetic agents, patient assessment and monitoring, surgical interventions and post-operative nursing care. Learners will have opportunities to work through cases presenting patients experiencing selected surgical and anesthetic techniques. Participants will also assess, monitor and provide nursing care for a variety of post-anesthetic patients in the clinical setting. Prerequisite: NSCC 7500.

**Nursing Specialty
Emergency****NSER 7100 Emergency Nursing Theory 1**

Introduces emergency nursing and focuses on client perspectives of care in emergency settings. Students will have opportunity to explore the concept of partnership with clients, families, and health care professionals in a time limited, changing environment. Emergency skills such as assessment, urgency determination, and diagnostic reasoning will be introduced.

NSER 7200 Emergency Nursing Theory 2

Builds on concepts presented in Theory 1. Students will have opportunities to work through common, less complex emergency client presentations in the form of case studies, identifying concepts key to emergency nursing. Examination of pathophysiology, assessment and decision-making are emphasised. Prerequisite: NSER 7100.

NSER 7300 Emergency Nursing Clinical 1

Introduces, through this four-week clinical, care for emergency clients. The course provides students with opportunities to enhance critical thinking, communication, collaboration, and systematic inquiry skills necessary to provide care to emergency clients and their families. In particular, students will focus on applying concepts of partnerships and assessment. A BCIT instructor and/or clinical site preceptor may facilitate this course. Prerequisite: NSER 7200.

NSER 7400 Emergency Nursing Theory 3

Expands the vision of emergency nursing by focusing on broader environmental contexts and assessing their relationship with health promotion and disease/injury prevention. Students will focus on complex client presentations, interventions and challenging assumptions. Families and family perspectives are an integral part of this course. Prerequisite: NSER 7200.

NSER 7500 Emergency Nursing Clinical 2

Builds on knowledge and skills acquired in previous theory and clinical courses, students continue to develop assessment and decision-making skills while working with clients complex health care challenges. Experienced students assume an active role in creating partnerships with clients and families. Prerequisites: NSER 7400 and CPR.

NSER 7800 Emergency Nursing and Mental Health

This course explores the mental health component for all emergency clients, while focusing on clients presenting with specific mental health challenges. Assessment, safety, types of challenges, interventions and communication will be highlighted. This course may be taken on its own or as an elective.

**Nursing Specialty
Neonatal****NSNE 7100 Neonatal Theory 1**

Required course in the Neonatal Nursing Specialty Program. The course focuses on infants and families, their diversity and their commonalities. Family-care and developmentally supportive care are introduced as frameworks for practice. Fetal development and the transition to extrauterine life are examined from the perspective of contributing to infant vulnerability.

NSNE 7110 Neonatal Theory 1, Modified

Designed for experienced pediatric neonatal and/or perinatal nurses currently working in a perinatal or pediatric clinical area who wish to learn about caring for infants in community hospital setting. The course focuses on infants, vulnerability and health challenges commonly seen in community hospitals. Prerequisite: 2 year current perinatal or pediatric experience. 3 credits.

NSNE 7200 Neonatal Theory 2

Required course in the Neonatal Nursing Specialty program. Uses a case study format to examine the health challenges that infants commonly experience. Specifically, asphyxia, dehydration, jaundice, apnea, bradycardia, patent ductus arteriosus, opiate dependency, hypothermia and respiratory distress will be addressed. Developmental, family, assessment and feeding issues will be explored in each case. Prerequisite: NSNE 7100.

NSNE 7300 Neonatal Clinical 1

Required course in the Neonatal Nursing Specialty program. Intended as an introduction to neonatal clinical practice, it can be completed in a variety of clinical sites. The following key areas of practice have been identified for this course: assessment, feeding, thermal management, medication administration, infection control, respiratory support, and developmentally supportive care. Approximately three weeks in length, this course can be completed in one three week period or it can be scheduled to occur over a longer period of time. This course can be challenged by experienced nurses. Prerequisites: NSNE 7100 and NSNE 7200.

NSNE 7400 Neonatal Theory 3

Required course, this course focuses on family- centered care. It is a shared course in the Neonatal, Pediatric and Perinatal Nursing Specialties. Using a post-modern family framework, students work with a selected family in order to establish a relationship characterized by creative listening, respect for diversity, power sharing, and appreciation of own family values. Concepts such as family health, power, diversity, narrative, lived experience, meaning, context, and imagination are explored. Prerequisites: NSNE 7100 and NSNE 7200.

NSNE 7500 Neonatal Clinical 2

Required course in the Neonatal Nursing Specialty Program, this second clinical is intended to support students' individual learning needs and can be completed in a variety of clinical sites. Mechanical ventilation is examined as a key area of practice. Using a variety of perspectives on clinical decision-making, this course encourages students to articulate, examine and critique their own clinical decision-making processes. The course also provides students with opportunities to articulate, examine and critique their own neonatal nursing practice framework. Approximately three weeks in length, this course can be scheduled in a variety of ways to meet individual students' needs. Prerequisite: NSNE 7300.

NSNE 7900 Clinical Preceptorship in Neonatal Nursing (Elective)

Provides students with additional clinical practice. The course learning intentions, learning activities and evaluation strategies are established once a student and the course tutor have determined what the student's learning needs are. The course may be used to provide novice neonatal nurses with additional time to focus on the basics or it may be used to provide clinical practice in an area not addressed in the required clinical courses. Prerequisite: NSNE 7300.

NSNE 7940 Advanced Concepts in Neonatal Nursing (Elective)

An elective course, this course focuses on the less common and more serious health challenges that infants experience. Persistent pulmonary hypertension of the newborn, extremely low birth weight, group B streptococcal infection, death, intraventricular hemorrhage and bronchopulmonary dysplasia will be addressed. Concepts such as clinical decision-making, ventilation/perfusion, discharge planning, palliative care, and mechanical ventilation will be examined. Prerequisite: NSNE 7100 and NSNE 7200.

Nursing Specialty Nephrology

NSNN 7200 Introduction to Nephrology Nursing

Focuses on the experience of the individual with end stage renal disease. Pathophysiology of renal disease and treatment options are linked to the lived experience of various individuals. Students develop an understanding of the physiological, psychological and social impact of renal disease as it varies over the life span and with individuals.

NSNN 7300 Predialysis Nursing Care Clinical 1

Combines theory and clinical experience to focus on the pre-dialysis phase of the individual with renal failure. Students interview clients, learn about the pre-dialysis services and examine the role of various health care team members. Attendance at a pre-dialysis clinic facilitates learning. Prerequisite: NSNN 7200.

NSNN 7400 Nephrology Theory 2 Introduction to Dialysis Nursing

Focuses on the experience of the individual on dialysis. Understanding of the principles of hemodialysis and peritoneal dialysis, the complications of dialysis and the lived experience of various individuals will be used to develop the nursing role in the management of dialysis. Prerequisites: NSNN 7200 and NSNN 7300.

NSNN 7500 Nephrology Clinical 2 Nursing Care of the Person on Dialysis

Prepares students for a beginning level of hemodialysis nursing in a community hemodialysis facility through a four-week clinical experience. There are written and practical assignments over the 12-week term. Prerequisite: NSNN 7300.

NSNN 7600 Nephrology Theory 3 Living with Renal Disease and Complex Health Challenges

Provides students with further breadth and depth in Nephrology Nursing. Topics include co-morbid conditions, ethical issues, caring for families and renal transplants. Prerequisite: NSNN 7500 or permission of the program head.

NSNN 7700 Clinical 3 Nursing Person with Complex Renal Health

Negotiated by student and faculty to determine the areas of interest for the student. The month of clinical time may be taken either full or part time. There are practical and written assignments during the 12-week term. Prerequisite: NSNN 7600.

Nursing Specialty Occupational Health

NSOH 7100 Introduction to Occupational Health Nursing

Introduces Occupational Health Nursing, focusing on work and its relationship to health. It introduces the student to the community focus of the occupational health nurse through the beginning use of frameworks, epidemiological principles, and relevant legislation. There is an emphasis on building partnerships with management, labour, and other health and safety team members.

NSOH 7200 Work & Work Environments 1

Presents theory related to potential hazards found in various work settings. It focuses on the industrial hygiene principles and practices of anticipating, recognizing, and evaluating biological, chemical and physical hazards. The course emphasises a collaborative approach to eliminating or controlling these hazards, whether the occupational health nurse is a member of a team of occupational health and safety practitioners or is the only on-site practitioner with knowledge and skills in industrial hygiene. Prerequisites: NSOH 7100 or ANOH 5100 and NSOH 7110.

NSOH 7250 Work & Work Environments 2

This course assists learners to further broaden their knowledge of work environments and the work-health relationship. Students use a population health promotion model for the risk assessment of health challenges arising from psychosocial, safety and ergonomic issues in the workplace. This course forms a bridge to future learning in assessing worker health. The processes of systematic inquiry and critical thinking are used to analyse jobs for their environmental, psychosocial, safety and biomechanical demands on employees. Prerequisites: NSOH 7100 or NSOH 7110 and NSOH 7200 or ANOH 5200.

NSOH 7255 Occupational Health Nursing: Practice Experience 1

This one-credit, 25-hour practice experience supports and focuses student learning in the co-requisite theory course, NSOH 7250 Work and Work Environments 2. Students will follow a directed study plan as they complete their practice experience with a selected organization in their own community. They will be asked to critically analyze their experience.

NSOH 7300 Occupational Health Nursing: Practice Experience 2

This two-week, full-time clinical course provides the nurse with opportunities to build on communication, collaboration, critical thinking and systematic inquiry skills related to the role of occupational health nurse. The focus of the course will be on working in groups to assess work environments and analyse jobs, making recommendations when appropriate to improve the health and safety of the workplace. Learning occurs primarily on the BCIT Campus. Prerequisites: NSOH 7250 and NSOH 7255.

NSOH 7400 Occupational Health Assessments

The emphasis of this course will be on "fitness for work" nursing assessments for both new employees and those experiencing illness or injury. Participants will apply their previous learning in job analysis to develop and use job-specific health standards in presented case scenarios. Opportunities will be provided through case scenarios for planning clinical and organizational strategies designed to manage disabilities in the workplace.

NSOH 7450 Health Surveillance

This course presents principles of health surveillance with a major focus on occupational toxicology within a case study format. The cases will emphasise a collaborative approach to anticipating, preventing, recognizing and addressing potential related health risks.

NSOH 7500 Occupational Health Nursing: Practice Experience 3

This course is currently under development.

NSOH 7600 Occupational Health Program Planning

The learner defines a workgroup at risk, develops collaborative relationships with stakeholders and advocates improved workplace health and safety through written and verbal presentations of a program plan. The program plan will include documentation of a needs assessment, relevant goals and objectives, and strategies for implementation and evaluation. Learners will present their proposals at a scheduled workshop; learners unable to attend the workshop will contract individually to complete the course requirements.

NSOH 8800 Occupational Health Nursing Creating the Future

The focus of this course is on supporting the student's role in creating the future for their own career and for the health and safety of an organization. Through theory and practice students will have an opportunity to expand the independent nature of their practice and strengthen the contribution they make to an organization. Learners initiate a collaborative partnership with an organization and use a systematic approach to assess its health and safety needs and the internal and external resources available to address them. Based on the assessment and the participation of the organization, the learner establishes priorities and develops a dynamic plan to address the health and safety needs. The learner may require two terms to complete this course.

Nursing Specialty Pediatric

NSPE 7100 Pediatric Theory 1

Required course in the Pediatric Nursing Specialty Program focusing on infants, children and families, their diversity and their commonalities. Family-centered care and developmentally supportive care are introduced as frameworks for practice. Concepts such as children's autonomy and vulnerability are examined.

NSPE 7200 Pediatric Theory 2

Required course in the Pediatric Nursing program, using a case study format to examine the health challenges that infants and children commonly experience. Specifically, fever, dehydration, shock, asthma, developmental delay, tonsillitis, eating disorders and respiratory distress will be addressed. Developmental, family and assessment issues will be explored in each case. Prerequisite: NSPE 7100.

NSPE 7210 Pediatric Critical Care Theory 2

Intended for students who are interested in a pediatric critical care focus. Using a case study format, this course addresses the health challenges commonly seen in pediatric critical care settings. Specifically, shock, respiratory failure, sepsis, neurologic impairment, non-accidental trauma and perinatal asphyxia will be addressed. Assessment, developmental and family issues are explored in each case. Prerequisite: NSPE 7100.

NSPE 7300 Pediatric Clinical 1

Introduces pediatric clinical practice and can be completed at a variety of clinical sites. The following key areas of practice have been identified for this course: assessment, feeding, medication administration, fluid balance/nutrition, respiratory support and partnership with children. Approximately three weeks in length, this course can be completed in one three week period or it can be scheduled to occur over a longer period of time. The course can be challenged by an experienced pediatric. Prerequisite: NSPE 7200 or NSPE 7210 or ANPE 5220 or ANPE 5230.

NSPE 7310 Pediatric Critical Care Clinical 1

Focuses on the nursing care of seriously ill infants, children and adolescents, this three week clinical course is an introduction to pediatric critical care nursing practice. This course will generally take place in a critical care setting. Learning activities are flexible to enable students to obtain a tailored clinical experience. Students are provided with opportunities to develop communication, collaboration, critical thinking and systematic inquiry skills necessary to care for seriously ill children. In particular, students will focus on developing partnerships with children, assessment and problem identification, medication administration, respiratory support, hemodynamic monitoring, pharmacological paralysis, monitoring fluid balance and nutrition. Prerequisites: NSPE 7100 and NSPE 7210.

NSPE 7400 Pediatric Nursing Theory 3

A required course, this course focuses on family-centered care. It is a shared course in the Neonatal, Pediatric and Perinatal Nursing Specialties. Using a post-modern family framework, students work with a selected family in order to establish a relationship characterized by creative listening, respect for diversity, power sharing, and appreciation of own family values. Concepts such as family health, power, diversity, narrative, lived experience, meaning, context and imagination are explored. Prerequisites: NSPE 7100 and NSPE 7200 or NSPE 7210.

NSPE 7500 Pediatric Clinical 2

Supports individual learning needs and can be completed in a variety of clinical sites. Using a variety of perspectives on clinical decision-making, this course encourages students to articulate, examine and critique their own clinical decision-making processes. The course also provides students with opportunities to articulate, examine and critique their own pediatric nursing practice framework. Approximately three weeks in length, this course can be scheduled in a variety of ways. Prerequisite: NSPE 7300 or ANPE 5310.

NSPE 7510 Pediatric Critical Care Clinical 2

Focusing on the care of critically ill children, this three week clinical course is centered around learning activities that are flexible and enable students to obtain a tailored clinical experience. Students are provided with opportunities to build on the communication, collaboration, critical thinking and systematic inquiry skills necessary to provide care for critically ill children. In particular, clinical decision-making and articulation of a personal practice framework for pediatric nursing will be emphasised. Prerequisites: NSPE 7210, NSPE 7310 and NSPE 7940.

NSPE 7900 Clinical Preceptorship in Pediatric Nursing (Elective)

Provides students with additional clinical practice. Learning intentions, learning activities and evaluation strategies are established once a student and the course tutor have determined the student's learning needs. May be used to provide novice pediatric nurses with additional time to focus on the basics or to provide clinical practice in an area not addressed in the required clinical courses. Prerequisite: NSPE 7300 or NSPE 7310.

NSPE 7910 Pediatric Nursing in the Home (Elective)

Provides students with beginning knowledge and skills for pediatric nursing practice outside of the hospital setting. Using a case study format, opiate dependency, chronic respiratory problems, neurologic impairment and cancer are addressed. Developmental, family, resource allocation and role issues are examined. Prerequisite: NSPE 7100.

NSPE 7920 Pediatric Arrest Management (Elective)

An elective course that examines pediatric arrest management, focusing on anticipation and prevention. Using a case study format, shock, sepsis, meningitis, asthma, respiratory distress and croup are addressed. Concepts such as emergency preparedness, assessment, oxygen therapy, fluid resuscitation, and cardio-respiratory resuscitation are examined. In addition, developmental and family issues are explored in each case. Prerequisite: NSPE 7100.

NSPE 7940 Advanced Concepts in Pediatric Critical Care Nursing

Focuses on the less common and more severe health challenges that infants and children experience. Using a case study format, open-heart surgery, burns, trauma and multi-system failure will be addressed. Concepts such as clinical decision-making, ventilation/perfusion, discharge planning and palliative care will be examined. Prerequisites: NSPE 7100 and NSPE 7210.

Nursing Specialty Perinatal

NSPN 7100 Perinatal Theory 1, Healthy Childbearing Experiences

Focuses on introducing the perinatal nurse to healthy childbearing experiences. Within the context of building partnerships, this course exposes the learner to a holistic way of caring for childbearing women, their fetuses/newborns and families.

NSPN 7200 Perinatal Theory 2, Childbearing Women

Builds on the concepts presented in Healthy Childbearing Experiences. Whereas Theory 1 examines the "wellness" of pregnancy, Theory 2 examines the "illness" of pregnancy. Emphasising the processes of systematic inquiry and critical reflection, common perinatal health challenges that childbearing women and their families may face are presented to the learner in multi-faceted case studies. Prerequisite: NSPN 7100.

NSPN 7250 Fetal Health Surveillance

Introduces the learner to fetal health assessment and electronic fetal monitoring. Prerequisite: NSPN 7100.

NSPN 7300 Perinatal Clinical 1

Introduces caring for childbearing women and their families throughout the childbearing continuum. This four-week course takes place in the clinical setting where students will focus on family-centered care; maternal/fetal/newborn well-being; labour support and breast feeding/infant nutrition. A BCIT instructor and/or a clinical site preceptor may facilitate this course. Prerequisites: NSPN 7100 and 7200.

NSPN 7400 Perinatal Theory 3, Childbearing Families

Uses a phenomenologic approach to family-centered care. Will be used to build on student's communication, collaboration, systematic inquiry, critical thinking, and professional caring abilities. Emphasis is placed on multiple perspectives, narrative meaning, and partnerships with families. Throughout the course students will interact with a selected family and a professional mentor in order to engage in the learning activities and assignments for this course.

NSPN 7450 Neonatal Resuscitation

Presents a standardized national training program which prepares health care professionals to provide skilled neonatal resuscitation during the first moments of an infant's life. Prerequisite: NSPN 7200.

NSPN 7500 Perinatal Clinical 2

Focuses on the care of childbearing women/families experiencing health challenges. This second four-week clinical takes place in various settings, depending on the students' learning needs. Clinical decision-making is emphasised. Prerequisites: NSPN 7300 and NSPN 7400.

NSPN 7800 Clinical Preceptorship in Perinatal Nursing

Presented as a clinical preceptorship, this course provides students with additional clinical experience. The course learning intentions and evaluation strategies based on the student's individual learning needs are negotiated with the student, the clinical tutor and the clinical site staff. Prerequisite: NSPN 7300.

NSPN 7900 Independent Study

An elective course in the Perinatal Nursing Specialty program, this independent study is designed to give students an opportunity to pursue a particular area of interest. The course learning intentions, learning activities and evaluation strategies will be negotiated between the student and the course tutor. This course is intended to be used by a diverse body of experienced perinatal nurses to meet a wide range of learning needs. Prerequisite: NSPN 7500.

Nursing Specialty Perioperative

NSPO 7100 Perioperative Theory 1: Developing Perioperative Partnerships

Introduces the specialty of Perioperative Nursing by exploring individuals' perioperative experiences and examining the role of the perioperative nurse. The concept of partnership is explored as is the role of the perioperative nurse in providing patient-centered care both independently and as a member of the health care team.

NSPO 7200 Perioperative Theory 2: Preparing for Surgery & The Experience of Anesthesia

The nurse in the circulating role focuses on the experience of anesthesia for individuals undergoing common, less complex surgery. Perioperative patient assessment will be presented. Factors impacting the stability and safety of individuals from different age groups who are undergoing anesthesia will be examined as the role of the circulating nurse is explored. Prerequisite: NSPO 7100.

NSPO 7300 Perioperative Clinical 1: Implementing the Circulating Nurse Role

A four-week clinical practicum in a perioperative environment. This course includes learning assignments that will be completed over the 12-week term. Students will be provided with the opportunity to learn about and to provide selected components of care to individuals undergoing surgical procedures and anesthesia in the circulating nurse role. Prerequisite: NSPO 7200.

NSPO 7400 Perioperative Theory 3 The Individual's Experience of Surgery: The Nurse in the Scrub Role

Explores individual experiences of common, less complex surgeries. The concepts of partnership, stability and safety will be expanded upon, and the principles of surgery and healing introduced as the role of the scrub nurse is explored. May be taken in the same term as NSPO 7300 or NSPO 7500 depending on dates of clinical offerings. Prerequisite: NSPO 7300.

NSPO 7500 Perioperative Clinical 2: Implementing the Scrub Nurse Role

A 150-hour clinical practicum in a perioperative environment that provides students with the opportunity to develop beginning competency in the scrub nurse role and gain further insight into the concept of caring. This is accomplished through exploring individuals' intraoperative experiences and providing care during surgical interventions. Prerequisite: NSPO 7400.

**NSPO 7600 Perioperative Theory 4:
Integration of the Perioperative
Nursing Roles**

Knowledge from the previous courses is expanded as students examine perioperative nursing care for individuals with increasing acuity, who are undergoing complex surgical procedures and/or anesthesia, and recovering from anesthesia. Integration of the perioperative roles, recognition and appropriate response to threatening and rapidly changing conditions are a major focus. Prerequisite: NSPO 7500.

**NSPO 7700 Perioperative Clinical 3:
Integrated Practice Clinical**

Focuses on the integration of the perioperative nursing roles when providing entry level care for individuals with increasing acuity who are undergoing complex surgery and/or anesthesia. Supervised clinical experience and independent clinical study enables the student to gain competency and knowledge within a variety of selected surgical contexts and patient populations. Through the use of individual learning contracts and by developing learning partnerships, participants will have the opportunity to work toward assuming increasing independence in practice and applying principals, skills and knowledge developed in previous courses in diverse perioperative environments. Prerequisite: NSPO 7600.

Nursing Specialty

**NSSC 7115 Client Education:
Learning as Partnership**

Core course required for all Specialty Certificate programs. Students develop and deliver a teaching project in their work setting. Through collaboration with their chosen client, learning needs are assessed and goals are mutually negotiated.

NSSC 8000 Systematic Inquiry

Examines the multiple sources of knowledge that informs their nursing practice. Critique of qualitative and quantitative research serve as a major source of knowledge in this course. Prerequisite: Completed Specialty Nursing certificate.

**NSSC 8110 Independent Study in
Specialty Nursing**

The purpose of this course is to give students an opportunity to pursue a particular area of interest in specialty nursing. The learning intentions, activities and evaluation strategies for the course will be determined by the student and course tutor. For further details, please contact the program head of your chosen specialty.

**NSSC 8120 Independent Study in
Specialty Nursing**

The purpose of this course is to give students an opportunity to pursue a particular area of interest in specialty nursing. The learning intentions, activities and evaluation strategies for the course will be determined by the student and course tutor. For further details, please contact the program head of your chosen specialty.

**NSSC 8130 Independent Study in
Specialty Nursing**

The purpose of this course is to give students an opportunity to pursue a particular area of interest in specialty nursing. The learning intentions, activities and evaluation strategies for the course will be determined by the student and course tutor. For further details, please contact the program head of your chosen specialty.

**NSSC 8160 Independent Study in
Specialty Nursing**

The purpose of this course is to give students an opportunity to pursue a particular area of interest in specialty nursing. The learning intentions, activities and evaluation strategies for the course will be determined by the student and course tutor. For further details, please contact the program head of your chosen specialty.

NSSC 8300 Creative Leadership

Focuses on the new paradigm of leadership. Students are required to develop their creative leadership abilities by engaging in a leadership project. Prerequisite: Completed Specialty Nursing certificate.

NSSC 8500 Professional Growth

Examines student's professional growth relative to specialty nursing practice. Through participating in a mentoring relationship, expert practice is explored with a focus on clinical judgement, caring and moral/ethical perspectives. A personal vision of expert specialty nursing practice is developed. Prerequisite: Completed Specialty Nursing certificate.

**NSSC 8600 Communities, Health
and Partnership**

Explores and critically examines the concepts of community, health and partnership within the context of specialty nursing practice. A variety of perspectives on community are explored, including social, political and environmental aspects of community health. Students will select and begin to engage with a community in their specialty practice. Prerequisites: NSSC 8000, NSSC 8300 and NSSC 8500.

**NSSC 8800 Community Health:
Partnerships in Action**

Students connect with, envision and engage in health action with a community. By engaging in community clinical practice, students create self-directed learning activities to promote health. Action-oriented strategies that consider social, political, economic and environmental perspectives on health are the focus for learning. This is a course offered by Health Part-time Studies. Prerequisites: NSSC 8600, NURS 7030 and NURS 7100. Corequisite: NURS 7130.

Engineering Tech Entry

**NTRY 0304 Learning Skills for
Electronics Technology**

Includes a variety of topics such as stress management, time management, learning styles and general study skills. Provides knowledge and skills relating to learning and coping techniques and strategies to help cope with current and subsequent coursework in the Electronics Engineering Technology program.

Nursing

NURS 1000 Applied Nursing Science 1

Students will explore selected common health problems in order to understand the impact this problem has for the individual, family, health care system and society. While developing their understanding, students will access information from a variety of sources including professionals in hospitals and in the community. A thorough exploration of the health problem/situation will assist students in developing a professional context from which they can plan nursing care. The teaching/learning strategy used in this course is problem based learning. The health problems discussed in this course are sexually transmitted diseases, and cerebrovascular accidents (stroke).

NURS 1019 Clinical Techniques 1 Assessment

Presents essential behaviours for conducting psychosocial and physical assessment. It includes techniques for taking a health history in order to identify health needs. Opportunity for practice and demonstration of the learned skills is provided.

NURS 1020 Clinical Techniques 1 Laboratory

Presents basic nursing skills related to hygiene, touch therapies and therapeutic touch, movement and rest, feeding, oxygen use, voiding, bowel care, and oral and topical medications. Emphasis is placed on student understanding of the purpose of the skill, focused assessment related to the skill, as well as the safe and confident demonstration of it. The communication and research aspects of the skills are also included. Student independent and laboratory practice, demonstrations and examinations are part of the course. Prerequisite: NURS 1030.

NURS 1030 Nursing Practicum 1

Students will be expected to provide knowledgeable and safe nursing care. The scope of nursing practice includes recognition and consideration of patient health needs when they enter the hospital as well as health needs which will require follow-up on discharge. Context of practice Adult Medicine. Prerequisite: NURS 1019. Corequisite: NURS 1020.

NURS 1040 Professional Practice Seminar 1

Presents the concepts of the BCIT Nursing model and philosophy, professionalism and the professional association so that students will understand the professional basis of nursing practice. Computer work, projects, written assignments and discussions with peers and faculty are part of the course.

NURS 1050 Interpersonal Communication

Presents the components of healing communication from a nursing perspective including caregiver predisposition qualities, and caregiver skills. Simulated patients, student video demonstrations of own communication ability, laboratory exercises, independent study, and discussions with peers and faculty are part of the course.

NURS 1060 Pharmacology

Presents important concepts and principles related to pharmacology. The course will assist students to relate drug action(s) to patient physiology and/or pathophysiology and to anticipate effects based on this understanding. Nursing interventions related to monitoring patient response to drugs will be emphasised. Nursing's role in health promotion and patient teaching will be discussed. Drug classifications will be presented to assist the learner to appreciate the scope of pharmacological treatment and to assist the learner to sort, categorize and retrieve information about selected drugs. Prerequisites: NURS 2000 and BHSC 2203.

NURS 1180 Patient Care 1 (MRAD)

This two-part Patient Care course introduces the student to the hospital environment, health problems of the patient, and the basic safety and comfort aspects to be considered when working with patients, carrying out a variety of procedures, and working with equipment in the patient's environment. The nursing lab is used to practise basic technical skills and procedures required when working with patients. Emphasis is placed upon behaviours and skills appropriate to the medical radiography technologist. This course is a required prerequisite for NURS 2180-Patient Care 2.

NURS 1181 Patient Care (NMED)

Assists the student to understand the hospital environment and the health problems of the patient. Emphasis will be placed upon observation and communication appropriate to the nuclear medicine technologist. The nursing lab will be used to practise basic technical skills and procedures required in emergency situations.

NURS 1182 Patient Care (BMED)

Introduces students to the hospital environment and the basic safety concepts of patient care. It includes observation and communication skills, body mechanics, fire safety and medical and surgical asepsis.

NURS 1183 Patient Care (PROR)

Assists the student to understand, describe, and implement specific patient care skills required to work effectively with patients in prosthetics and/or orthotics situations. The course addresses such topics as proper procedures for lifting or transferring patients, and appropriate interventions in emergency situations.

NURS 1184 Patient Care (ENPY)

Introduces students to the hospital environment and the basic safety concepts of patient care. It includes observation and communication skills, body mechanics, fire safety and medical and surgical asepsis.

NURS 2000 Applied Nursing Science 2

Students will explore selected common health problems in order to understand the impact this problem has for the individual, family, health care system and society. While developing their understanding, students will access information from a variety of sources including professionals in hospitals and in the community. A thorough exploration of the health problem/situation will assist students in developing a professional context from which they can plan nursing care. The teaching/learning strategy used in this course is problem-based learning. The health problems discussed in this course are arthritis/rheumatism, cancers, and gastrointestinal disorders. Prerequisite: NURS 1000.

NURS 2020 Clinical Techniques 2 Laboratory

Presents hands-on nursing skills related to relaxation therapies, surgical asepsis, wound care, injections, intravenous therapy, nasogastric tubes, suprapubic catheters and colostomy care and irrigations. Emphasis is placed on student understanding of the purpose of the skill, focused assessment related to the skill, as well as the safe and confident demonstration of it. The communication and research aspects of the skills are also included. Student independent and laboratory practice, demonstrations and examinations are part of the course. Prerequisite: NURS 1020. Corequisite: NURS 2030.

NURS 2030 Nursing Practicum 2

Students will be expected to provide knowledgeable and safe nursing care. The scope of nursing practice includes recognition and consideration of patient health needs when they enter the hospital as well as health needs which will require follow-up on discharge. Context of practice Adult Surgery. Prerequisites: NURS 1000, NURS 1020, NURS 1030 and NURS 1040.

NURS 2040 Professional Practice Seminar 2

Expands the concepts of specialization, technology as practice, nursing as art, research based practice, ethics, and legality so that students will continue to develop a professional role perspective. The concept of nursing theory and multidisciplinary team is introduced. Computer work, projects, written assignments, and discussions with other students, peers, and faculty are part of the course. Prerequisites: NURS 1040 and NURS 2030.

NURS 2180 Patient Care 2 (MRAD)

This second section of the two-part Patient Care course is a continuation of the material presented in NURS1180 Patient Care 1. The scheduling of content and classes is designed to complement the theory and skills required by the student in classes and practicum experiences offered through the Medical Radiography department. Prerequisite: NURS 1180.

NURS 3000 Applied Nursing Science 3

Students will explore selected common health problems in order to understand the impact this problem has for the individual, family, health care system and society. While developing their understanding, students will access information from a variety of sources including professionals in hospitals and in the community. A thorough exploration of the health problem/situation will assist students in developing a professional context from which they can plan nursing care. The teaching/learning strategy used in this course is problem-based learning. The common health problems discussed are pregnancy/ childbearing complications, gastro enteritis in children, and schizophrenia. Prerequisites: NURS 2000, ENG 1177 and BHSC 2203.

NURS 3020 Clinical Techniques 3 Laboratory

Laboratory presents hands-on nursing skills related to complex wound care, use of blood glucose monitors, blood products, central intravenous therapy saline locks and medications by push, catheterization, chest drainage, nasogastric and feeding tube insertion care, and pain management therapies. Emphasis is placed on student understanding of the purpose of the skill, focused assessment related to the skill, as well as the safe and confident demonstration of it. The communication and research aspects of the skills are also included. Student independent and laboratory practice, demonstrations and examinations are part of the course. Prerequisite: NURS 2020. Corequisite: NURS 4030.

NURS 3030 Nursing Practicum 3

Provides an opportunity for students to gain nursing experience in specialty units. Students will be expected to provide knowledgeable and safe nursing care. The scope of nursing practice includes recognition and consideration of patient health needs when they enter the hospital as well as health needs which will require follow-up on discharge. Context of practice Maternal Child Health, Adult Psychiatry. Prerequisites: NURS 1050, NURS 2000,

NURS 2020 and NURS 2030.

NURS 3032 Family Nursing Theory

Introduces information regarding the healthy development of families, and how nurses may support and facilitate this process. Focus is placed on novice level assessment, planning and intervention, within the context of family, partnerships developed with stable child bearing and/or child rearing families in the community. Prerequisites: NURS 1040, NURS 1050, NURS 2000, NURS 2030 and PSYC 1101 or Sociology.

NURS 3034 Family Practicum

Focuses on the nursing experience in perinatal nursing and nursing with families with a hospitalized child. The scope of nursing practice includes consideration of health promotion and illness prevention within the context of family. Emphasis is on assessment of stable clients/families and the provision of knowledgeable, safe nursing care. With consultation and assistance, nursing care to clients/families with unstable health issues may be experienced. Prerequisites: NURS 2000, NURS 2020, NURS 2030, NURS 1050 and BHSC 2203. Corequisite: NURS 3032.

NURS 3036 Mental Health Issues in Nursing Practice

A seminar course focusing on selected theory and mental health issues encountered in nursing practice. Mental health will be viewed as a key dimension of optimal health. Emphasis is placed on theory related to recognition and appropriate nursing care of clients whose mental health is threatened by physical illness, mental illness, losses, personality traits/disorders and developmental challenges. Prerequisites: NURS 1050 and PSYC 1101 or Sociology.

NURS 3038 Mental Health Nursing Practicum

Focuses on nursing care of clients who are experiencing changes in their mental health and who require hospitalization and follow up care and/or support in the community. Emphasis is placed on developing knowledge, skills and attitudes relevant to the provision of holistic care of clients in all nursing contexts. Prerequisites: NURS 1050 and NURS 2030, PSYC 1101 or Sociology. Corequisite: NURS 3036.

NURS 4000 Applied Nursing Science 4

Students explore selected common health problems to understand the impact they have for the individual, family, health care system and society. While developing their understanding, students will access information from a variety of sources including professionals in hospitals and in the community. A thorough exploration of the health problem/situation will assist students in developing a professional context from which they can plan nursing care. The teaching/learning strategy used in this course is problem based learning. The common health problems discussed are accidents, diabetes, dementia, and system failure. Prerequisite: NURS 3000.

NURS 4030 Nursing Practicum 4

This practicum experience will occur on a variety of units which may have a specialized focus. Students will be expected to provide knowledgeable and safe nursing care. The scope of nursing practice includes recognition and consideration of patient health needs when they enter the hospital as well as health needs which will require follow-up on discharge. Context of practice Adult Medicine and Surgery. Prerequisites: NURS 3000, NURS 3032, NURS 3034, NURS 3036, NURS 3038 and BHSC 3329.

NURS 4530 Nursing Practicum 5

This practicum experience will occur in a variety of institutions throughout the Lower Mainland and in a variety of units within those institutions. The units may be specialized in focus. Working in collaboration with the RN preceptor, the students are expected to assume the workload and professionalism of a beginning RN by the end of the practicum experience. Prerequisites: all Level 1-4 courses.

NURS 7030 Nursing Practicum 6

This practicum course will occur in a variety of institutions throughout the lower mainland and in a variety of units within those institutions. The units may be specialized in focus. Working in collaboration with a RN preceptor, students are expected to manage the clinical aspects of planning, implementing and evaluating nursing care for a group of patients within the preceptor's case load. Current CPR (two person) certificate required. Prerequisites: NURS 1060, NURS 2040, NURS 4000 and NURS 4030.

NURS 7050 Communication for Effective Leadership and Management

In many settings, nursing professionals are front-line managers around-the-clock. They are expected to assume both formal and informal leadership and management roles and respond immediately in difficult situations. In this course, students will build on their interpersonal self-awareness and understanding of interpersonal context, skills and attitudes to learn to evaluate and respond to challenging interpersonal situations with health care consumers and coworkers that potentially pose risks at all levels (consumer, staff, and the organization). Students learn to recognize varying expressions of anger, powerlessness, hopelessness, grief, conflict and resistance and to choose effective strategies to increase safety and operational performance. They learn how to use communication strategies that foster trust, mutual respect and partnership; that resolve conflict; and that encourage a safe and productive working environment. Prerequisite: NURS 1050.

NURS 7100 Community Nursing: Partnerships in Health

Examines multiple perspectives of community, community health and partnership. Concepts such as power, expertise, primary health-care and health promotion are critically examined. Using a consultative approach, a community analysis strategy to examine health for a chosen community is created. This is a directed studies course. Prerequisites: NURS 2040, NURS 3020, NURS 4000 and NURS 4030.

NURS 7130 Nursing Practicum 7: Community Continuing Care

Students will gain nursing experience in providing continuing care to children, adolescents and adults in the community. Student will be expected to provide knowledgeable and safe nursing care to prevent illness and injury, promote rehabilitation and foster self-care. The scope of nursing practice includes collaboration with clients and families to identify health issues, appropriate care and relevant resources. The impact of hospitalization on the client, family and community is considered. Prerequisites: NURS 7030, NURS 7050, NURS 7100 and current CPT (2 person) certificate. Corequisite: NSSC 8800.

NURS 8000 Systematic Inquiry

Engages students in a process of systematic inquiry to enhance ability to create and use knowledge from a variety of sources. Acute care nursing, rehabilitation, illness and injury prevention, client self-care and formal research are the topics considered. A project provides the opportunity to build a partnership with health care professionals and use the systematic inquiry process to influence knowledge-based practice in health care. Prerequisite: LIBS 7001. Corequisite: 8130.

NURS 8130 Nursing Practicum 8: Specialty Focus

Students gain nursing experience in tertiary care units that offer specialized care to adults. Students are expected to provide knowledgeable and safe nursing care that incorporates illness and injury prevention, rehabilitation, and promotion of client self-care. The scope of nursing practice includes analysis of patient health needs during hospitalization as well as health needs that will require follow-up in the community. Prerequisite: NURS 7030. Corequisite: NURS 8000.

NURS 8330 Nursing Practicum 9: Leadership

A preceptorship course focusing on the nursing care of people experiencing complex health issues requiring hospitalization. Students are expected to provide knowledgeable and safe nursing care to groups of clients. Also, they are expected to synthesize a process that helps them develop leadership skills and activities that occur as part of the nurse's role. Prerequisites: NURS 8130 and NURS 8000. Corequisite: NSSC 8300.

Occupational Health and Safety

OCHS 1143 OCHS Legislation

This recently updated introductory course explores the general concepts of legislation relevant to the safety field. Modules are included on the history of the Canadian legal system, claims management, safety policies, the concept of workers' compensation, structure of the workers' compensation system, the OH&S systems in the United States and world-wide, and safety resource organizations.

OCHS 1161 Principles of Loss Management

This introductory course includes a history of the safety movement, accident investigation, job safety analysis, inspections, management of an occupational health and safety program, leadership and ethics in the safety profession, safety committees, how to maintain interest in safety, safety training, how to deal with safety issues in the workplace, and off-the-job safety.

OCHS 1262 Hazardous Materials Management

This course introduces legislation regulating hazardous materials in the workplace and the environment. Areas of study include chemical hazards, WHMIS, Transportation of Dangerous Goods (TDG), emergency preparedness, disaster planning and recovery, asbestos management and lead abatement.

OCHS 1300 Ergonomics

This timely course covers human factors in the scientific study of people at work, especially worker safety, health, efficiency and comfort. Recent trends in the ergonomics field are introduced including physical working environment, adaptation of tools and the workplace to the worker, equipment design, impact on productivity, and involvement of workers and management.

OCHS 1433 Introduction to Safety for Human Resources

This course is an introduction to the field of occupational health and safety for Human Resource Professionals. Students examine a broad range of safety topics and participate in the application of several safety functions, such as an inspection, accident investigation and safety committee meeting. The requirements for a successful safety program, integrated into the company business plan, are discussed; while the legal, economic and humanistic reasons for doing so are explored. Additional topics covered include WHMIS, claims management, workers' compensation, fire protection and due diligence.

OCHS 1441 Introduction to Safety for Operations Management

This course is an introduction to the field of occupational health and safety for operations managers. Students examine a broad range of safety topics and participate in the application of several safety functions, such as an inspection, accident investigation and safety committee meeting. The requirements for a successful safety program, integrated into the company business plan, are discussed; while the legal, economic and humanistic reasons for doing so are explored. Additional topics covered include WHMIS, lock-out, confined spaces, workers' compensation, fire protection and due diligence.

OCHS 1460 Fire Prevention & Security

This course introduces the chemistry of fire, fire hazards and causes, fire statistics, flammable and combustible liquids, fire codes and regulations, occupancy and construction considerations for fire safety. The practical component of this course includes fire detection systems, portable fire extinguishers, automatic sprinkler systems, hydrant testing, fire alarms, chemical hazards, and electrical hazards. An additional segment of the course examines the security aspects of a safety program including the security survey, alarms, perimeter security, security personnel, threat assessment, and training requirements.

OCHS 1555 Environmental Management

This course examines environmental law in Canada and explores current trends including air, water, and soil quality, municipal and hazardous waste management, and the environmental assessment process. Current environmental issues, with a particular emphasis on B.C. industries, are studied in depth. The roles and impact of the media, partisan politics, and the public are also discussed.

OCHS 2272 Safety Engineering & Training

This course covers accident prevention planning and training strategies for industrial operations. It explores the technical aspects, legal requirements and standard practices in areas such as lock-out, confined space entry, respiratory protection, PPE, equipment guarding, electrical safety, lighting, mobile equipment, work platforms, welding operations, and fall protection.

OCHS 3359 Risk Management

This course deals with the concepts of loss control and risk management. It covers definitions, methods and parameters for dealing with risk, principles of insurance, how to obtain the best insurance coverage at the lowest cost, cost benefit analysis, product liability, how to measure the state of safety in an organization, and an introduction to fault tree analysis.

OCHS 3371 Safety in the Workplace

This applied course explores safety in specific workplace settings including construction, forestry and lumber, manufacturing, materials handling, transportation, health care, natural resources, retail and public service. Visits to these work sites provide students with first-hand knowledge of the hazards encountered in industry and the controls that are in place to reduce those hazards.

OCHS 4458 Safety Program Review

Students in this course complete an applied assignment by evaluating the state of safety in an organization. Each student conducts a thorough Safety Program Review at a client of their choice and produces a comprehensive report that identifies the firm's strengths and areas where improvements are needed. The students make recommendations to achieve these improvements and present a summary of the SPR to the client and their instructors near the end of the term. After the SPR report is complete, the student implements a segment of the recommendations as agreed upon by the student, client and BCIT instructors. Prerequisite: COMM 3388.

Operations Management

OPMT 0341 Problems Lab for Operations Management

This course is intended to supplement the Operations Management course (OPMT 1103). Field trips, graduate guest speakers plus various classroom activities will enhance the students perspective of operations management.

OPMT 1100 Introduction to Operations Management

Operations management may be defined as the design, operation and improvement of the production systems that create the firm's products or services. Demand for quality, time-based competition, and international production has demonstrated the importance of operations management to the survival of the firm. This course will develop an appreciation for the challenge of operations, and an understanding of the impact of operations on corporate strategy.

OPMT 1103 Introduction to Operations Management

Operations management may be defined as the design, operation and improvement of the production systems that create the firm's products or services. Demand for quality, time-based competition and international production has demonstrated the importance of operations management to the survival of the firm. This course will develop an appreciation for the challenge of operations, and an understanding of the impact of these operations on corporate strategy.

OPMT 1108 Applied Mathematics for Business/Industry

Covers business uses of arithmetic, algebra, functions, simple interest, compound interest, the concept of present value, annuities, mortgages, sinking funds, depreciation methods and techniques used in evaluating investment decisions.

OPMT 1110 Business Mathematics

Reviews basic mathematics applicable to business and industry. Topics include consumer and commercial credit, simple and compound interest, financial instruments and discounting, annuities, mortgages, loans, sinking funds, leases, depreciation methods, capitalized costs, cash flow analysis, NPV and IRR. Emphasis is on maximum use of preprogrammed calculator and practical applications from the field of financial management.

OPMT 1113 Applied Mathematics

Splits material covered into three sections. The first portion of the course includes positional numbering systems, binary arithmetic and an introduction to Boolean Algebra as it relates to operation of digital computers. The second phase reviews and applies the concepts of linear, quadratic and exponential functions, including logarithms. These will be applied to financial and industrial problems. The third phase will cover matrices and determinants.

OPMT 1119 Information Systems

This course is intended as an introduction to information systems using a PC environment. Aspects of hardware, software, data structure and management, computer networks, communications basics and security procedures will be discussed. The use of operating systems (DOS and Windows) and application software (word processing, spreadsheets and databases) relevant to other courses and the workplace will give students hands-on experience.

OPMT 1121 Business Statistics

Covers fundamental statistics used in business and industry. Topics include descriptive statistics, probability theory and major distributions, sampling, estimation, tests of hypotheses, correlation and linear regression. Calculation is done using spreadsheets.

OPMT 1130 Business Statistics

Includes descriptive statistics, including numerical and graphical presentation of data, measures of central tendency and dispersion, elementary probability, index numbers and time series. Introduction to inferential statistics through selected topics such as sampling, confidence limits of the mean, hypotheses testing and simple linear regression. Spreadsheets are used for calculations.

OPMT 1133 Statistics in Industry

Provides fundamentals of descriptive statistics and an introduction to inferential statistics. Inferential statistics include probability theory; sampling and sampling distributions; estimation; hypothesis testing; linear regression and correlation analysis using a computer package.

OPMT 1164 Management Engineering 1

This course is intended to present to the Wood Products Manufacturing students, a systematic approach to productivity improvement. The students will be introduced to the field of Total Quality Management (TQM) and Process Improvement. An emphasis will be placed on team problem solving approaches and the development of teamwork skills.

OPMT 1165 Project Management

This is an introductory course in project management and covers the fundamental principles for success. The skills, tools and techniques required to balance the competing demands of project scope, time, cost and quality will be reviewed. Major topics include terminology, statement of work, work breakdown structure, CPM and charts. Prerequisite: ELEX 4330.

OPMT 1170 Project Management

This is an introductory course in project management and covers the fundamental principles for success. The skills, tools, and techniques required to balance the competing demands of project scope, time, cost and quality will be reviewed. Major topics include terminology, statement of work, work breakdown structure, CPM and Gantt charts.

OPMT 1171 Materials Management

Covers the tools, procedures and philosophies that are used to plan, schedule and control manufacturing activities. Topics include inventory concepts, independent demand inventory systems, product planning, capacity planning, production and staffing plans, master production scheduling, material requirements planning and operations scheduling. M.R.P. II and Just-in-time/Total Quality Control are introduced.

OPMT 1180 Introduction to Engineering Economics

This course provides the student with an appreciation of the common financial practices of business and an insight into the approaches used in making sound economic decisions. Topics include financial statements and analysis, capital budgeting and financial decisions.

OPMT 1182 Total Quality Management

This course will equip mechanical technology graduates with the skills to institute productivity improvement in a manufacturing environment. They will be effective in assisting organizations to achieve continuous improvement. These firms will be able to successfully achieve ISO 9000 registration certification.

OPMT 1184 Industrial Engineering

Surveys the general background of operations management in terms of planning and organizing manufacturing operations. Topics include facilities planning, layout, and location, problem solving, continuous improvement, team practices, projects planning and scheduling, and production and inventory control.

OPMT 1197 Statistics for Business and Industry

A comprehensive study of elementary statistical methods as applied to objective decision-making. Suitable for persons requiring statistics in initiate market research, audit sampling, control quality, control inventory and forecast business. The course includes an introduction to the use of statistics in business and industry; descriptive statistical techniques, collection and treatment of data; a review of elementary set theory and probability; interential statistical topics sampling, estimation, hypothesis testing, goodness of fit, regression analysis, correlation and time series analysis.

OPMT 1200 Operations Management Fundamentals

This course prepares students for direct entry into second year of the Operations Management program. Major topics include the problem solving cycle, quality tools, activity sampling, cost/benefit analysis, layout planning, process mapping, interviewing for information, inventory management and team skills.

OPMT 1208 Applied Statistics for Business/Industry

Covers fundamental statistics used in business and industry. Topics include descriptive statistics, probability theory and major distributions, sampling, confidence intervals, tests of hypotheses, applications to quality control, correlation and linear regression. Calculations are done using spreadsheets.

OPMT 1243 Introduction to Computing

This course is intended as an introduction to information systems using a PC environment. The use of operating systems and application software (word processing, spreadsheets and databases) relevant to other courses and the workplace will give students hands-on experience.

OPMT 1250 Inventory Management

Introduces students to the first of several materials management courses. This course includes inventory management objectives, types forecasting, calculating order quantity, ordering models, and safety stock considerations.

OPMT 1260 Management Engineering 1

This course provides the student with an appreciation of the common financial practices of business and an insight into the approaches used in making sound economic decisions. Topics include financial statements and analysis, capital budgeting and financial decisions.

OPMT 1319 Statistics for Broadcasters

Presents a customized statistics course, designed to introduce broadcasting students to the world of collecting, summarizing and treating data to facilitate its use and comprehension. Forecasting techniques are discussed, along with measurement procedures employed in opinion polling and broadcast ratings systems.

OPMT 1343 Operations Management for Food Technology

This course will give students a basic understanding of how operations management is applied in modern food manufacturing and service industries to improve operational performance. The student will do field studies in the food industry to evaluate how an existing company defines, plans, measure and manages productivity and other key performance indicators.

OPMT 1404 Warehouse & Purchasing Management

Provides a fundamental knowledge of the functions and role of warehousing and purchasing in the logistics chain. Topics include performance standards, inventory management, distribution requirements handling, advanced applications of EOQ formulae, material management, customer service, and the basic components of cost trade-offs through the use of case studies.

OPMT 1411 Production Engineering Management

This basic level course is intended to survey the general background of production planning and control, and materials management from the supplier through to the consumer. Major topics include the production planning system (MRP II), mater production scheduling, capacity management, production activity control, purchasing, forecasting, inventory fundamentals, independent demand inventory and physical inventory warehousing and distribution.

OPMT 1445 Quality Assurance Services

Begins with an overview of quality assurance principles applicable to manufacturing and shows the development of similar concepts for the service industries. The emphasis is then placed on quality management of various aspects of transportation and logistics as a key service industry. Topics include quality assurance fundamentals for service industries, quality control planning and activities for operating equipment (trucks, aircraft); quality maintenance of goods in transit; QA support or purchasing and the evaluation of suppliers; service quality at distribution centres; quality management and transportation aspects of overseas procurement. The topics will be covered by class discussion, lecture, video and student presentations.

OPMT 1510 Business Mathematics

Review of basic mathematics applicable to business and industry; mathematics of finance, including retail operations, simple and compound interest, discounts, annuities, financial papers and depreciation methods. Emphasis is on practical applications to business administration.

OPMT 1600 Computer Applications 1

Begins the process of teaching the business student to appreciate the microcomputer as an aid to management. The course provides an introduction to basic business software, which may include one or more of the following; MS Windows, MS Word, MS Excel, MS Access, the Internet and the worldwide Web.

OPMT 2170 Industrial Engineering

The goal of the course is to provide the Management Systems student with an industrial engineering approach to problem solving and decision-making. The course material is divided into four main sections; productivity and production processes, improving existing operations, deciding future operations, and operations strategy and Organization. Prerequisite: OPMT 1110.

OPMT 2172 Applied Management Engineering

Introduces additional industrial engineering techniques used to analyse and improve workplace processes. The course focuses on application of the techniques to realistic case materials. Tools include activity sampling, critical examination, process charting, cause and effect diagrams, systematic layout planning, work measurement, ergonomics and performance measurements. The course reinforces the systematic problem solving approach and teamwork skills introduced in first year core courses. Prerequisite: OPMT 1100.

OPMT 2209 Spreadsheet Applications

Begins with a brief review of the introductory Windows and Excel concepts presented in COMP 1104. Then, the student will be introduced to more advanced Excel commands and applications (larger and more professional worksheets, built-in functions, graphics, database, macros, transferring data to word processing documents). Prerequisite: COMP 1104.

OPMT 2240 Quality Management

This course is the second of three *interlinked courses* in the Operations Management stream. Students will build on skills acquired in OPMT 1140 and develop further aptitude in quality management techniques. Teamwork will be used both as a teaching strategy and as a learning outcome to give students facility in this method of problem solution. Prerequisite: OPMT 1140.

OPMT 2264 Management Engineering 2 for Wood Products

This is a directed studies course where the student selects, as a team project, a study area within an industrial operation to apply the wood products manufacturing and productivity improvement techniques learned in OPMT 1164. The student will develop a Terms of Reference defining the study area, gather data, analyse the current situation and develop solutions for recommendations to management. Findings will be presented in an oral presentation and in a final written report. Prerequisite: OPMT 1164.

OPMT 2265 Business Process Management

Introduces several analytical tools that support structured approach to problem solving with a view to improving the quality and productivity of business processes. This course builds on concepts learned in OPMT 1140 and introduces additional problem-solving tools from the fields of business analysis, systems analysis and business process reengineering. Topics include understanding the purposes and characteristics of business processes, identifying the information requirements at different organizational levels, appreciating the strategic issues that drive organizations to implement a business process improvement or re-engineering approach to solve problems, mapping processes, applying a structured methodology to solve business problems, developing a purposes hierarchy, interviewing for information and developing questionnaires. Students are required to demonstrate effective teamwork skills in course project work. Prerequisite: OPMT 1140.

OPMT 2360 Material/Capacity Requirements Planning

Introduces the Material Requirements Planning (MRP) and Capacity Requirements Planning (CPR) applications and places them in the context of a manufacturing system. Topics include a manufacturing system model, Master Production Schedule (MPS), bills of material, logic of MRP, CRP objectives, infinite vs finite loading, capacity calculations, and measuring performance. Prerequisite: OPMT 1250.

OPMT 2650 Computer Applications 2

This course builds on OPMT 1600 by expanding on the managerial approach developed in that course. Currently the course concentrates on spreadsheet management tasks using a popular spreadsheet package (MS Excel).
Prerequisite: OPMT 1600.

OPMT 2660 Computer Applications 3

This course builds on OPMT 2650. Topics will include an introduction to database management and other software applications specific to the program.
Prerequisite: OPMT 1600.

OPMT 3301 Quantitative Methods

Introduces the solution of more complex business problems by mathematical processes. Forecasting methods are examined with computerized analysis of data. Aspects of management science that are particularly useful in the transportation business are examined manually and through the computer. These include linear programming, the transportation model, simulation, and waiting line analysis. The major emphasis is on interpretation of results and preparation of management oriented reports. Prerequisites: OPMT 1121 and OPMT 2253.

OPMT 3308 Quantitative Business Analysis

This course is designed to increase quantitative problem solving skills. It will focus on the use of business and industrial models. Topics include decision analysis, time series forecasting, quality control charts and sampling, multiple regression. Prerequisites: OPMT 1108, OPMT 1208 and OPMT 2650.

OPMT 3341 Process Improvement Project

Builds on the foundation established in OPMT 1140, OPMT 2240 and OPMT 2265. Continues the focus on the tools and techniques used to improve operations in both the industrial and service sectors of the economy. Total Quality Management (TQM) philosophies will be applied to a field project at BCIT. Prerequisites: COMM 1100, COMP 1104, MECH 1801, OPMT 1108, OPMT 1140, COMM 2200, MECH 1910, OPMT 1208, OPMT 1250, OPMT 2209, OPMT 2240 and OPMT 2265.

OPMT 3344 Information Technologies

Enables the student to understand the role of information automation in the productivity improvement process. Topics include examining the application of Electronic Data Interchange (EDI), LANS, bar coding, and the use of the Internet and Intranet, to improve business operations. Prerequisites: OPMT 2209 and OPMT 2265.

OPMT 3353 Microcomputer Applications: Database

Examines the need for automating an information storage and retrieval system. A case study is analysed and a menu-driven system is developed using a standard relational database package. Topics include database creation, editing, querying; building custom reports, custom screens and labels; indexing, building multiple file relations; and fundamentals of structured programming. Prerequisite: OPMT 2209.

OPMT 3361 Database Applications

Introduces computerized management information systems and the use of industry-standard software to meet the reporting needs of management and provide decision support. Prerequisite: OPMT 2209.

OPMT 3445 Project Management

Introduces the fundamentals of project management. Includes the unique characteristics of projects and fundamentals of project planning using techniques such as WBS, Gantt charts, CPM, dealing with people and team issues, maintenance and control of projects using check points and milestones, communication, and common sources of difficulty in project management. Use of MS Project.

OPMT 3460 Just-In-Time Manufacturing

This course describes and analyses how manufacturing companies are achieving improved performance by producing in smaller quantities Just-In-Time (JIT) to meet customer demand. Explanation of the Theory of Constraints and its relationship to JIT is covered. Development of TOC as a manufacturing philosophy is explained using a computer simulation model. Topics include set up reduction, pull systems, work cells, housekeeping, and drum-buffer-rope scheduling. Prerequisite: OPMT 2360.

OPMT 3560 Systems Analysis

By examining problem solving tools and techniques, this course aims to improve the effectiveness of the student in the workplace. This course is done in a workshop type environment, with practical case application. Topics include modern management techniques, teamwork, meetings, decision-making, structured problem solving, data gathering and analysis, and effective presentation of solutions.

OPMT 4300 Quantitative Analysis for Finance

This course is designed to increase quantitative problem solving skills. It will focus on the use of business and industrial models. Topics include decision analysis, time series forecasting, multiple regression, linear programming. Prerequisite: OPMT 1130 with a grade of at least 60 per cent.

OPMT 4408 Math Models for Decision-making

Continues from OPMT 3308. Topics include additional decision analysis, linear programming, simulation and queuing theory. Prerequisite: OPMT 3308.

OPMT 4438 Entrepreneurial Business Plan Development

Examines the planning stages involved in starting a new business including market, financial, and legal feasibility requirements. The student develops a full business plan. Prerequisites: OPMT 4437 and MKTG 1115.

OPMT 4440 Implementing Quality Systems

Previous courses have concentrated on the development of improved processes. This course deals with implementing the improved process. Topics include understanding the need for change, the change process, common change tools, and techniques. Prerequisite: OPMT 3341.

OPMT 4449 Industry Project

Presents the capstone course. A major industry project will be conducted three days per week. The student must demonstrate the application of Operations Management principles and techniques to solve an industry problem. Prerequisites: All Level 1, 2, 3 courses.

OPMT 4460 Purchasing

Examines the principles and practices of procurement for both manufacturing and service organizations. Topics include procurement objectives, information systems, specification determination, supplier selection, pricing, negotiation, and disposal. Current practices such as vendor managed inventories and supplier partnerships will be presented.

OPMT 4469 Online Business Applications

Covers current computer technologies and services which can be used to increase the productivity of an organization. The course begins with a continuation of the relational database application development initiated in the OPMT 3353. Industry standard Internet software (Netscape) will be used to carry out business research online and construct simple Web pages. The latter part of the course focuses on electronic commerce theory and applications. A selection of leading edge computer issues will be examined. Emphasis is on material which relates to international trade and transportation logistics and ties in with the industry project course. Prerequisite: OPMT 3353.

OPMT 4560 Logistics

Logistics embraces all activities involved in physically acquiring, moving and storing raw material, work in progress, and finished goods from point of origin to customers. This course introduces students to current logistics issues and the impact of logistics on profitability. Topics include the supply chain concept including customer service, protective packaging and material handling, traffic function, and warehouse management. Prerequisite: OPMT 2360.

OPMT 5701 Calculus for Management

Introduces the concepts of differential and integral calculus as applied to problems in business and management. Limits, definition of derivative, differentiation of polynomials, exponential and logarithmic functions, with applications to curve sketching, maxima and minima. Integration of the above functions with application to economics and probability. Prerequisite: OPMT 5700 or MATH 12.

OPMT 5740 Integrated MIS

This course will review the use of computers in modern companies. We will explore hardware, software, systems and implementation issues. Students will learn the different types of computer systems, how they interact with telecommunications networks and how they contribute to productivity.

OPMT 5751 Math Models for Business

Presents a second course in the application of statistical methods to business problems. The course will provide detailed theoretical understanding and practical applications of two of the most commonly used techniques in mathematical modeling: Linear Regression and Time Series Analysis. You will learn how to view business situations as mathematical models and formulate the equations required for the model solution. Extensive lab work using computer software will lead to theoretical solutions. You will then learn how to interpret these solutions as a guide to practical management action. The course provides the opportunity to use and evaluate current software.

OPMT 7021 Quality Assurance

This course provides the student with the tools necessary to design and manage a quality program within a manufacturing environment. Topics include applying the principles of total quality management, classifying quality costs and their impact on business profits, applying team work skills to form teams to improve quality, and an overview of the ISO9000 standards and registration process. Prerequisite: Enrolment in ADP Mechanical Technology Degree program attribute block.

OPMT 7023 Material Logistics

In this course students will learn the tools for planning, scheduling, control and optimization of the supply of materials to support various manufacturing processes. The Theory of Constraints is taught using the case studies related to major automotive manufacturers. The methods of procuring goods and services to meet the quantity, quality and price requirements are illustrated using typical industrial processes. The techniques of Just-in-Time and "Kanban" for inventory and work in process control are reviewed. The manufacturing excellence techniques such as signaling systems, partnering with suppliers, and point-of-use storage are discussed and illustrated using industrial case studies. Prerequisite: MECH 1210.

OPMT 7026 Manufacturing Information Systems

This course reviews various computer applications used in a manufacturing enterprise and the integration of these systems. Students will design information flow, so that appropriate data is delivered to the correct responsibility level, use information systems to gather data on cost, quality and delivery to schedule, derive from the information system economic justification for improvements. Prerequisite: OPMT 7013.

OPMT 8015 Manufacturing Facility Layout/Analysis

In this course, students will design and analyse low and high volume manufacturing facilities. Topics include factors affecting layout, product and process focus, line-balancing, and computerized layout packages such as ALDEP, PLANET, and CRAFT. Prerequisite: Enrolment in ADP Mechanical Technology Degree program attribute block.

OPMT 8021 Design of Experiments

This course starts with an introduction of the basic tools of descriptive statistics, including some properties of Normal Distribution, following with methods of data collection, presentation and analysis. The tools of problem solving for process improvement and the features and phases of efficient experiments are presented. The Design of Experiments (DOE) methods include designs with one variable, two-level factorial designs (full and partial), and Response Surface Methodology. The methods of empirical models building, testing and assessment using Analysis of Variance (ANOVA), and use of the models for process and product optimization are lectured and exercised. Design Expert 5 statistical software is used throughout the course. Prerequisites: MTEC 7017 and OPMT 7021.

Organizational Behaviour

ORGB 1100 Organizational Behaviour

Presents the study of factors that either influence or are influenced by people at work. The course will focus on macro factors such as organizational structure, technology and environment; group factors such as group dynamics, leadership, conflict, change and decision-making; and micro or individual factors such as personality, attitudes, perception and motivation.

ORGB 2100 Organizational Behaviour

Presents the study of factors that either influence or are influenced by people at work. The course will focus on macro factors such as organizational structure, technology and environment; group factors such as group dynamics, leadership, conflict, change and decision-making; and micro or individual factors such as personality, attitudes, perception and motivation.

ORGB 2110 Organizational Behaviour

Helps the student become more effective in dealing with the human element in a business enterprise. Topics include individual factors such as personality, attitudes, perception and motivation; group factors such as communication, leadership, power and politics, group dynamics and conflict; and examples of organizational factors such as organizational structure and culture and managing change.

ORGB 2205 Organizational Behaviour 1

Develops skills to understand and participate in the dynamics and evolution of modern organizations. Topics include the determinants of individual behaviour perceptions, attitudes, learning, motivation, individual decision-making and communication. Prerequisites: BUSA 1005 and BUSA 2105 or BUSA 1005 and BUSA 2005.

ORGB 2510 Interpersonal Relationships

Explores the importance of harmonious relationships and the skills and methods for achieving them. Broadcasting involves unusually close interaction among its participants who work together to provide information, entertainment and revenues.

ORGB 3600 Leadership & Change

This course is organized to provide students with comprehensive and behavioural understanding of organization development, change and leadership models in working more effectively in the business world. It will deal with managing change in organizations, applying change models, interventions and evaluation of the process. Upon completion the student will have developed behavioural knowledge in: changing individual, small group and organizational behaviours, change facilitation, leadership skills, negotiation skills and teamwork. Students will also learn how other organizations manage change through effective leadership, conflict resolution and problem solving techniques. Students will also study some of history's great leaders, as well as major historical events. Prerequisite: ORGB 2100 or ORGB 2105 or ORGB 2200.

ORGB 5600 Management of Change

Extends analysis of human behaviour in the organization toward development of models in the decision-making process. The extended analysis will encompass the development or organizations toward open systems capable of effective responses of change.

Petroleum

PETR 1101 Petroleum Geology

Relates historical and physical geology to the formation, migration and accumulation of economically producible oil and gas fields and the basic processes required to locate and produce these accumulations. Emphasis is placed on the practical utilization of computer-based technology in this field.

PETR 1102 Properties of Reservoir Fluids

Introduces the chemical composition and physical properties of natural gas and crude oil, and the phase behaviour these fluids exhibit during production from a reservoir. Some elementary applications of reservoir flow characteristics are considered.

PETR 1308 Fuels

Examines alternative, conventional and substitute fossil fuels, the processes used to produce and handle such fuels, their utilization and the advantages and disadvantages of these fuels in relation to present-day conventional fuels.

PETR 2201 Field Production of Oil & Gas

Covers basic down-hole hydraulics and an introduction to reservoir analysis and production. Topics include drilling fluids, hydraulics, core analysis, reservoir fluid flow, PVT analysis, reserves determination, production techniques and enhanced recovery techniques. A project related to reserves determination will be assigned during the term. Prerequisite: PETR 1101 or departmental approval.

PETR 2202 Field Handling of Oil & Gas/Gas Processing

Covers the handling of crude oil and natural gas from the wellhead to the transmission pipeline. Field handling to include fluid stabilization, gas separation, hydrate control, emulsion treating, well effluent recombination calculations. Gas processing covers sweetening, sulphur recovery, dehydration and natural gas liquids recovery. A technical report with oral presentation is required. Prerequisite: PETR 1102 or departmental approval.

PETR 2404 Computer Simulation & Control

Presents a course in basic computer simulation and control techniques. Emphasis is on practical input/output applications. Topics include concept of computer control, input/output software and hardware, interfacing, analog/digital conversions and practical applications. Students will have hands-on experience with current petroleum-oriented computer programs.

PETR 3300 Petroleum Technology Sketching

Introduces process flow sheets of gas processing plants, piping and instrumentation drawings of pressure vessels, inlet heaters and valving. Prepare material lists and specify materials in accordance with Canadian Standards. Prerequisites: PETR 2211 and PETR 2202 or departmental approval.

PETR 3306 Reservoir Evaluation

Presents an advanced course in the application of reservoir fluids, production and processing of oil and gas. The first half of the course provides students with methods of estimating oil and gas reserves, and costs associated with obtaining and producing such reserves. The second half of the course translates the production rates and costs to present worth value and profitability of an oil and gas property. Students are required to evaluate three oil and gas properties as the final project. Prerequisites: PETR 2201 and PETR 2202 or departmental approval.

PETR 3307 Pipeline Transmission

Covers the basic skills required for a student to enter a gas transmission company. Topics include gas quality measurement, control, pipeline design and construction, corrosion control, testing and compressor station operations. Emphasis is placed on adherence to the Canadian Safety Code of Pipelines. Practical utilization of computer technology in this field is stressed. Prerequisite: PETR 2202 or departmental approval.

PETR 4403 Process Dynamics

Introduces a practical and effective computer-based approach for studying and evaluating "real-time" process control situations. The student is required to produce interim progress reports and a final, formal technical report at the end of the course. Topics include system dynamics, response time, control strategies, system optimization, system modeling, flow charting, transducer and control valve evaluation. Prerequisites: MATH 2471 and CHSC 3341 or departmental approval.

PETR 4406 Natural Gas Processing & Oil Refining

Deals with some of the fundamental concepts of sweet and sour natural gas processing. It is intended to give the student an understanding of designing well head facilities to process both sweet and sour natural gas by dehydration, processing and treating so that the gas will meet both water and hydrocarbon dewpoint control specifications for pipeline transmission. The second part of the course deals with refinery processing and testing of the products as per ASTM specifications. Prerequisite: PETR 3306 or departmental approval.

PETR 4407 Gas Distribution & Utilization

Introduces the distribution and utilization of natural gas. Topics include gas measurement, pressure regulation, design and construction of distribution systems, corrosion control, leak surveys, maintenance, gas contract control, peak shaving, burner design, customer relations, system design and operational codes. Prerequisite: PETR 3307 or departmental approval.

Physics

PHYS 0309 Pre-entry and Technology Entry Physics

Meets the Physics 11 entrance requirement for BCIT programs. A grade of 65 per cent or higher in this course meets the prerequisite for programs specifying a C+ in Physics. This course offers an introduction to Physics and its basic principles. Emphasis is placed on good problem solving techniques and practical applications relevant to BCIT. Topics include kinematics, dynamics, equilibrium, energy, fluids, heat, electrostatics and direct current circuits.

PHYS 1140 Applied Physics for Building 1

Designed to meet the specific needs of Building Engineering Technology. There is a lab component which includes the use of computer data analysis software. Topics include statics, kinematics, linear and rotational dynamics, work and energy, simple machines and the basic properties of solids and fluids.

PHYS 1141 Physics Chemical Sciences & Biotechnology 1

Covers a wide range of physical principles, with special relevance to Chemical Sciences Technology and Biotechnology. First term topics include kinematics, dynamics, friction, statics, energy, power, circular motion, properties of solids, and fluids.

PHYS 1142 Physics for Civil & Structural 1

This course extends the student's abilities to apply physical principles and the laws of physics to work in civil and structural technology. The focus is on problem solving, reporting experimental data with appropriate significant figures, analysing graphical information, and the study of kinematics, dynamics, statics, stress, strain, and simple machines.

PHYS 1143 Physics for Electronics 1

Covers translational and rotational motion, including statics, kinematics, force, torque, mechanical energy and power. Properties of matter, thermal energy and thermodynamics, simple harmonic motion including vibrations with particular reference to mechanical waves. Mathematic treatment requires algebra, trigonometry, and vectors. The laboratory program emphasises measurements, data analysis, and experimental techniques as they relate to the lecture material.

PHYS 1145 Physics for Food Technology 1

Introduces a wide variety of physical principles emphasising the applications of physics which are relevant to Food Technology. Develops skills in handling equipment, and the recording and reporting of data and results. Topics include kinematics, dynamics, work, energy, circular motion, and fluids.

PHYS 1146 Physics for Wood Products 1

Covers basic physical principles necessary for applications in the wood products industry. The course is primarily mechanics but also includes sections on properties of matter and fluids. Mechanics include kinematics, dynamics, vectors, statics, friction, energy, momentum, simple machines, circular motion, rotational kinematics and dynamic power transmission. Properties of matter include elasticity and ultimate strength of materials. Fluids include pressure, buoyancy, viscosity and fluid dynamics. The accompanying lab program emphasises measurement techniques, data analysis and concise report writing.

PHYS 1147 Physics for Mining/Petroleum 1

Covers data analysis, linear and rotational kinematics and dynamics, equilibrium, work, energy and power, stress and strain. The laboratory deals with the principles of measurement and the experimental method of acquiring knowledge.

PHYS 1151 Physics for Surveying 1

Includes light and optical instruments, kinematics, statics, dynamics, angular motion, energy, work properties of matter, temperature, thermal properties of matter, wave motion, basic electricity and magnetism and electronic distance measuring. The lab program stresses measurement, data analysis, experimental investigation of physical laws and technical report writing. Mathematical treatment requires only algebra and trigonometry.

PHYS 1162 Physics for Plastics Technology

Deals with basic concepts in linear and rotational kinematics/dynamics, electricity and magnetism, direct and alternating current circuits. General problem solving skills are emphasised and concept applications are discussed. Data acquisition and analysis are stressed in the laboratory.

PHYS 1164 Physics for Robotics 1

Emphasises topics of special relevance to robotics. Part 1: Measurement and data analysis. Part 2: Basic mechanics, including static equilibrium, work, energy, power, torque and rotational motion. Part 3: Electrical fields, electrical potential and basic electrical properties of materials.

PHYS 1178 Physics: Biomedical Engineering

Presents a general level course in basic physics with emphasis on applications. The topics are electric and magnetic fields, mechanics, waves, and fluids, with related applications.

PHYS 1274 Physics for Nuclear Medicine 1

Reviews units and energy and describes nuclear physics topics including atomic structure, X-rays, nuclear structure, nuclides, measures of radioactive decay, radioactive decay and modes of decay.

PHYS 1275 Physics: Medical Radiography 1

Physics of Medical Radiography is an introductory level course which emphasises the application of physical phenomena in medical radiography. Topics include structure of matter, introduction to X-ray production, introduction to X-ray attenuation, static electricity, direct and alternating current, and solid state. Wherever appropriate, the physics of devices such as X-ray tubes, the generator, ionization chamber, photomultiplier tube, TLD, imaging devices, etc. will be used to demonstrate applied physics.

PHYS 1282 Environmental Health Physics

This is an introductory level course with an emphasis on concepts, language and problem solving. The goal is to provide the student with an appreciation of basic physics in areas which relate to environmental health. These areas include soils and hydrogeology, water and sewage treatment, food preservation, air quality and human comfort, sound and noise, light and illumination, and nuclear radiation exposure. Prerequisite: MATH 1821.

PHYS 1284 Physics: Prosthetics and Orthotics

Emphasises biomechanics applications in prosthetics and orthotics. Covers mechanics and includes topics in kinematics, dynamics, statics, simple machines, energy and fluid mechanics. Measurement and problem solving techniques are stressed. The mathematical treatments require algebra and trigonometry.

PHYS 1288 Applied Physics 1 for OCHS

Studies basic physical principles and applies them to relevant situations in the OCHS technology. Topics include kinematics, vectors, dynamics, statics, friction, energy, and simple machines. The labs emphasise measurement, data analysis, and experimental techniques as they relate to the lecture material.

PHYS 2140 Applied Physics for Building 2

Designed to meet specific needs of the Building Engineering Technology. There is a lab component that includes use of computer data analysis software. Topics include thermodynamics (properties of gases, change of state, heat transfer, refrigeration and heat pumps), periodic motion (waves, SHM, sound), and electromagnetics (electrostatics, DC circuits, magnetism, induction, generators and motors, intro to AC) and light. Prerequisite: PHYS 1140.

PHYS 2141 Physics: Chemical Sciences & Biotechnology 2

Continues with heat electricity and magnetism and wave motion. Electricity and magnetism include electrostatics, DC circuits, magnetic fields, magnetic induction, AC circuits and semiconductors. Heat includes heat and temperature, heat transfer, ideal gases and thermodynamics. Wave motions includes light and sound. Mathematical treatment and lab procedures are continuations from the first term. Prerequisite: PHYS 1141.

PHYS 2142 Physics for Civil & Structural 2

This course will continue to apply physical properties to applications in Civil and Structural Technology. Concepts in fluid mechanics, thermal properties of matter, waves in elastic media, basic electricity and magnetism, instrumentation and the laser will be covered. A section on the application of geophysical exploration techniques used in the technology is included. Prerequisite: PHYS 1142.

PHYS 2143 Physics for Electronics 2

A continuing non-calculus course dealing with concepts in electrostatics, electrodynamics (elementary), magnetism, magnetic materials, LR circuits, geometrical optics (as it relates to fiber optics), electromagnetic waves, poynnting vector diffraction and interference of waves and relevant concepts of modern physics as they apply to solid state devices. The accompanying laboratory program emphasises measurement, data analysis and experimental techniques as they relate to lecture materials. Technological applications are identified throughout the course, where appropriate. Prerequisite: PHYS 1143 or equivalent.

PHYS 2145 Physics for Food Technology 2

Continues from PHYS 1145 with an emphasis on relevant physics principles and their applications. It reinforces and extends skills acquired in PHYS 1145. Topics include temperature, heat, thermodynamics, light, geometric and physical optics, electricity and magnetism. Labs emphasise measurement, data analysis, experimental techniques and report writing. Prerequisite: PHYS 1145.

PHYS 2146 Physics for Wood Products 2

Presents the second term of the physics course for Wood Products. Topics include thermal physics concepts such as calorimetry, thermal stress, heat transfer and dementary concepts in thermodynamics (ideal heat engine/ideal refrigerator/heat pump). Topics in electricity and magnetism include electrostatics, electric current flow, AC/DC circuits analysis and AC generators/ motors. Topics in wave motion include propagation of mechanical waves, sound and EM waves. The presentation is non-calculus and an effort is made to identify relevant technological applications of all concepts presented. The accompanying laboratory program builds on report writing skills and emphasises measurements/ data analysis. Prerequisite: PHYS 1146.

PHYS 2147 Physics for Mining/Petroleum 2

Covers behaviours of fluids, thermal properties of matter, waves, electricity, magnetism, electromagnetic induction, DC and AC circuits. The lab component is comprised of experiments to complement the lectures. Prerequisite: PHYS 1147.

PHYS 2149 Physics for Mechanical

Presents a general-level course covering the elements of wave motion, sound, light, basic electricity and magnetism. Prerequisite: MATH 1491.

PHYS 2151 Physics for Surveying 2

See PHYS 1151. Prerequisite: PHYS 1151.

PHYS 2164 Applied Physics 2 for Robotics

Emphasises topics of special relevance to robotics. Part 1: Semiconduction physics including the theory of operation of diodes. Part 2: Magnetism and electromagnetics with applications to robotic pickup systems and stepper motors. Part 3: thermal energy and thermodynamics. Part 4: Advanced mechanics with special emphasis on mechanical properties of matter, 3D force systems, stress and vibration. Prerequisites: PHYS 1164 and MATH 2342.

PHYS 2274 Physics for Nuclear Medicine 2

Continues the basic nuclear physics begun in PHYS 1274. Starts with a description of radiation interaction with matter and nuclear reactions. A foundation for instrumentation is made by covering static electricity, DC electricity, magnetism, and AC electricity. Instrumentation topics include a detailed study of scintillation detectors and an introduction to gamma cameras. Prerequisite: PHYS 1274.

PHYS 2275 Physics: Medical Radiography 2

Continues the Physics of X-rays started in PHYS 1275. Topics covered are X-ray generators, electromagnetic radiation, X-ray production, X-ray attenuation and X-ray tube design. Prerequisite: PHYS 1275.

PHYS 2279 Physics for Electroneuro-Physiology

This is a special level physics course with emphasis on various basic physics principles and their application to the ENPY Technology. Topics cover measurement theory with emphasis on graphical analysis and interpretation and computer applications; static electricity including electric fields, artifact generation, and safety considerations; physics of various transducers (Piezo electrical, thermistors, strain gauges, and thermocouples), including the construction, theory of operation, and application to ENPY technology; and, electromagnetics, with emphasis on induction. Theoretical derivations are not stressed. Prerequisites: MATH 1179, ENPY 1151 and ENPY 1152.

PHYS 2288 Applied Physics 2 for OCHS

Covers areas of fluids, thermal physics, vibrations, waves and electricity, as well as light and properties of radiation. Topics in fluids include fluid pressure, buoyancy, and fluid dynamics. Topics in thermal physics include kinetic theory of gases, specific and latent heat, thermal expansion, and heat transfer. Vibrations and waves covers types of simple vibrations, waves, standing waves and resonance and sound. Topics in electricity include DC and AC circuits and electrical safety. Particular attention is paid to the importance and interpretation of noise measurements in the workplace. Prerequisite: PHYS 1288.

PHYS 3150 Mining Geophysics

Consists of fieldwork, case studies and lectures on geophysical methods of mineral exploration. Emphasis is on the operation of geophysical instruments, the method of conducting geophysical surveys and the presentation and interpretation of data. Prerequisite: PHYS 2147.

PHYS 3274 Physics for Nuclear Medicine 3

Continues the instrumentation work begun in PHYS 2274. Consists of a detailed study of gamma cameras including collimators, the camera head, addressing, uniformity, spatial resolution and image contrast, sensitivity and resolving time. Prerequisite: PHYS 2274.

PHYS 3375 Physics Medical Radiography 3

Continues the Physics of X-rays completed in PHYS 2275. Lecture topics cover digital concepts in Radiography. Laboratory titles are output versus kV, counting statistics, inverse square law, HVL, kV accuracy and scatter. Prerequisite: PHYS 2275.

PHYS 4274 Physics for Nuclear Medicine 4

Completes the instrumentation work begun in PHYS 2274 and 3274. Includes an introduction to computers, emission tomography (SPECT and PET) gas filled detectors, and other detector type not previously discussed. Prerequisite: PHYS 3274.

PHYS 5273 Physics of Ultrasound 1

Course topics include acoustic waves, transducers, beam formation, ultrasonic imaging and artifacts, pulse echo instrumentation, real-time systems, introduction to Doppler effect, image storage and display, and acoustic power measurements.

PHYS 6273 Physics of Ultrasound 2

Phys 6273 is a continuation of PHYS 5273. Course topics covered are hemodynamics, Doppler instrumentation and biological effects and safety. Prerequisite: PHYS 5273.

Plastics

PLAS 1110 Plastics Technology 1

Introduces plastics technology. Information is presented on the scope of the plastics industry, the basic composition of plastic materials, health, safety and environmental considerations. The various forms of plastics and ingredients added to plastics are reviewed. The plastics families, their properties and how those properties are determined are discussed in detail. Laboratory work complements lecture material.

PLAS 2210 Plastics Technology 2

Introduces the manufacturing processes used in the shaping and forming of plastic products. All major processes such as injection, extrusion, blown film, expansion, compression, blow molding, casting, coating as well as fabricating and decorating processes are covered. In addition, some discussion of tooling, mold making and design are discussed. In general, the key features, advantages and disadvantages, and equipment used are presented. Laboratory assignments cover the operating procedures for each process. Prerequisite: PLAS 1110.

PLAS 3310 Plastics Technology 3

Presents a more in-depth view of injection molding, compression and rotational molding processes, equipment, operating characteristics, troubleshooting as well as process variables on product quality. Laboratory time is spent learning to set up production scale equipment and to operate it effectively. Material processing characteristics, product quality and die designs are related to laboratory studies of the rheological properties of plastics under various process conditions. Prerequisite: PLAS 2210.

PLAS 3320 Fibre Reinforced Plastics

Presents a general review of fibre reinforced manufacturing processes and an introduction to composites used in the aerospace industries, part design and structural analysis to meet strength requirements. Lab work includes resin systems, cure cycles, materials handling and safety; structural repair and finishing procedures as well as part construction, inspection, testing and structural bonding. Prerequisite: PLAS 2210.

PLAS 3340 Plastics Design

Focuses on injection molds and part design, sizing of mold analysed components as well as their function, care and maintenance. Mold stresses during and after injection are discussed and detailed stress calculations performed. Design rules for injection molded parts are reviewed along with the form and function of runners and gates. In general, metallurgy of dies and tooling are discussed. Prerequisites: PLAS 2210 and MECH 2240.

PLAS 3445 Injection Molding Analysis

Course introduces MoldFlow software to simulate and analyse plastics flow regimes in injection molds. It covers injection molding parameters optimization, cavity flow balancing, runner system balancing as well as necessary mold design changes based on mold fill results interpretation. Prerequisites: MECH 2204 and PLAS 3340.

PLAS 4410 Plastics Technology 4

Extends from PLAS 3310, presenting a more in-depth review of the extruder, film and pipe extrusion process, blow molding process, equipment, materials and operating characteristics. Basic machine and plant raw material handling systems are reviewed and an introduction into job and part cost determination is also included. Prerequisite: PLAS 3310.

PLAS 4490 Plastics Project

Students carry out an industry-sponsored projects or propose their own project. A project team usually consisting of two students prepares a proposal and, once approved, presents the information to the class. Verbal and written status and final reports are presented. Students are assigned to a faculty advisor and may seek help from their peers. Emphasis is on acquiring good project management skills. Prerequisites: PLAS 3310 and PLAS 3320.

Prosthetics and Orthotics

PROR 1100 Prosthetics & Orthotics 1

Examines the area of Trans-Tibial Prosthetics in detail. Design principles underlying the patellar- tendon-bearing prosthesis and its variants are analysed. Students design, construct, fit and align a variety of prostheses for trans-tibial amputees. While casting techniques, fitting procedures and alignment principles are emphasised, attention is also given to proper use of materials, acceptable workmanship and cosmetic finishing.

PROR 1402 Business Practices

Presents students with a basic understanding of the planning, organization, directing and controlling functions of business management. Topics such as human relations, management of time, budgeting and accounting, record keeping and labour relations will be covered, with examples drawn from actual prosthetic/orthotic facilities. The ethical and legal concerns of a health care professional will also be presented.

PROR 2200 Prosthetics & Orthotics 2

Treats the area of lower limb orthotics in detail, with the aim of developing competence in assessment procedures, design and component selection, and construction of typical lower limb orthotics. Prerequisite: PROR 1100.

PROR 2220 Biomechanics

Covers normal human locomotion in detail. Examines force tolerance and mobility of the skeletal system to determine the functional loss associated with various physical disorders or amputations, and the residual function upon which a lower limb prosthesis or orthosis can be based. Prerequisite: PHYS 1284.

PROR 2230 Practicum

Provides students with the opportunity to apply their knowledge of design principles and fitting procedures to a variety of patients, under the supervision of a practising prosthetic/orthotic clinician. Participation in clinical activity and discussion of unusual fitting problems are encouraged. Specific projects aimed at amplifying work done in the Prosthetic and Orthotic courses are required. Prerequisites: PROR 2200, PROR 2220, BHSC 2210 and BHSC 2211.

PROR 3300 Prosthetics & Orthotics 3

Completes lower limb prosthetics with the treatment of Syme's Trans-Femoral, and Total Leg Prostheses. Prerequisite: PROR 2230.

PROR 3320 Biomechanics

Examines force tolerance and mobility of the skeletal system examined in detail to determine loss associated with various physical disorders or amputations and the residual function upon which a prosthesis or orthosis can be based. The effect of pressure on soft tissue is also explored. Various spinal and upper limb devices are analysed from the viewpoint of the mechanical forces at work and their effect on the disabled person. Prerequisite: PROR 2230.

PROR 3330 Applied Materials

Presents an overview of the more sophisticated materials being introduced into the field, with particular emphasis on thermoplastics and carbon/epoxy composites. Various laboratory exercises in the forming and bonding of such materials complement the theoretical analysis of their characteristics and uses. Prerequisites: CHSC 1284 and PROR 2220.

PROR 4330 Practicum

See PROR 2230. Prerequisites: BHSC 3310 and PROR 3300.

PROR 4400 Prosthetics & Orthotics 4

Covers the area of spinal orthotics from the principles involved in fitting a corset to the construction of TLSO. Biomechanical principles and fitting guidelines will be emphasised more than construction techniques. The area of upper limb prosthetics and orthotics is then treated with each student constructing and fitting a variety of devices, including Myoelectric Prostheses. Prerequisite: PROR 3320.

PROR 4410 Patient Assessment & Care

Teaches students, through a series of presentations and projects, how to evaluate patients from the viewpoint of functional loss and to select appropriate devices to restore function and design solutions to specific needs not met by available componentry. Basic principles and procedures for handling the disabled are also covered. Prerequisite: PROR 3300.

PROR 4420 Case Studies

Gives students the opportunities, under the guidance of practising Certiftees, to assess patients in need of Prosthetic or Orthotic care, to design and fabricate suitable appliances, and to fit, adjust, and finish their products. Case presentations are then made, both orally and in writing. Prerequisite: PROR 3300.

Psychology

PSYC 1101 Introductory Psychology 1

This 15-week (three hours a week) course is the first of two introductory psychology courses focusing on the psychologist's approach to theories, problems and issues in contemporary psychology. This survey course introduces the student to the following areas of psychology perspectives in psychology and current research on biological aspects, sensory processes, perception, consciousness, learning, memory, thought and intelligence.

PSYC 1102 Introductory Psychology 2

This 15-week (three hours a week) course is the second of two introductory psychology courses focusing on the psychologist's approach to theories, problems and issues in contemporary psychology. This survey course introduces the student to the following areas of psychology basic motives, emotion, health psychology, individual differences, personality, abnormal psychology, therapies, social cognition and affect and social attraction and influence. Prerequisite: PSYC 1101.

Renewable Resources

RENR 1105 Natural Resource Measurements 1

Presents concepts of field measurement and basic surveying. Includes field note-taking, traverse calculations and plotting, sketching and mapping of topographic detail, horizontal and vertical measurement error corrections, differential leveling of roads and streams, latitude and departure calculations, measuring tree heights and calculating volume, browse surveys for wildlife and an introduction to defects in trees. Emphasis is on field labs with supporting lectures.

RENR 1110 Microcomputer Applications (Forestry Option)

Introduces various computer applications in resource management. Includes a review of computer hardware, software and operating systems. Assignments from other program courses will be used to introduce students to general word processing, spreadsheet, database management and file management skills. Students will also prepare a report involving the integration of word processor and spreadsheet tools to present statistical information.

RENR 1116 Applied Ecology in B.C. (FWR)

Introduces forests, grasslands, streams, lakes and estuaries as ecosystems. Describes ecosystem components, their work and interdependence in both terrestrial and aquatic ecosystems, the changing pattern of ecosystem structure in succession and its influence on ecosystem function. The course identifies common herbivores, carnivores and salmonids, describes the characteristic features of their habitats, and where available, details their critical requirements.

RENR 1117 Applied Ecology in B.C. (Forestry)

Introduces forests, grasslands, streams, lakes and estuaries as ecosystems. Describes ecosystem components, their work and interdependence in both terrestrial and aquatic ecosystems, the changing pattern of ecosystem structure in succession and its influence on ecosystem function. The course identifies common herbivores, carnivores and salmonids, describes the characteristic features of their habitats, and where available, details their critical requirements.

RENR 1120 Photo Interpretations & Mapping 1

Presents the practical use and application of aerial photography and maps for natural resources management. Classification, navigation, reconnaissance, planning and inventory using aerial photos. Practice in the use of stereoscopes. Construction and interpretation of maps and plans. Transfer of detail between aerial photos and maps.

RENR 1150 Ecology, Plants, Soils

Students will develop an understanding of ecosystem components and management of ecosystems in B.C., learn to understand and use the Biogeoclimatic Ecosystem Classification system, develop competency in site diagnosis, use Regional Field Guides and become familiar with the appropriate Forest Practices Code Guidebooks. Plants and their identification will focus on structure, physiology, taxonomy and indicator value of plants in ecosystems. Plant (emphasis on trees) reproduction, distribution and ecological significance will be covered. Ecosystem based plant collections will be required. Soils will emphasise the development and classification of soils in an ecological context. The student will learn to interpret climate, site, vegetation and soil processes for ecosystem management. Forest Practices Code requirements for using soil knowledge will be examined and practiced. Both the engineering and plant growth aspects of soils will be developed.

RENR 1166 Integrated Resource Management 1

Introduces the resource sectors in B.C. including fisheries, forestry, recreation/tourism, mining, water resources and agriculture. History and current issues in integrated resource management will be presented. Topics include, government agencies, administrative framework, First Nations, the Forest Practices Code and basic issues in silviculture, engineering and environmental monitoring.

RENR 2106 Natural Resource Measurements 2 (Theory)

Introduces the principles and concepts fundamental to the practical application of planning and operational natural resource measurement techniques. This theory component is complementary to RENR 2107 which is the practical application of principles and concepts of RENR 2106. Prerequisites: RENR 1105, RENR 1120, ERNR 1150 and MATH 1451.

Note: A math pre-registration test may be available for students with a MATH 1451 mark between 40-49 per cent who have a GPA over 60 per cent.

RENR 2107 Natural Resource Measurements 2 (Practical)

Introduces measurement and sampling procedures and techniques common to national natural resource needs and specific to B.C. needs. The course introduces, within a planning and operational framework, direct tree measurements, coarse woody debris and wildlife tree measurements, topographic mapping, as well as provincial inventory and provincial valuation measurement requirements. Fixed area, variable plot, and line transect sampling systems are introduced and practised. Sample design and basic statistical analysis in a measurements context are introduced. Prerequisites: RENR 1105, RENR 1120, RENR 1150 and MATH 1451. **Note:** A math pre-registration test may be available for students with a MATH 1451 mark between 40-49 per cent who have a GPA over 60 per cent.

RENR 2135 Fire Management 1

Focuses on forest fire prevention, preparedness, detection and the reporting and extinguishing of small and medium size forest fires. Main topics include use of fire weather index, use of weather information, safe operation of common fire control equipment, fire line organization and supervision, acts and regulations, fire behaviour, basic fire ecology, wildland/urban interface and other related topics. Fire simulation is used to develop and exercise skills in decision-making, planning, assessment, communications and supervision. Prerequisites: RENR 1120 and RENR 1150.

RENR 2141 Photo Interpretation & Mapping 2

Continues from RENR 1120, with an emphasis on interpreting surficial materials, vegetation identification, and the use of aerial photos and other imaging. Students will transfer aerial photo information to a digital format using monorestitution software. Prerequisites: RENR 1120, RENR 1110 and MATH 1451. **Note:** A math pre-registration test may be available for students with a MATH 1451 mark between 40-49 per cent who have a GPA over 60 per cent.

RENR 2150 Ecology, Plants, Soils 2

Students will develop an understanding of ecosystem components and management of ecosystems in B.C., learn to understand and use the Biogeoclimatic Ecosystem Classification system, develop competency in site diagnosis, use Regional Field Guides and become familiar with the appropriate Forest Practices Code Guidebooks. Plants and their identification will focus on structure, physiology, taxonomy and indicator value of plants in ecosystems. Plant (emphasis on trees) reproduction, distribution and ecological significance will be covered. Ecosystem based plant collections will be required. Soils will emphasise the development and classification of soils in an ecological context. The student will learn to interpret climate, site, vegetation and soil processes for ecosystem management. Forest Practices Code requirements for using soil knowledge will be examined and practised. Both the engineering and plant growth aspects of soils will be developed. Prerequisites: RENR 1120 and RENR 1150.

RENR 2166 Integrated Resource Management 2

Continues from RENR 1166 to develop an understanding of issues in resource management with emphasis on such themes as environmentalism, new forestry, economics of resources, managing for sustainability, research, and computer modeling. Social and political issues including conflict resolution, changes to legal aspects of management, ethics and resource professions will be introduced. A technical report is required.

RENR 2240 Environmental Law Enforcement

Introduces students to the various legislative acts relating to management of Canada's and B.C.'s wildland resource, including the Fisheries Act, the Parks Act and the Wildlife Act. Deals with many practical aspects of interpretation and enforcement of the acts and provides a basis for further training in enforcement. It provides training for employment as a technician in resource management fields rather than for immediate employment in enforcement.

RENR 2990 Cooperative Education Work Term 1

Consists of the application of theory and labs from Term 1 and 2 to the work environment of Renewable Resources Technology. This is a paid position in industry acquired with the assistance of the Cooperative Education office. This position must be a minimum of 12 weeks, and may be a maximum of four months to qualify for credit. Prerequisites: Terms 1 and 2 completed with a minimum cumulative average of 65 per cent.

RENR 3106 Natural Resource Measurements 3 (Theory)

Continues with the principles and concepts introduced in RENR 2106. Expands the concepts within the context of integrated resource measurements particularly as applied in British Columbia. Introduces V-BAR principles, count/ enhanced plot concepts, 3-P sampling, stratification principles and added value appraisal techniques. Introduces alternate remote and electronic data sources, their application and limitations. Prerequisites: RENR 2106, RENR 2107, RENR 2141 and MATH 2453.

RENR 3107 Natural Resource Measurements 3 (Practical)

Introduces procedures for advanced variable plot sampling systems. Introduces procedures for double sampling and 3-P sampling. Applied field techniques and procedures appropriate to the concepts introduced in RENR 3106. Provincial inventory valuation and waste and residue procedures and techniques are practised. Provides a framework to integrate, utilize and practise principles from other subject areas, graphical communications, forest science, soils, forest pestology, silviculture, photo interpretation and statistics. Prerequisites: RENR 2106, RENR 2107, RENR 2141 and MATH 2453.

RENR 3135 Fire Management 2 (Forestry)

Focuses on forest land management through an understanding of fire management. Main topics are fire ecology, fire behaviour prediction, planning and use of prescribed fire, fire management and fuel management planning, smoke management, forest practices act and regulations. Students

develop operations plans for each of the management planning areas studies. Fire simulation is used to exercise and develop skills in planning, assessment, communications, decision-making and supervision. Prerequisites: RENR 2116 and RENR 2135.

RENR 3145 Silviculture 1

Begins with the basics of forest management, site productivity, stocking, growth and yield insofar as they affect silvicultural planning and operations. Forest regeneration, including natural regeneration, seed procurement, planting stock production, site preparation, vegetation management and stand tending will be presented in the context of the planning process, the silvicultural prescription and the silviculture surveys applications. Prerequisites: RENR 2106, RENR 2107, RENR 2116, RENR 2135, RENR 2141, RENR 2150 and MATH 2453.

RENR 3150 Forest Insects & Diseases 1

Presents an ecologically based study of insects and diseases of concern in B.C. and their impact on forest health. Includes recognition and identification of currently important organisms as well as the symptoms and damage they produce. Life cycles of the more important organisms and the significance of those life cycles in terms sampling and forest management practices. Prerequisites: RENR 2106, RENR 2107, RENR 2116, RENR 1241 and RENR 1250.

RENR 3160 Forest Engineering 1

Allows students, during outdoor labs, to work in groups and prepare an operational harvesting plan utilizing cable harvesting systems. The course introduces cable harvesting systems, deflection lines, route reconnaissance, field surveys and forest road design. Prerequisites: RENR 2106, RENR 2107, RENR 2117, RENR 2135, RENR 2141 and RENR 2150.

RENR 3166 Computer Applications for Forestry

This course introduces second year forestry students to a variety of computer applications used in forestry. The course focuses on developing computer skills related to forest management and planning at the operational and watershed level. Discussion will include an overview of the hardware, software, procedures and personnel typically involved in a forestry office that uses geographic information systems technology. Students will be using TRIM, FCI, and FIP files at various times throughout the course. Students will augment existing information with field data they have gathered during Forest Engineering and Measurements. Intermediate CAD skills will be developed using Microstation and Maps3D to map and present their data. The students will complete a monorestitution project to transfer aerial photograph information to their maps. Maps3D will be used to demonstrate basic data cleaning principles essential if their work is to be used for GIS projects. FCAP3, Reports 3D, and Maps 3D will be used to demonstrate data quering and presentation for management and planning. Prerequisite: RENR 2141.

RENR 3175 Independent Studies

Occupies two weeks following final exams at the end of second year. Students work in the field with a supervisor on a resource management project or course. It provides an opportunity to obtain special work experience beyond that provided in the usual course of studies. The student must submit a report and daily journal detailing the activities during the practicum. Prerequisite: Completed 1st and 2nd year of program or concurrently registered so that on completion of RENR 3175 will be eligible to graduate.

RENR 3180 Technical Project 1 (Forestry)

Allows the student to select, organize and carry out an approved project in the field of natural resource management. The project will normally be carried out in teams and it is expected that in carrying out the project, students will draw on skills developed in first year courses as well as third term concurrent courses. Prerequisites: RENR 2106, RENR 2107, RENR 2117, RENR 2135, RENR 2141, RENR 2150, COMM 2245 and MATH 2453.

RENR 3181 Technical Project 2 (Forestry)

Continues from RENR 3180. The final results of the project will be documented in a formal term 4 report that will account for a significant portion of the mark for this course. Prerequisite: RENR 3180.

RENR 3190 Environmental Monitoring

Develops understanding of the basic processes of a variety of industrial activities and their impact on the environment. Students become familiar with various aspects of water and air pollution, siltation control, bioassay techniques, environmental chemistry testing and sampling protocol. Prerequisite: Completion of Level 1.

RENR 3215 Recreational Land Management 1

Introduces recreational land management and covers many topics, including management of areas designated as parks; overview of outdoor recreation, history and organization of agencies providing recreational activities in parks; park development, planning and design; practical exercises in site analysis, planning and design for specific uses; park and natural history interpretation; park operation and administration; assessment and development of recreational areas both in and out of established parks; private and public programs in forest recreation; visual resource management; summer and winter sports area development; water-oriented activities, trail design, mountaineering, search and rescue. Prerequisite: First year of the program.

RENR 3220 Wildlife Management 1

Covers the principles and practice of wildlife management, with particular reference to problems and procedures in B.C. Topics include biology and ecology of wildlife species; dynamics of wildlife populations; methods of studying wildlife; capturing and handling of wildlife for study; radiotelemetry; natural and artificial regulation of animal numbers; control of problem wildlife; wildlife habitats; economic value of wildlife; management for biodiversity; management for harvest. Field study is used to support and extend lecture and lab material. Prerequisite: First year of the program.

REN 3225 Fish Management 1

Covers the biology of B.C. fish including anatomy, taxonomy, physiology, behaviour and ecology. Management of fisheries including population dynamics, habitat evaluation and improvement, harvesting, pollution and fishery regulations. Labs deal with methodology as it applies to the above and much of the training will be done in the field. Emphasis throughout is on the B.C. situation. Prerequisite: First year of the program.

REN 3230 Projects 1 FWR

Students conduct a supervised research project in fish, wildlife or recreation. Many of these projects are requested and sponsored by resource management agencies. The student selects a topic of interest and prepares a field-oriented study plan. The student conducts an extensive search of available literature and integrates the results in the progress reports and final report. Extensive field research is conducted by the student and the data collected is presented in both oral and written submissions. High quality of data and presentation is expected. Material from all other courses is integrated into the work of this course. Prerequisite: First year of the program.

REN 3990 Cooperative Education Work Term 2

Continues work experience based on application of theory and labs from Terms 3 and 4. This is a paid position in the renewable resource industry, acquired with the assistance of the Cooperative Education office. This position must be a minimum of 12 weeks and may be a maximum of four months to qualify for credit. Prerequisite: RENR 2990.

REN 4107 Natural Resource Measurements 4

Covers logging residue and waste procedures (how to measure, what to measure), an overview of the manufacturing process of logs (includes a field trip to a manufacturing plant), and a short in-depth session on log scaling and grading procedures. Prerequisite: RENR 3107.

REN 4145 Silviculture 2

Covers site examination, analysis and prescriptions; regeneration, methods application, contract planting, costing and inspection; brush control methods and application; spacing methods and evaluation; conifer release, application; fertilization, methods and application. Prerequisite: RENR 3145.

REN 4150 Forest Insects & Diseases 2

Continues from RENR 3150. The impact of forest management practices on insect and disease conditions. Sampling, measuring and reporting on insect and disease damage. Ecological and legal factors influencing the use of biological and chemical pesticides. Prerequisite: RENR 3150.

REN 4160 Forest Engineering 2

Introduces ground-based harvesting systems, bridges and drainage structures, sorting and transportation of logs, engineering economics, harvest planning and forest landscaping. Students use current microcomputer software including databases and spreadsheets to solve various engineering problems. Prerequisite: RENR 3160.

REN 4166 Applied Forest Management

Activities in this course focus on the practical application of resource management skills learned in the previous resource management courses. Assessing and mapping terrain, sensitive areas and ecosystems will be completed. Landscape management and watershed assessment and restoration principles will be developed. A Forest Development plan in compliance with the Forest Practices Code will be prepared. Prerequisite: RENR 3166.

REN 4215 Recreational Land Management 2

Continues from RENR 3215. Prerequisite: RENR 3215 or instructor's approval.

REN 4220 Wildlife Management 2

Continues from RENR 3220. Prerequisite: RENR 3220.

REN 4225 Fish Management 2

Continues from RENR 3225. Prerequisite: RENR 3225.

REN 4230 Projects 2 FWR

Continues from RENR 3230. Prerequisite: RENR 3230.

REN 4990 Cooperative Education Work Term 3

Continues work experience in Renewable Resources that may include innovative project work integrating labs, theory and previous work experience to address a problem at the work site. This is a paid position in the industry, acquired with the assistance of the Cooperative Education office. This position must be a minimum of 12 weeks and may be a maximum of four months to qualify for credit. Prerequisite: RENR 3990.

REN 5001 Entrepreneurship in the Resource Sector

An introduction to business fundamentals which are needed to function in modern-day natural resource administration. Covered are basic accounting, including balance sheets and income statements; basic business law, including incorporation, contract law and liability; insurance; financing of public and private ventures. Preparation of business plans for private (e.g. a ski area) and public ventures (e.g. FRBC project) are reviewed. Marketing of professional/technical services and development of technical proposals and terms of reference are presented and discussed.

REN 5002 Forest Practices Auditing

This course covers general purposes, principles and procedures of auditing including financial, industrial forest practice audits, ISO and forest practice audits under the Forest Practices Code (FPC) of B.C. Examples of various audits are presented and discussed using case studies and other true-to-life examples. Emphasis is on learning the procedures and general responsibilities of forest practices auditing under FPC. More specifically, students will know their responsibilities when being audited.

REN 5003 Forest Practices Auditing 2

A continuation of RENR 5003 with the emphasis on audit standards and requirements under ISO, CSA, and the Forest Practices Code of B.C. Green certification audits are also examined and discussed.

RENr 5010 Integrated Resource Planning

A course which introduces forest planning as an instrument of natural resource policy, surveys the history of forest planning in B.C. and describes in detail, strategic and operational planning under the Forest Practice Code (FPC) of B.C. and other legislation and policy affecting forest planning. Current and emerging changes are reviewed, and examples of strategic level planning initiatives such as the Forest Resources Commission, CORE, Land and Resource Management Plans (LRMP), Timber Supply Review (TSR), resource management zones, landscape units, sensitive areas, sites and trails are discussed. Operational plans include Forest Development Plans, Logging Plans, Silviculture Prescriptions, Stand Management Prescriptions, Access Management Plans, and Range Use Plans. The relationships between various plans and their roles in monitoring performance and FPC compliance will be highlighted.

RENr 5011 Integrated Resource Management Applications

A continuation of RENr 5010 emphasising practice in process of formulating and writing plans. (This course is currently under development).

RENr 5012 Natural Resource Policy & Administration 1

This course examines the process of natural resource policy development and the relationships of law to political processes and resource management.

RENr 5013 Natural Resource Policy & Administration 2

A continuation of RENr 5012. Agencies, firms and publics involved in natural resource policy in B.C., Canada and the U.S.A. are surveyed and reviewed with respect to the policy processes covered in RENr 5012.

RENr 5019 Forest Industry

The course provides an overview of the evolution of B.C.'s forest industry and interrelated forest policy since European contact; the current structural profile of the industry; its place in the global arena and as B.C.'s dominant economic and cultural force; the evolution of labour unions in the industry; major current factors affecting industry operation and survival including industry business objectives and forest practices, price and cost structures, markets, tariffs and the United States, the regulatory environment, domestic and foreign 'players', the 'social contract to log,' and the outlook for potential changes in forest policy and industry models in the future. This will provide the student with the basic understanding and specialized vocabulary to allow competent and realistic discussion of forest policy and industry issues upon graduation as well as provide some context and conceptual integration for other management-oriented courses in the program.

RENr 5100 Riparian Area Management

This course provides participants with the information needed to plan forest operations in and adjacent to riparian areas. Major course topics include: classification of streams, lakes and wetlands; requirements for establishing riparian area boundaries; meeting riparian objectives for management areas, and practices recommended in the B.C. Forest Practices Code Stream Crossing Guidebook for water management, erosion control and fish passage at stream crossings. The course includes classroom lectures, case studies and field trips.

RENr 5102 Project Management

This course is focused on effective project management brought about through teamwork. Teams plan a project which provides an opportunity to experience the project management process and its effectiveness first-hand. Emphasis will be placed on effective, motivated teamwork, and good time-and cost-control.

RENr 5143 Problem Solving & Decision-Making

This course deals with a practical, hands-on approach to problem solving and decision-making using an analytical, process-oriented approach. Different tools and techniques are used to better maximize the problem solving and decision-making skills of the candidate. Opportunity will be provided for practice in creative thinking and problem solving skills.

RENr 5166 Integrating Computer Applications in the Resource Management

This course demonstrates how information generated from various software packages can be integrated for completing resource management projects. Typically, this will involve using a combination of spreadsheet, database, CAD, GIS, simulation modeling, and project planning software to analyse information, and produce plans and reports. The specific details of which software to be used will depend on student needs for the completion of their project course work, and what software is currently being used in industry. Prerequisites: RENr 1110, RENr 1120 and RENr 2141.

RENr 5200 Planning for Urban Watersheds

This course will explore some of the current environmental management issues, approval requirements and initiatives by local governments associated with land development adjacent to watercourses in urban watersheds. Content will focus on the Land Development Guidelines and other current approval requirements/processes required when conducting projects associated with watercourses. There will also be an overview of some of the current management issues and initiatives by local governments to protect watercourses and better manage urban watersheds. The course will involve a field trip to a variety of example sites throughout the Lower Mainland where local governments have incorporated restoration and enhancement projects to better manage and protect aquatic habitats.

RENr 5301 Multicultural & First Nations Awareness

This course recognizes that we all have a commitment to the careful management of our renewable resources. This task is impossible without the cooperation and support of those whose culture and livelihood is dependent on these resources. The focus of this course is to *provide intercultural training in the hope of achieving a cross cultural understanding in resource management.* This course covers topics in the following areas: cultural encounters, Aboriginal peoples, introduction to immigrant groups, South East Asian peoples, South Asian peoples, and Black peoples. The First Nations portion of the course is designed to provide a foundation of information that will help the participant build a broader understanding, awareness, and appreciation for the First Nations cultural values and concerns. First Nations will continue to be at the forefront of all levels of renewable resources administration and management. The course may include a field trip.

RENr 5310 Integrated Resource Project

In this course, students develop a proposal for their applied research project that is carried out in RENr 5311. See RENr 5311 description.

RENr 5311 Applied Research for Project

This is an applied practical project, which may be sponsored and evaluated by industry. Working as a group, participants will develop prescriptions for an environmental project that requires the use of multiple resource management skills and knowledge. Participants will work with an actual resource management project and be required to develop effective and sound sound management or restoration prescriptions. Participants will be required to demonstrate effective project management skills by delegating tasks and responsibilities to group members; a sound understanding of resource management to develop appropriate, cost-effective solutions; and a clear understanding of the processes required to implement the solutions. Participants will be required to make a final presentation to the project sponsor and staff.

RENr 5780 Environmental Impact Assessment

This course is currently under development.

Robotics

ROBT 1270 C Programming

Introduction to modern programming practices with emphasis on structured programming, modularization and the top-down approach to problem solving. The C programming language is used to solve engineering problems.

ROBT 3341 Robot Applications

Discusses various robot configurations, the coordinate systems in which they operate and kinematics of robot motion. Investigates specifications such as accuracy, repeatability and load capability, and their importance in various applications. Machine elements used in automated equipment and associated machinery will be investigated. Prerequisites: PHYS 2163, ELEX 2125 and MECH 2210. Corequisites: MATH 2341 and MECH 2356.

ROBT 3351 Automation Equipment

Covers the basic principles of generators and the construction, speed-torque characteristics, braking conditions and speed control of permanent magnet DC motors. Also covers operation and control of brushless DC motors and stepper motors. Prerequisites: ELEX 2105, ELEX 2115, PHYS 2163, MATH 234, ELEX 2120 and ROBT 3356. Corequisites: ELEX 2120 and ROBT 3351.

ROBT 3356 Controller Systems

Investigates the software and hardware involved in the real-time control of a microprocessor-based system. Topics include microprocessor architecture, assembly language programming, input/output operations, interrupt handling and interfacing techniques between a computer and an automated controller. Troubleshooting techniques used in fault analysis are taught. Prerequisites: ELEX 2125, ELEX 2115 and ELEX 2120.

ROBT 3416 Computer Integrated Manufacturing for Robotics

Teaches the use of a microcomputer based CAD/ CAM system. Programming the operation of CNC machine tools using the manual and computer assisted methods. Also investigates the integration of computer aided design and manufacturing. Prerequisites: MECH 1104 and MECH 1210.

ROBT 4451 Sensor Interfacing

Investigates various methods of interfacing real-world systems to a digital computer through the use of analog-to-digital and digital-to-analog converters. Machine vision and object recognition, tactile force sensors range finding and navigation techniques using proximity sensors, are studied. Prerequisites: ROBT 3351, ROBT 3356 and ELEX 3321.

ROBT 4455 PLC Applications for Robotics

Presents descriptions of components in a programmable logic controller (PLC). Create ladder logic diagrams and use high level software for programming a PLC. A selection of hardware components-sensors and actuators are interfaced to the PLC. Prerequisites: ELEX 1205, ELEX 2220 and ROBT 1270.

ROBT 4491 Robotics Project

Allows students to select a project based on some aspect of automated technology, endorsed by an industry sponsor. Each project team gives written and oral presentations on their proposed and completed design. Project management skills are emphasised in this course. Prerequisites: Must be completed concurrently with, or after completion of, all other Level 4 courses.

Surveying

SURV 1120 Surveying for Building

Introduces measurements; electronic distance measuring devices; angular measurements; theodolites; differential and trigonometric leveling; GPS; surveying procedures in high-rises; traverses; triangulation; trilateration; elementary computations; coordinate systems and cadastral plans in B.C.

SURV 1128 Surveying for Petroleum

Covers fundamental concepts and basic principles of surveying; familiarization and use of levels, chains and theodolites; differential leveling, peg-test, field note-keeping and note reductions; linear measurement; angles, directions, bearings; angle measurements; coordinate systems; traverse computations and area calculations; practical projects in leveling and angle measurements.

SURV 1130 Surveying for Civil & Structural

Covers fundamental concepts and principles of surveying; datums, principle of differential leveling, bench mark and detail leveling, peg-test, grades, use of levels, theodolites and steel chains; linear measurements; angle measurements and reductions, directions, bearings, coordinate systems; traverse computations, inverse, area calculations; field note-keeping and reductions; care, maintenance and adjustment of equipment.

SURV 1140 Surveying for Mining 1

Introduces surveying dealing with general types of surveys and basic definitions. Focus on field and office procedures for differential leveling to establish elevations and using the total station and GPS horizontal location. Computational operations for processing survey data including traverse and level loop reductions and adjustments. Sources of error and blunders will be introduced. Emphasis will be placed on presenting survey information in an industry standard format.

SURV 1161 Surveying Computations 1

Covers mathematical basics; geometry and theorems pertaining to circles; plane trigonometry; angles and bearings; definitions and conversions of angles to bearings and vice versa; coordinate systems; polar and rectangular; inverting; computations of traverses; traverse adjustment by compass rules; locations of gross linear and gross angular errors; area computations by coordinate methods; missing parts.

SURV 1163 Introduction to CAD

This is an introductory survey drafting course for manual and computer aided drafting using autoCAD. Topics include 2D and 3D Cartesian coordinate systems; geometry of orthographic and perspective projections; use of scales; determination of area and volumes; contouring and topographical mapping; reproduction of maps and plans.

SURV 1164 Field Surveying 1

Introduces principles of surveying; purposes and types of surveys; methods and field techniques in distance measurements; linear errors and corrections; datum; the principle of differential leveling; benchmark and detail leveling; test and adjustment of the level; introduction of the transit (theodolite); angle measurements; compass and theodolite traversing; note keeping. This course must be taken concurrently with SURV 1161

SURV 1172 Computer Applications 1

Familiarizes students with operation of the hand held computer from two perspectives as a calculator to do typical computations as a programming tool to solve routine survey problems. Material includes modes of operation, operator hierarchy, numeric functions, numeric and string variables, array variables, basic statements and commands, program structure, elementary programming and program editing.

SURV 2230 Surveying for Civil & Structural 2

Covers computations and adjustments of integrated traverses; triangulation, trilateration and intersection; trigonometric leveling; horizontal curves; road and building layout; cut and fill, areas of cross-sections, volume calculations; introduction to the total station; detail survey. Prerequisite: SURV 1130.

SURV 2240 Surveying for Mining 2

Continues from SURV 1140. The content is the same. Prerequisite: SURV 1140.

SURV 2261 Surveying Computations 2

Open and closed traverses and the determination of errors, transformation of coordinates, subdividing land of specific requirements, introduction to the geometry of the simple circular curve, computation of data for layout of circular curves by various methods, computation of compound and reverse curves elements and layout, subdividing land that includes curved boundaries, computation of symmetric vertical curves elements and layout, slope staking using a level, slope staking with a total station, resection by angle measurement calculation of areas of cross-sections and earthwork volumes, calculation of earthwork, volumes of large areas. Prerequisite: SURV 1161.

SURV 2263 Earth Sciences

Presents a study of the forest flora of B.C. Characteristics of native trees, their identifying features and common uses. Elementary geology, including the study of rocks and minerals, geologic structures, general location and uses of common ores. Soil classification and location.

SURV 2264 Field Surveying 2

Covers UTM traverse and computations; different field methods of angle measurements; trigonometric leveling; topographic surveys by various methods and instruments; road location; cuts and fills; setting out circular curves; building site layout; and, total stations. This course must be taken concurrently with SURV 2261. Prerequisites: SURV 1164 and SURV 1161.

SURV 2265 Surveying CAD

Enables students to apply computer aided drafting fundamentals to the solution of surveying problems. Coordinate geometry routines will be introduced that cover typical land surveying applications. Emphasis will be placed on preparing plans, which meet industry format standards. The software for the course will be RAPID TRANSIT, a popular program in the surveying profession within B.C. Prerequisite: SURV 1163.

SURV 2267 Photogrammetry 1

Introduces aerial photographs and other remote sensing acquired data; use of map and air photo; geometry of the air photo (scale, displacement and parallax); optics for photogrammetry (refraction, reflection, prisms and lenses); stereoscopy and stereoscopes; radial line triangulation and planimetric map compilation; aerial cameras.

SURV 2272 Computer Applications 2

Continues from SURV 1172. Topics include BASIC programming for strings, for-next loops, subroutines, data files, introduction to MS-DOS, introduction to word processing and serial communication for hand-held computers. Prerequisite: SURV 1172.

SURV 3330 Surveying for Civil & Structural 3

Field procedures for pick-up and layout of points. Operation of levels, theodolites and total stations. Field note reductions. Calculations involving two and three dimensional coordinates, grades, areas, and volumes. Office and field procedures to position points by triangulation and trilateration. Prerequisite: SURV 2230.

SURV 3340 Surveying for Mining 3

Presents application of survey methods to underground and surface mines. Underground surveying in shaft sinking, development control (level and inclined) and production areas. Elementary astronomy, establishing azimuth by solar and pole star observations. Mine quantities in development areas, pickup of tunnels, cross sectioning, stopes (including tonnage calculations). Construction of mine plans and sections. Field projects include tunnel surveys and open-pit triangulation, tri-lateration and bench pickup. Mining Acts applied to surveying. Prerequisite: SURV 2240.

SURV 3361 Surveying Computation 3

Covers reductions of field measurements; field consistency checks on angles and distances; theory and propagation of errors; eccentric measurements; computations of positions of control points, triangulation, trilateration, traversing, intersection and resection; inaccessible base; curvature and refraction corrections; trigonometric leveling; transformation of coordinates. Prerequisite: SURV 2261.

SURV 3362 Geodetic Surveying 1

Covers properties of the ellipse and the ellipsoid of revolution; calculation of radii of curvature; spherical excess; Legendre's theorem, method of addends. Field tests; triangle closures, side equations, sine consistency checks; reduction to sea level. Convergence of meridians, computation of geodetic position, forward and inverse. Trigonometric leveling; reciprocal, non-reciprocal, refraction, intervisibility problems. Gravitation and centrifugal forces; gravity, measurement and reduction, gravity anomalies, separation of the geoid, deflection of the vertical; precise leveling, orthometric and dynamic heights. Prerequisite: MATH 2511.

SURV 3363 Mathematical Cartography

Covers concepts and properties of maps; classifications of maps; theory of distortions; conformality; equivalency; Tissot's indicatrix, conical projections; cylindrical projections; perspective projections; polyconic projection of B.C.; UTM projection; stereographic projection of New Brunswick. Prerequisite: MATH 2511.

SURV 3364 Field Surveying

Emphasises the use of total stations with a range of industry standard data collection systems. Specific field projects will include a horizontal control net on Seymour Mountain and underground demonstration survey at Britannia Beach Mine along with a variety of topographic and as-built projects on the BCIT campus. These projects typically will result in a final plan produced through software into a "laser" plot. An introduction to astronomic observations for azimuth and the use of precise levels will also be included. Students may be required to participate in an industry sponsored practicum where they will be spending time working at a workplace office or project site. Prerequisites: SURV 2264 and SURV 2261.

SURV 3365 Surveying CAD 2

Introduces a survey CAD/COGO program for Geomatics. Topics include 2D element construction, raw data entry, data editing, data adjustment, DTM modeling and plotting. Prerequisite: SURV 2265.

SURV 3368 Introduction to Digital Mapping and Remote Sensing

Elements of air-photo interpretation (using stereoscopes and other devices); image parallax; rotation concept and general transformation equations (including collinearity condition and coplanarity condition equations); restitution instruments and their orientation concepts; aerial triangulation and its accuracy assessment; photogrammetric products; concepts and foundations of remote sensing; electromagnetic spectrum and regions used in remote sensing; energy interactions with earth and its surrounding; concept of multi-spectral sensing; common remote sensing sensors and their applications; characteristics and use of Landsat MSS and TM scanner systems and other satellite scanners.

SURV 3369 Hydrographic Surveying

Includes tides and water levels, obtaining, positioning and reducing soundings, an overview of electronic positioning, electromagnetic wave propagation and positioning systems; propagation of sound in water; acoustic positioning and devices used in hydrography; types and uses of nautical charts. Prerequisite: SURV 2261.

SURV 3372 Computer Applications 3

Teaches the advanced aspects of the QUICK BASIC programming language and achieve moderate proficiency in writing programs for survey computations and graphics. Prerequisite: SURV 2272.

SURV 3378 Mining Surveying

Covers the forms of surveying specifically applied to mining with particular emphasis on underground surveying. Topics include the establishment of control (X,Y,Z) in underground workings using piano wires, gyrotheodolites and plummets; control of direction and gradient of tunnels; area and volume surveys; exploration surveys of drill holes; and Mining Act responsibility of the mine surveyor. Prerequisites: SURV 2264 and SURV 2261.

SURV 3576 Global Positioning Systems

Describes the GPS system, definitions and vocabulary, details of the satellite signals C/A code, P code, Y code, navigation message, L1 and L2 carrier phases; datums, discussions of positioning modes-point, differential, real time, post-processed; discussion of types of field GPS static, quick static, semi-kinematic, kinematic and on-the-fly; factors contributing to range errors; field data collection, post-processing of field data and explanation and interpretation of computer print-outs; quality analysis of GPS results; computation of number of observations, unknowns, and degrees of freedom for carrier phase; fixed and free network adjustments and statistical evaluation of results. Prerequisite: SURV 3362.

SURV 4430 Surveying for Civil & Structural 4

Covers office calculations involving bearing-bearing, bearing-distance, and distance-distance intersections. Highway design and layout involving route location and parallel offset calculations; simple circular curves, compound and reverse curves, vertical curves and transition spiral curves; slope staking with a level and with a total station; computation of volumes; application of GPS. Prerequisite: SURV 3330.

SURV 4440 Surveying for Mining 4

Continues from SURV 3340. The content is the same. Prerequisite: SURV 3340.

SURV 4461 Surveying Computations 4

Covers horizontal curves; vertical curves; numerical methods of solutions of complex nonlinear problems; transition curves; partitioning of land; precise leveling; Pappus theorem on area and volume calculations along circular roads; slope staking; three-dimensional surveying systems. Prerequisite: SURV 3361.

SURV 4462 Physical Geodesy

Introduces the concepts of physical geodesy and includes the following topics horizontal and vertical datums; gravitation and centrifugal forces; measurements of gravity and reduction of gravity, gravity anomalies, separation of the geoid and ellipsoid, deflection of the vertical; orthometric and dynamic heights. Prerequisite: SURV 3362.

SURV 4464 Field Surveying 4

Focus on field procedures for route location preliminary design and layout, cadastral and hydrographic surveys. GPS equipment will be introduced for use in both GIS and survey control projects. Emphasis will be on accomplishing common tasks with different equipment and approaches. Hydrographic and cadastral field projects will attempt to demonstrate techniques common to typical situations. Producing a final product in terms of a plan will be an end result to many of these field labs. Students may be required to participate in an industry sponsored practicum where they will be spending time working at a workplace office or project site. Prerequisite: SURV 3364.

SURV 4465 Surveying CAD 3

Continues from SURV 3365. This course will cover 3D design files in greater detail and then work with third party Microstation software for road design and digital mapping. Prerequisite: SURV 3365.

SURV 4468 Cadastral Surveying

Introduces the Canadian legal system, real property law and boundary concepts. Liability of surveyors; land registration systems; the multipurpose cadastre; the Dominion Lands System and land systems used in B.C. history, detailed description, calculations. Operation of land titles systems in Western Canada; descriptions of land; laws and regulations governing surveys in Western Canada (including offshore surveys) as they apply to the systems of surveys. Prerequisite: COMM 2251.

SURV 4469 Planning & Land Utilization

Focuses on the planning process as it applies to regional and community planning. A brief history of urban planning will be included along with an introduction to models that have been used in urban planning studies. The role of various planning authorities, their powers and legislation affecting planning will be introduced along with zoning and its implications for land use and land development. Land use studies from a surveyor's perspective with regard to the subdivision of land and elementary economics related to land development are discussed. Prerequisite: SURV 3367.

SURV 4472 Engineering Surveying

Enables students to recognize and solve the problems associated with the survey of large construction projects. Topics include preliminary surveys for the design of public works, water, sewer, and roads. Surveying practices for specialized projects such as bridge construction, dam site monitoring and tunneling. Prerequisite: SURV 3364.

SURV 4473 Surveying CAD AutoCAD

Continues from SURV 3365. This course will cover surface modeling, road design, and plan production in greater detail. Prerequisite: SURV 3365.

SURV 4474 Surveying CAD Microstation

Introduces Microstation for Geomatics. Topics include 2D element constructions and manipulations, data entry, data editing, symbol creation and plotting.

SURV 4478 Access Database

An overview of various data models will be given and guidelines for designing an efficient database will be presented and utilized to design a relational database. Techniques for developing database applications for Windows, using a commercial database package will be presented. SQL will be introduced and used to conduct complex queries. Prerequisite: SURV 3372.

SURV 4480 Land Information Systems

Covers design and operation of land-related information systems and their role in digital mapping and spatial data management, including concepts of information and LRRIs, the multipurpose cadastre, spatial data management, georeferencing, land information modeling, geoprocessing, input/output operations, file storage, database management and distributed processing, techniques involved in project specifications, design and implementation, and the selection of computer hardware/software for the LRRIs. Review and evaluation of some major LRRIs.

SURV 4562 Astronomy

Presents practical astronomy. Review of spherical trigonometry, celestial sphere, systems of coordinates, time, celestial coordinates, star prediction and identification, solar and stellar observations for azimuth, latitude and longitude. Spherical and rectangular coordinate systems and transformations.

SURV 4663 Adjustment of Surveying Measurements 1

Covers definitions and classification of errors, measures of precision; propagation law of standard errors; weights and propagation of weights; principle of least squares (in matrix notation); adjustment by variation of parameters; conditional observations; combined adjustments; adjustments of triangulation, trilateration nets and traversing post adjustment global and local tests. Prerequisite: MATH 3511.

Transportation & Distribution

TDMT 1100 Learning Skills 1

Assists new International Trade and Transportation students in increasing their success at BCIT. The course covers skills in time management, project management, teamwork, and planning.

TDMT 1101 Geography of Trading

Covers in detail the role of transportation, major trading routes and ports, and other factors in the development of resources for the world and Canada. Emphasis is placed on Canada as a major resource producer, particularly in the emerging Pacific Rim. Transportation is the basis of all economic systems including agricultural production, industrial location, settlement patterns, marketing systems and consumer shopping.

TDMT 1150 Distribution 1 (CITT)

Provides an overview of Canadian transportation modes including water, rail air and pipeline; intermediate transportation agencies; domestic and international intermodal movements, warehousing, material handling (including the use of utilization devised) and transportation rates, tolls and tariffs. A CITT fee of \$144.75 is extra.

TDMT 1353 International Business

Introduces an understanding of the international operating environment. This course will scan the current global trading environment and provide base skills required by international firms to identify risks and analyse opportunities.

TDMT 1409 Introduction to Canada Customs Procedures NAFTA

Introduces students to the harmonized system of exporting and importing and details many of the commonly encountered situations at Canada Customs. The U.S.A., EEC and most OECD countries use the same documentation and valuation system for customs purposes. This course also familiarizes the students with basic NAFTA (North American Free Trade Agreement) details.

TDMT 2100 Team & Learning Skills 2

Supports and enhances the development of teamwork and learning skills. The integration of teamwork skills, reinforcement and application of teamwork skills, personal success skills will be covered as they relate to the second level curriculum. Prerequisite: TDMT 1100.

TDMT 2203 Transportation Economics

Covers a variety of transportation services and their cost factors including carrying capacity, load factors, fuel cost, etc., concluding with profit-oriented rate making. Costing methods relating to various modes of transportation are discussed considering distance, flow of goods and backhaul.

TDMT 2250 Distribution 2 (CITT)

Provides an overview of Canadian transportation regulations; contracts and bills of lading; damage prevention and claims; dangerous goods transportation; marine cargo insurance; Canadian Customs; the North American Free Trade Agreement and INCOTERMS; transportation computer applications; physical distribution; and an introduction to the field of logistics. A CITT text/exam fee is extra.

TDMT 2310 Introduction to Political Science

Teaches students some of the social, cultural and political considerations when dealing with B.C.'s major export markets. Students prepare a research report on a country of their choice, identifying the primary political, social and cultural aspects of trading with that country.

TDMT 3301 Logistics 1

Presents an overview of the total distribution concept. Adding to previous information, the course examines distribution facility location analysis, information systems, control systems, distribution economics and profitability. With heavy emphasis on customer services and profitability, the course prepares the student to conduct transportation, customer service and complete distribution audits.

TDMT 3305 International Trade

Deals with the economic and trading characteristics of nations as they relate to the Canadian economy. An overview of comparative advantage and disadvantage introduces the student to the protectionism and intricacies of international trading. INCO terms and pricing, floating and pegged exchange rates will be discussed together with the movement of international inventories. The course also covers information on counter trade. Prerequisites: TDMT 2250 and MKTG 2243.

TDMT 3315 Intermodal Transportation

The course focuses on the elements of intermodal movements. All aspects of an intermodal movement, including the modes of transport (road, rail, air and water), the facilities and the equipment needed to execute the move, will be studied. Both domestic and international operations will be studied. Emphasis will be placed on containerized movements. Prerequisite: Successful completion of all Level 1 and 2 courses.

TDMT 3402 Introduction to Projects

Prepares students for their fourth term projects (TDMT 4411). Students are required to conduct a management level project, on campus, within BCIT. Students are required to demonstrate learned skills within set terms of reference that are mutually developed between the students and BCIT staff. Prerequisite: Successful completion of all Level 1, 2 and 3 courses.

TDMT 4401 Logistics 2

Adding to previous information, the course examines distribution facility location analysis, information systems, control systems, distribution economics and profitability. With heavy emphasis on customer services and profitability, the course prepares the student to conduct transportation, customer service and complete distribution audits. Prerequisite: TDMT 3301.

TDMT 4411 Industry Project

Provides an opportunity to apply the knowledge from the program to a specific industry project for a sponsoring company. Prerequisite: Successful completion of all Level 1, 2, 3 and 4A courses.

Tourism

TOUR 1260 Issues in Tourism

Examines the evolution, function and direction of tourism as applied in B.C. Group discussion, case histories and lecture formats. Topics include historical influences on tourism; basic components of community tourism; tourism terminology; time zone and currency issues; basic B.C. geography and travel industry conflicts; hospitality and tourism statistics, psychology of travel including all-psycho segmentation; demographics of travel and acculturation; tourism event legacies; destination determination; educational issues for industry and for employees entering careers in tourism sectors.

TOUR 2301 Group Travel, Charters and Tours

Covers the development, research and marketing of tour packages and charters, resulting in a variety of employable skills. Practical exercises are given in tour planning, organizing, managing, guiding and marketing of tour/charter products. Terminology used by tour operators, wholesalers and destination management companies (DMCs) is applied in the costing, documentation and reservation systems used by firms in this growth sector of tourism. Prerequisite: TOUR 1260 or TOUR 1261.

TOUR 2900 Regional Tourism Field Practicum

Requires students to visit one region or series of communities within B.C. to discover the tourism potential of the area, inventory current tourism products and services, assess resident awareness and attitudes toward the tourism industry, and evaluate the infrastructure and superstructure (plant) within the communities. A different routing and region will be visited each year. Interaction with Chambers of Commerce and municipal/regional elected and volunteer representatives, as well as tourism entrepreneurs and business/labour/interest groups will be involved. Field assignments and a term report on the exercise, as well as infield participation with instructors, will form the evaluation on course completion. A supplementary fee will be payable for this course. Prerequisite: TOUR 1260 or 1261.

TOUR 3320 Convention, Trade Show Marketing

Examines all planning involved in meetings and conferences. Topics include program and speaker development; site and transportation selection; supplier negotiations; hospitality and delegate comfort; pre and post activities. Focus emphasises market identification and effective promotion of the program. Incentive travel, and trade-consumer shows exhibitor and attendees. Market promotions and database identification are assessed. Students will be given opportunities to work with local business forums or projects. Prerequisite: TOUR 1260.

TOUR 3324 Tourism Marketing Planning

Presents a study of effective processes for generating product ideas and the development of a marketing plan. Examines general demand factors, travel motivation, market segmentation, travel advertising, sales support, public relations, marketing risks and problems, statistical applications and analysis. Researching markets for tourism. Prerequisites: TOUR 1260 and MKTG 1102.

TOUR 3410 Special Events & Promotion

Prepares student for the high-energy, growing opportunities in community special events and festivals, corporate, sports, non-profit, and fund-raising activities. Planning and marketing of such events to generate gate interest, identity, and sponsorship are explored. A second emphasis is on development and correct use of press releases, media kits, public relations and communications strategies, and dealing with emergency situations involving media. Prerequisite: TOUR 1260.

TOUR 3411 Passenger Transportation Marketing

Covers competitive factors and regulatory changes that have resulted in many changes to transportation firms. An understanding of these factors, with application of traditional marketing concepts, will provide students with skills and knowledge to meet challenges of employment in airline, rail, coach and marine passenger systems. This course is focused on the marketing supply-demand issues, and includes discussion of infrastructure systems related to the various passenger transport forms. Prerequisite: Successful completion of all Level 2 courses.

TOUR 3415 Resort/Hotel Marketing & Sales

Principles of generic sales and marketing are applied specifically to the accommodations sector of Tourism. This course presents a variety of models for marketing a resort/hotel property considering upon size, markets attracted and location. Course emphasises development of an annual marketing plan. Students will maintain close contact with an accommodation property and will monitor techniques currently in use. Discussions will include the role of personal selling, sales reporting methods, communications and media used, and budget identification to effectively reach market goals and specified target groups. Prerequisites: TOUR 1260 or 1261 and successful completion of all Level 1 and Level 2 courses.

TOUR 3445 Cultural Tourism & Geography

Prepares students to acknowledge visitors' traditions when serving them as hosts or when planning a marketing campaign to solicit greater numbers of visitors to B.C. The focus of this course will examine the unique characteristics of potential B.C. visitors. The course will begin by studying North American visitor segments, then consider all major international tourist markets. Students will identify potential cross-cultural/religious observances, gender relationships and body language, artistic expressions, and beliefs and behaviour patterns.

TOUR 4400 Development of Community Tourism

Provides a foundation for examining economic, social, environmental and entrepreneurial activities within a region or community. Business and marketing principles resulting from tourism-related activities are applied to communities in B.C., developing implementation strategies for sustainable growth. Other issues are explored via case studies, brainstorming, and guest speakers will include identifying symptoms of community and regional decline; strategies for economics diversification using tourism; respect for and promotion of indigenous cultures and sensitive ecological areas; methods of creating interactional balance between desires and needs of residents and visitors. A major group project encourages students to work with community planners and entrepreneurs, special interest groups, and area residents. Prerequisites: All Level 3 courses.

TOUR 4418 Directed Studies

Provides students with one day a week allocated to carry out a major project. The project will be in a marketing area of the student's choice, carried out under the guidance of assigned faculty members. Prerequisite: MKTG 2309.

Technology Teacher Education

TTED 3000 Sketch & Drawing Foundations

This course introduces students to the basics of graphic communication as a design tool. Students will gain ability in rapid visualization techniques to effectively communicate ideas on paper. Sketching will be done from real life as well as from imagination. A second component of the course will introduce students to the basics of mechanical drawings used to communicate information needed to build parts and assemblies. Prerequisite: TTED 3009.

TTED 3002 Precision Measurement Foundations

This is a competency-based course which provides basic skill and understanding in precision measurement to enable successful completion of the Tech Ed Diploma course work. Measurement expertise will be gained in the use of micrometers, vernier calipers, and dial indicators. Both imperial and metric systems of measurement will be learned.

TTED 3003 Structures Foundation

This course introduces the basic design of structures, strength of materials and stress analysis at an appropriate level for pre-service Technology Education teachers. Principles of math, science, technology and engineering are learned in an integrated way. Besides receiving formal instruction, students will solve statics problems as well as design, build and test scale structures. Prerequisites: TTED 3009, TTED 3002, TTED 3020, TTED 3030 and TTED 3040.

TTED 3004 Joining Process Foundations

This course introduces the basic principals and methods of joining wood, metals, and plastics. Methods covered will include solvent cementing of plastics, gluing and clamping of woods, soldering, brazing, fusion welding and gluing of metals, and an introduction to a range of mechanical fasteners appropriate for use in public school Technology Education facilities. Prerequisites: TTED 3009, TTED 3002, TTED 3020, TTED 3030 and TTED 3040.

TTED 3005 Design Foundations

This course introduces students to the basics of formal design processes. Various design models will be discussed and illustrated through practical implementation. Design needs will be explored and students will design solutions to various problems concluding in full or scaled models. Documentation of the design process as well as the end solution will be considered in course evaluation. Prerequisite: TTED 3009.

TTED 3009 Basic Safety Foundations

This course will be an introduction to general shop safety for pre-service Technology Education Teachers. Topics covered will include an introduction to WHMIS, the safe handling and storage of materials, identification of hazards, accident prevention, and the use of emergency fire equipment.

TTED 3010 Computer Foundations

Provides students with the computer skills to complete assigned work to the required standard in many Technology Teacher Education courses using their personal computers and BCIT labs. Examines BCIT lab procedures, the Windows NT operating system, detecting and dealing with computer viruses, file management, and the rudiments of word processing with Microsoft Office software.

TTED 3020 Hand Tool Basics Metal/Mech

Presents the nomenclature and application of the wide range of hand tools employed in Technology Teacher Education courses which include mechanical or metalworking related activities. Develops student skills through defined lab and project activities that provide practical application of theory material presented in lectures. Emphasises and requires the safe and proper use of hand tools as appropriate in secondary school shops/labs.

**TTED 3021 Power Tool
Basics Metal/Mech**

Presents the nomenclature and application of a wide range of machine tools as employed in Technology Teacher Education courses which involve mechanical or metalworking related activities. Develop skills through defined lab and project activities which provide practical application of theory material presented in lectures. Emphasises and requires the safe and proper use of machine tools as appropriate in secondary school shops/labs.
Prerequisites: TTED 3009, TTED 3002, TTED 3020 and TTED 3040.

**TTED 3030 Hand Tool
Basics Wood/Plastics**

This course introduces students to the basic hand tools and processes used to manipulate wood (and plastics) for practical constructions. Students will learn how to select, set up and use appropriate tools for specific operations. Basic nomenclature and specifications will be outlined and applied to the school-based context.

**TTED 3031 Power Tool
Basics Wood/Plastics**

This course introduces students to the basic machines and processes used to manipulate wood (and plastics) for practical constructions. Students will learn how to select the most appropriate piece of equipment for specific operations. Basic nomenclature, specifications and safety will be outlined and applied to the school-based context.
Prerequisites: TTED 3009, TTED 3002, TTED 3030 and TTED 3040.

**TTED 3040 Materials Science
Foundations**

This course will be an introduction to the identification of the basic metals, plastics and wood that are commonly found in public school Technology Education facilities.

**TTED 3050 Power Technology
Foundations**

This course will introduce engines and the conventions of BHP and Torque measurement comparison. Students will learn the basics of engines, ignition and fuel systems and will gain practical hands-on experience with engine operation and maintenance.
Prerequisites: TTED 3009, TTED 3002, TTED 3020, TTED 3030 and TTED 3040.

TTED 3060 Electronic Foundations

Introduces the basic concepts, terminology and processes used in electronics. Circuits are breadboarded and then tested with typical electronic test equipment. Emphasises theory and practice appropriate in a public school Technology education electronics program.
Prerequisites: TTED 3009, TTED 3002, TTED 3020, TTED 3030 and TTED 3040.

**TTED 4000 Design, Drawing & CAD 1
for TTED**

This course builds on the fundamental skills and principles of visual literacy and design experienced in the foundation courses and applies them to the preparation of working drawings for product manufacture. A study in interior design and architecture will also provide a basis for aesthetic and structural synthesis. Students will apply the basics of formal drafting techniques, standards and conventions in both electronic and free hand formats. Prerequisites: TTED 3000, TTED 3002, TTED 3003, TTED 3004, TTED 3005 and TTED 3040.

**TTED 4001 Design, Drawing & CAD 2
for TTED**

This course expands on the content of TTED 4000 by offering advanced presentation of products and designs. Students' interior design and architectural work will be rendered in both electronic and manual board formats. Advanced modeling techniques and the ability to objectively critique designs will add to students' communication skills.
Prerequisites: TTED 3000, TTED 3003, TTED 3004, TTED 3005, TTED 3010, TTED 3021 and TTED 3031.

**TTED 4010 Computer Applications
for TTED**

This course introduces students to computer applications and software that is typically of use to public school Technology Education teachers.
Prerequisite: TTED 3010.

**TTED 4025 Product Manufacturing
for TTED**

This course covers the principles and systems of manufacturing and construction, using wood, metal and synthetic materials. Using design, planning and processing skills, students will produce individual as well as group solutions to manufacturing challenges appropriate for public school Technology Education programs. Unique prototyping and mass-production methods will be experienced by students. Appropriate safe work and material handling procedures will be stressed throughout the course. Prerequisites: TTED 3000, TTED 3003, TTED 3004, TTED 3005, TTED 3021, TTED 3031, TTED 3010 and TTED 3060.

**TTED 4035 Computer Control 1
for TTED**

Considers the computer in the role of a controlling device and its application as such in the Technology Education classroom. Topics include Computer Numerical Control (CNC) programming, introduction to the set-up and operating procedures for CNC machines, and using the personal computer (PC) to control small machines, lamps, etc. Some manufacturing on CNC machines will be included. Students will use the PC to control devices using programs of their own design. Appropriate safety equipment is required for all shop-based activities. Prerequisites: TTED 3010, TTED 3021 and TTED 3031.

**TTED 4036 Computer Control 2
for TTED**

Introduces Computer Aided Manufacturing (CAM) software to produce part geometry, toolpaths, and G-code programs to manufacture artifacts on a CNC machine. Includes design of products and application of fixtures suitable for the technology education classroom. Appropriate safety equipment is required for all shop-based activities. Prerequisites: TTED 4000, TTED 4010, TTED 4025, TTED 4035, TTED 4040.

TTED 4040 Materials Science for TTED

This course will examine the physical and chemical properties of various materials suitable for use in public school Technology Education programs. Emphasis will be on how properties influence the selection of materials for specific applications as well as how material properties determine specialized fabrication techniques. Prerequisites: TTED 3000, TTED 3003, TTED 3004, TTED 3005, TTED 3021, TTED 3031 and TTED 3010.

TTED 4050 Power Technology for TTED

This course will continue the investigation into various engine and related support system design, function and maintenance in detail. Transmission of power, robot design and function will also be included. Lab work and self-directed projects will be used to provide students with practical experience to support the theory material studied. Prerequisites: TTED 3050, TTED 4000, TTED 4010, TTED 4025, TTED 4035 and TTED 4040.

TTED 4060 Teaching Electronics 1

This course will investigate aspects of electronic components, power supplies, digital and linear electronic systems which are essential to teaching electronics in schools. It will begin at an introductory level and will take students to an intermediate level. Students will be involved in project design, theory and testing, circuit board and project construction. Appropriate safety and presentation of electronics information in school programs will be emphasized. Prerequisites: TTED 3060, TTED 4000, TTED 4010, TTED 4025, TTED 4035 and TTED 4040.

TTED 4070 Introduction to Teacher Education

This course presents a wide range of topics related to teaching Technology Education in schools including the history of technical education in B.C. schools. Particular attention will focus on what constitutes good teaching and how it affects learning. Observation visits to local schools will be included. Prerequisites: All Term 1 TTED Foundation courses.

TTED 4071 Technology Education Applications

This course examines a wide range of topics related to teaching technical subjects in schools. Particular focus will center on the development and preparation for delivery of an activity that will satisfy the outcomes of the Provincial Technology Education document. Observation and activity visits to local schools will be included. Prerequisites: TTED 3050, TTED 3060, TTED 4000, TTED 4010, TTED 4025, TTED 4035, TTED 4040 and TTED 4070.

TTED 4080 Technology Education Projects

This is largely a self directed course where students apply knowledge and skills acquired throughout the TTED program to solve a technical problem that has application to Technology Education in schools. Research, design, construction, reporting and a final forum presentation will be introduced. Prerequisites: All Term 1, 2, and 3 TTED courses.

TTED 5000 Teaching Design, Draw, and CAD/CAM

Introduces the concept of 3-dimensional computer-based modeling as a tool in the design and manufacture of artifacts. Presents various means of producing, viewing and employing models including wire frames, surfaces, and solids. Considers the use of CAM software to create 3-dimensional models and generate toolpaths to machine complex surfaces using CNC machines.

TTED 5020 Teaching Metal Product Manufacturing

This course covers the equipment, materials and skills necessary to teach metal materials at the senior secondary level. Casting, forming, conditioning advanced and non-traditional machining will be covered. Consideration will be given to the role of the machine shop in public school Technology Education programs. Prerequisites: TTED 4025, TTED 4001, TTED 4040 and TTED 4036.

TTED 5030 Teaching Woods/Composites Manufacturing

This course applies advanced design and construction skills to practical constructions in wood. The history and trends in furniture design will be analysed, concluding with contemporary expressions. Design evaluation will consider technical execution, ethical use of materials, planning and time management. Value-added, found and recycled materials will be encouraged for specific assignments. Exercises in advanced machining operations, techniques and set-ups will broaden the range of possible design solutions. CNC machine control will be incorporated. Prerequisites: TTED 4025, TTED 4001, TTED 4040 and TTED 4036.

TTED 5050 Teaching Automotive Systems

This course focuses on assisting students in developing abilities to teach automotive courses at the senior secondary school level. Through related theory and live car repair work on the entire automobile including the engine and its support systems, the power train, brakes, suspension and body will be studied. Use of contemporary maintenance and diagnostic equipment will be included. Social issues related to the automobile will be considered. Safety and issues concerned with supervising students working on clients cars will also be addressed. Prerequisite: TTED 4250.

TTED 5060 Teaching Electronics 2

This course teaches the concepts of electronics suited to the senior secondary school level using problem solving and design methods. Individual projects based on linear, digital and microcontroller technology will develop skills in design, troubleshooting, construction and package preparation. Prerequisite: TTED 4060.

TTED 5080 Directed Technical Project 1

This course involves personal research in a technology and the development of technical apparatus to introduce the technology to public school Technology Education students. It may involve the use of electronics, wood or metal manufacturing, mechanical or computer based systems. Students will produce a tangible product which may include models, prototypes and appropriate learning materials. Students must have a proposal approved before registering in TTED 5080. Prerequisites: All Term 1, 2 and 3 TTED courses.

TTED 6099 Safety Across Technology Education Curriculum

Instruction in safe work and materials handling practices is embedded in all TTED courses at BCIT. Opportunity exists throughout the TTED program for students to practice safe procedures and to receive guidance while working in our labs. At the end of the third term of the program, each student's knowledge of and ability to identify safe work procedures will be tested in a written comprehensive "Safety Across the Technology Education Curriculum" examination. Prerequisites: All Term 1, 2, and 3 TTED courses.

Wood Products

WOOD 1102 Lumber Grading 1

Given in Level 1 in preparation for Lumber Grading 2, covers information fundamental to the grading of western softwood lumber including tree growth and wood structure, species identification, classification of products and the recognition of characteristics found naturally and caused in manufacture.

WOOD 1103 Lumber Tallying

Presents a full course on lumber tallying and shipping, including understanding Foot Board Measure; converting order data to specified lengths, pieces, bundles and packages; calculating wood moisture content and shrinkage; metric conversion and lumber pricing. Final examinations for certification are by the Council of Forest Industries (COFI) during which the student must achieve a 70 per cent pass mark. A COFI Certificate in Tallying is required to obtain the BCIT Diploma of Technology. Students must also obtain 50 per cent during the term of the course given at BCIT.

WOOD 1104 Log Utilization

Introduces basic log-scaling procedures used in coastal mills and includes different log-sorting methods and recovery calculations used in sawmill and plywood industries. Considerable time is spent practicing scaling techniques on selected log booms.

WOOD 1201 Wood Science 2

Prepares students in wood processing

and handling for lumber manufacturing and pulp chip preparation. Topics include debarking, chipping, chip screening, conveyance, storage, wood and chip units and conversion factors. Problem solving in these topics will give students a good working knowledge of this aspect of the wood industries operation.

WOOD 1202 Lumber Grading 2

Allows students to attend industry lumber grading classes sponsored by the Council of Forest Industries (COFI) and receive further instruction at BCIT. Final examinations for certification are given by COFI, at which time the student must achieve a 70 per cent pass mark as a requisite to obtaining the BCIT Diploma of Technology. Students must also obtain the required 50 per cent term marks for the in-school portion of the course.

WOOD 1203 Summer Technical Report

Allows students to make a detailed report on one phase of the technical operation of a forest products plant, from first-hand experience or from approved research sources.

WOOD 1301 Wood Science 3

Covers the structure and properties of wood including wood micro and ultra structure; moisture in wood; specific gravity and relative density; rheological behaviour of wood. Lab sessions will complement these topics as well as shrinkage, swelling and dimensional stability of wood.

WOOD 1401 Wood Science 4

Covers the structure and properties of wood. Topics include the mechanical properties of wood; wood protection and preservation; and end uses. Emphasis will be placed on laboratory project report writing and treatment of experimental results.

WOOD 2105 Lumber Manufacture 1

Examines methods and equipment used in the manufacture of lumber in the B.C. Coast and Interior, including log preparation, primary and secondary breakdown and sawmill remanufacture. Saw dynamics and maintenance are also

examined. Field trips augment lecture material.

WOOD 2106 Plywood Manufacture

Examines the methods and equipment used in the manufacture of plywood in the B.C. Coast and Interior. Processes discussed include wood veneer production (including rotary peeling, clipping, and sorting), veneer drying and panel construction systems. Some time is spent discussing other types of panel boards and related coatings and overlays. Field trips augment lecture material.

WOOD 2107 Mill Management 1

Supplements material covered in courses on lumber and plywood manufacture. Topics include cost analysis, principles of supervision, accident prevention, fire prevention, industrial relations, maintenance organization, maintenance trades, mobile equipment, materials handling and pollution abatement. A large portion of time is spent on specific assignments in various manufacturing plants.

WOOD 2207 Mill Management 2

Continues from WOOD 2107.

WOOD 3105 Lumber Manufacture 2

Examines methods and equipment used in the kiln drying and planing of lumber as well as quality control, fibre usage, manufacturing economics, specialty remanufacture and machine stress grading. A charge of lumber will be dried at the BCIT dry kiln and the results examined. Prerequisite: WOOD 2105.

WOOD 3106 Plywood/Panelboard Manufacture

Continues from WOOD 2106. Methods and equipment used in the manufacture of plywood in the B.C. Coast and Interior are examined. Processes discussed include lay-up, pressing and finishing. Methods and equipment used in other types of panel board manufacture will also be discussed. Field trips augment material given in lectures. Prerequisite: WOOD 2106.

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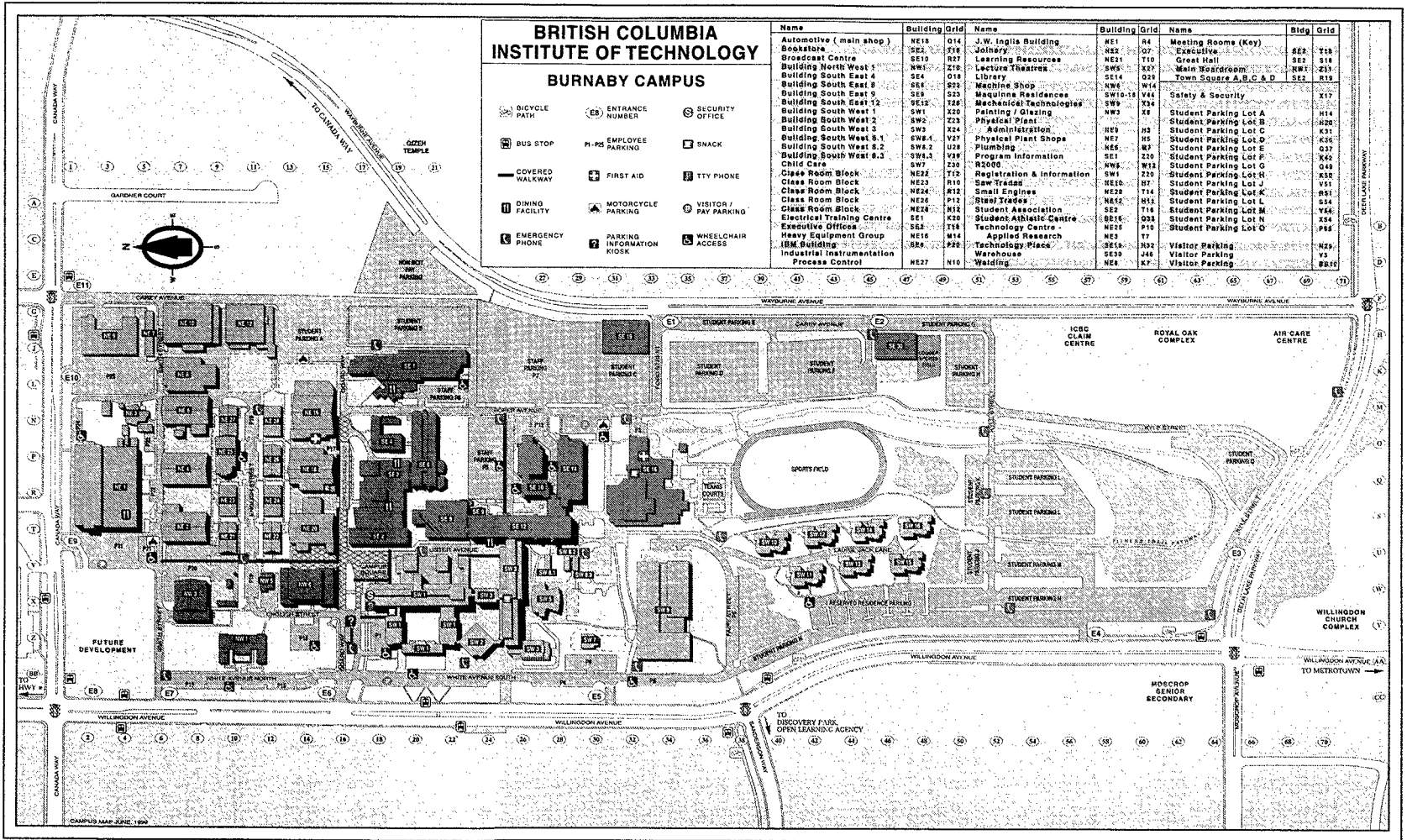
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Application for Admission

FULL-TIME AND BACHELOR OF TECHNOLOGY PROGRAMS

1 When to Apply

Bachelor of Technology Programs:
Trades/Vocational Programs:
Technology Programs:

Applications are accepted all year round.
Applications are accepted all year round.
Apply After:
October 1
June 1
January of the previous year
September 1

For Term Starting:
August/September
January
January: Medical Radiography
May: Engineering Technology Entry

2 How to Apply

1. Complete the attached admission application form making sure to complete every item.
2. You **must** submit transcripts of your secondary school marks and any post-secondary institutions you have attended.
If you do not have official transcripts, you must attach photocopies so that processing can begin.
Please note: If applying for transfer credit for courses taken at other post-secondary institutions, you will be required to submit official sealed transcripts.
3. Check the BCIT Full-time Calendar or program brochure to ensure you have included any additional entrance requirements for your desired program. These additional requirements are listed in the prerequisites section of the program brochure or calendar. Contact BCIT Registration and Information at (604) 434-1610 for program brochures and program information.
4. **Please attach a non-refundable application fee of \$30.** Please pay by cheque, money order, VISA or MasterCard. You can also pay by cash or debit card in person but do not send cash through the postal system. A service charge for any NSF or returned cheque will be assessed.
5. Mail this application together with your supporting documents to: **BCIT Admissions Department, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2.** You may also drop off your application in person at the cashier's wicket in the SW1 Building which faces Willingdon Avenue.
6. You will receive a letter confirming receipt of your application within **4 weeks** of your application date. If you have any questions regarding your application, please call BCIT's Admissions department at (604) 432-8419.

3 Important Notes

To students currently attending secondary school:

If you are currently attending secondary school (high school), ask your Principal's Office to provide you with your marks for courses you have completed, interim marks for courses you are presently attending and a list of courses you plan to take in the future. Arrange to have your final official transcript sent directly to BCIT upon completion. Interim and final transcripts from the Ministry of Education may arrive at BCIT later than required. It is important that you submit your own copies of interim and final transcripts as soon as you receive them from your high school.

To those completing prerequisites through upgrading courses:

If you are attending or planning to attend courses that are required prerequisites for your desired BCIT program, you must include proof of registration with your application form. It is **essential** that you keep the Admissions department informed of your progress by sending interim transcripts or an official note from the course instructor. Upon completion of the course(s), arrange to have your official transcript(s) sent to the Admissions department at BCIT.


Transcript Information

please read carefully

1. When submitting your application form, you must include your transcript(s) showing secondary and post-secondary grades.
 2. You must submit a photocopy of a transcript if you do not have an official transcript available so that processing of your application can begin.
 3. If you submit a photocopied transcript, BCIT reserves the right to request an official transcript at any time.
 4. For a transcript to be considered official, it must bear the original signature, seal, or stamp of the issuing institution.
-
- ☒ Official transcripts and documents submitted are the property of BCIT and are not returned or photocopied for applicants.
 - ☒ Irreplaceable documents, e.g. out of country transcripts, will be returned at the time of application only if the Admissions department receives a written request and a self-addressed envelope.
 - ☒ Applicants who are not accepted or do not register when classes begin must reapply for future start dates. All supporting documents, including transcripts, must be re-submitted.
 - ☒ Complete applications (**which include all supporting documents**) will be considered on a first come, first serve basis. However, many programs receive more applications than seats available. In these programs, BCIT will select those applicants deemed to have the best opportunity for success.



Make sure you complete this checklist before you hand in your application!

- ☐ Have you included either official or photocopied transcripts with your application?
-  **If you answered NO to the question above, don't hand in your application as processing cannot begin until transcripts are received.**
- ☐ Have you included official proof of citizenship status if you are a Landed Immigrant/Permanent Resident or anything other than a Canadian Citizen?
 - ☐ Have you included proof of registration or interim marks if you are taking upgrading courses?
 - ☐ **Have you included your application fee?**
 - ☐ Have you included any additional program requirements as indicated in the BCIT program brochure or calendar?

**BCIT Admissions Department
3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2**

Please detach and return with your application package.



Application for Full-time Program

Full-time and Bachelor of Technology Programs

3700 Willingdon Ave. Burnaby, B.C. V5G 3H2 Phone: (604) 432-8419 www.bcit.ca

BCIT STUDENT NUMBER

If you have previously been a BCIT student or have contacted BCIT for program information, a student number may already have been issued to you. You would find this number on any correspondence from Student Services or the Registrar's office.

If known, please enter that number here

If this number is not known, please check this box and a number will be assigned to you. ☐

Birthdate: DD MM YR

Sex: ☐ male ☐ female

Social Insurance Number (For tax purposes only)

B.C. Examination or PEN number (Personal Education Number) if known

Last Name (Family Name)

Legal (Given) Name

Middle Name

Preferred First Name

Previous Last Name (e.g. Maiden Name)

Address

Town/City Home Phone ()

Province Country Work Phone ()

Postal Code *All official BCIT correspondence will be mailed to this address. Please notify the Admissions department of any change.*

Your citizenship status is: ☐ Canadian Citizen ☐ Landed Immigrant

Country of Citizenship if not Canada:

Is English your primary language? ☐ yes ☐ no If no, what is your primary language?

Do you wish to declare yourself as being of First Nations* ancestry? ☐ yes ☐ no

If yes, do you wish to receive information on services available to First Nations students? ☐ yes ☐ no

***First Nations denotes status and non-status Native people, Métis and Inuit.**

Do you have any medical, physical or learning disability that you might require support services for? ☐ yes ☐ no

Do you have any colour blindness? ☐ yes ☐ no *For more information, please contact The Educational Resource Centre for Students with Disabilities at (604) 451-6963.*

Who should be contacted in case of an emergency?

Name Phone Number ()

PERSONAL DATA

HISTORY

Last Secondary School attended	Location:	From:	Date To:	Grade completed	
Post Secondary School(s) attended	Location:	From:	To:	Years completed	Credential earned
Most recent employers (Attach resume if desired or required)	Location:	From:	To:	Job title or duties performed	

Have you been a resident of B.C. for the last 12 months?

☐ yes ☐ no

If no, please explain: _____

For Trades/Vocational programs, please make only one choice. For Technology programs you can make one or two choices. If you are applying for the ETE upgrading program (Engineering Technology Entry program) as your first choice, you must also indicate the Technology program you desire to take afterwards as your second choice.

Type of BCIT program desired:

☐

Technology

☐

Bachelor of Technology

☐

Trade/Vocational

1st Choice:

Program Name _____

2nd Choice:

Program Name _____

*Option Name _____

*Option Name _____

***If you are applying to Marketing Management, Broadcast Communications, Renewable Resources or Trades Drafting you must indicate your option/specialization at the time of application.**

***If a seat in my chosen program becomes available at the last minute for any given intake I wish to be contacted.** ☐

Preferred start date: _____
(month) (year)

ASAP ☐

Have you previously attended BCIT? ☐ yes ☐ no

Most students begin at Level One. Students seeking advanced placement because of previous education can apply for Level Two or higher. More information can be found in BCIT's Full-time Calendar or by calling Student Services at (604) 434-1610.

If you applying for Direct Entry/Advanced Placement, please indicate which Level: 2 3 4 5
(please circle)

LEGAL

Information collected and maintained for Student Records is collected under the authority of the Institute of Technology Act. BCIT gathers and maintains information used for purposes of admission, registration, and other fundamental activities related to being a member of the BCIT community and attending a public post-secondary institution in the Province of British Columbia. Information you provide will also be used for research purposes. Student personal information will be used to verify your provincial Personal Education Number (PEN), or assign one to you. The main uses of the PEN will be for measuring participation in post-secondary education. As well, the PEN will be used for program research and evaluation, but any personal information disclosed for these purposes will be in non-identifiable form. These uses have been reviewed and approved by the Information and Privacy Commissioner. For further information, please contact the Office of the Registrar, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2.

I hereby declare that the information I have submitted on this application is true and correct. Completion of this signed application permits BCIT to request and/or confirm any information necessary to support my application for admission. In signing this application for admission, I understand that this information, along with subsequent information placed on my student record, will be protected and used in compliance with the Freedom of Information and Protection and Privacy Act. If granted an award, I authorize the Financial Aid and Awards office to release pertinent information to the donor of the award and provincial funding bodies. If I am admitted to BCIT, I agree to abide by its policies and procedures. I authorize BCIT to use my name and/or photo image in communications materials for the purpose of publicizing BCIT students/graduates and their achievements.

Signature _____ Date _____

FEES

A non-refundable application fee MUST be submitted with this form. You can pay by cheque, money order, VISA or MasterCard. Cash and debit cards are accepted in person only. A service charge for any NSF or returned cheque will be assessed. **Applications received without the application fee will not be processed.**

☐ Visa No. _____

Expiry Date _____

☐ MasterCard No. _____

Expiry Date _____

☐ personal cheque enclosed

☐ money order enclosed

a degree for the real world

Bachelor of Technology in Management

Fact: More than 20% of our students have been promoted while taking BCIT's Bachelor of Technology degree in Management.

The secret is the "real world" format of this degree – the project work is "real work" that you apply right to your job.

Flexibility makes it possible. Create the schedule that works for you, then work from home or anywhere – online, any time.

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Lower Mainland: 432-8658

Toll free: 1-877-428-8181

E-mail: mgmtdegr@bcit.ca



"I attribute my ability to lead a work team and supervise staff directly to the degree program and the confidence that I've developed."

Kelly Uyeno
B.C. Cancer Agency



"With no classes, Internet assignments and chat rooms, this degree program really fits your world."

Patti Bodnarchuk
Richmond Hospital

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

Xfm

Xfm

104.9 THE NEW ROCK ALTERNATIVE

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It is our aim to provide you with the freshest quality around. We serve everything from fresh brewed coffee, scrumptious scones to gourmet sandwiches and hot lunches. Our food is made right here on campus, so it is always fresh.

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Campus Café

- Mr. Sub
 - Fresh Greens
- Tel. 451-6737
SE12 Building

Xpress Stop

- Juice Bar
 - Cappuccino
- SE16 Building

ETC. Café

- Ritazza
 - Grill Works
- Tel. 432-8684
SE1 Building

J.W. Inglis Café

- Grill Works
 - Ritazza
- Tel. 432-8236
NE1 Building

The Rix

- Starbucks
 - Uppercrust
- Tel. 432-8646
SE2 Building

Road Runner

- Ritazza
 - Not Just Donuts
- Tel. 434-5734
SW1 Building, 2nd Floor

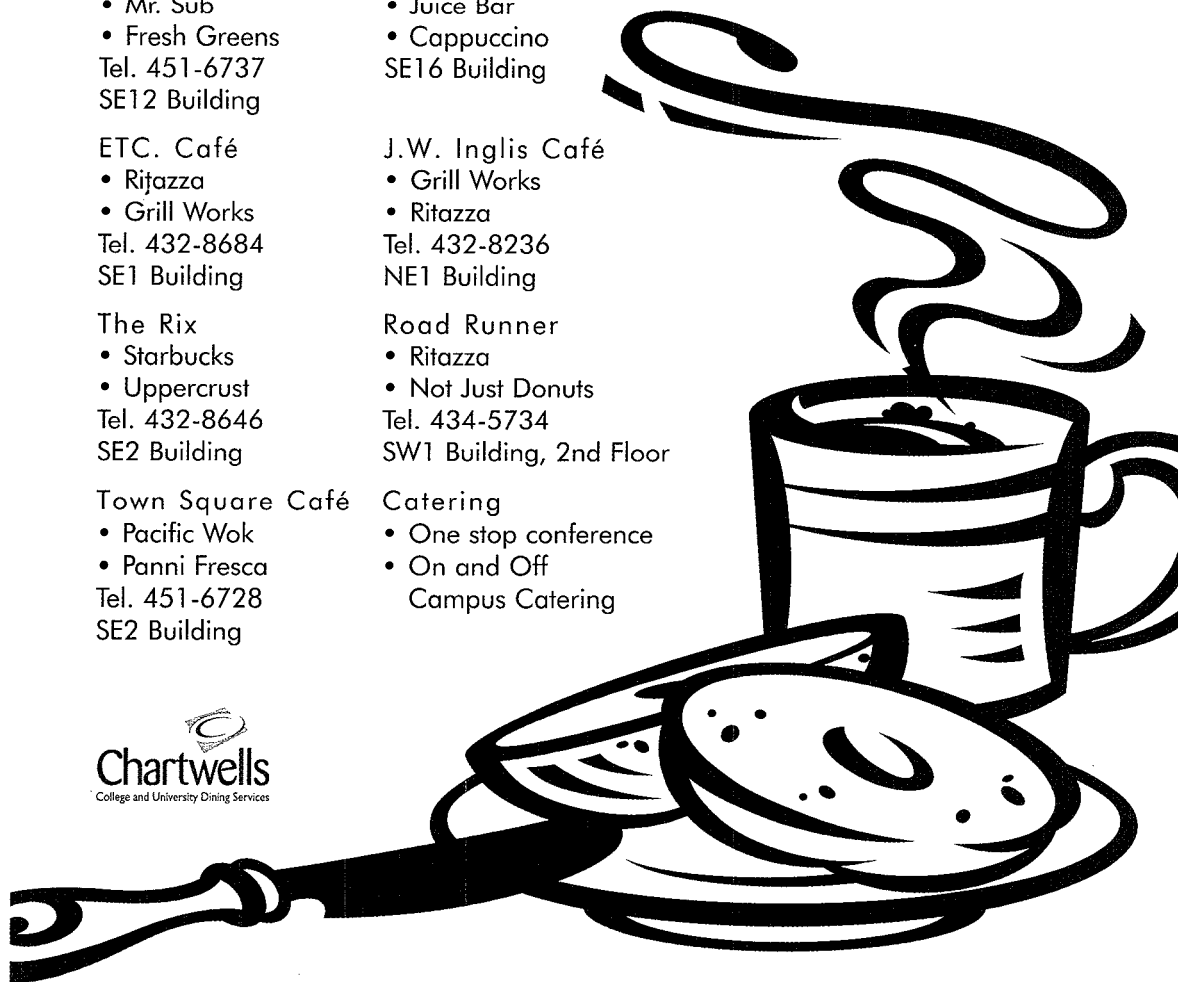
Town Square Café

- Pacific Wok
 - Panni Fresca
- Tel. 451-6728
SE2 Building

Catering

- One stop conference
 - On and Off
- Campus Catering


Chartwells
College and University Dining Services



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