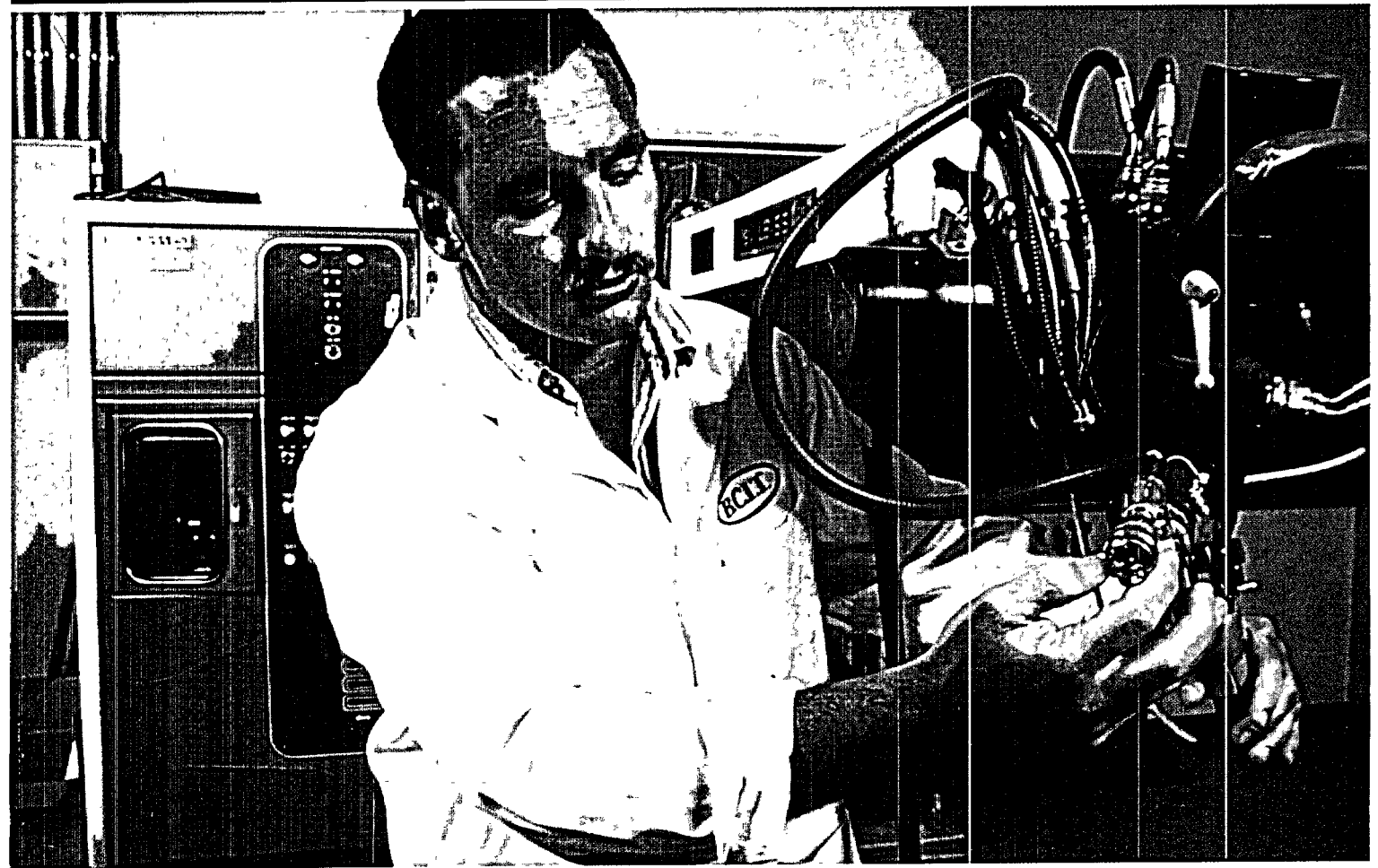




PART-TIME TECHNOLOGY
AND TRADE PROGRAMS

Calendar

1 2 3 4 5 6 7 8 9 10 11 12



BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

The BCIT Mandate

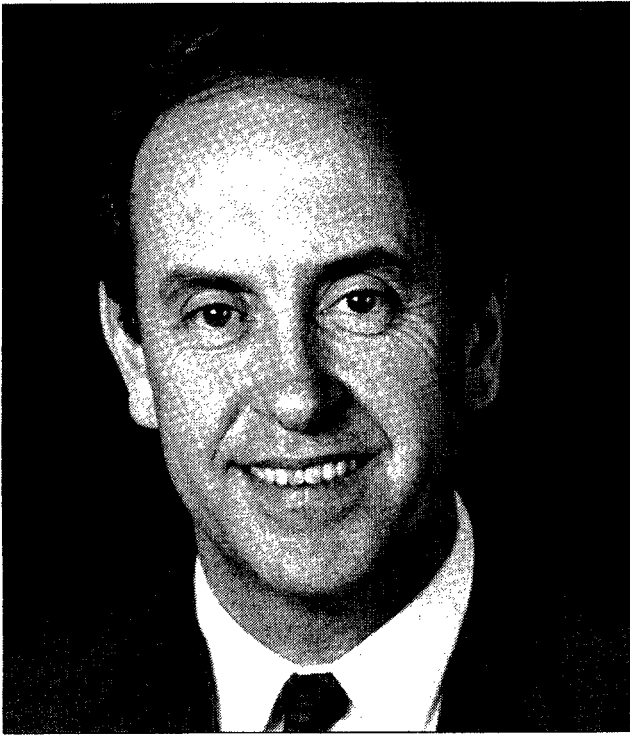
The British Columbia Institute of Technology will be an
innovative and flexible
advanced technology enterprise
which will focus on those **initiatives** that increase the
level of **entrepreneurial activity** within the province.

Specifically BCIT will:

- establish **expertise** in specific **technological** areas
and develop **applications** for
British Columbia business and industry;
- facilitate **technology transfer** by
providing **innovation**, industrial **assistance**
and contracted **applied research**;
and,
- provide a **highly trained work force**
vital to the **establishment** and
continuance of advanced technology
in **British Columbia**

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

Message from the President



The world of work is changing. In today's economy employers favour workers who can adjust to new job requirements and the rapidly changing technology of the workplace.

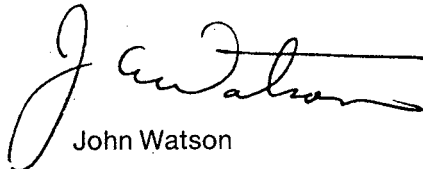
Life-long learning will be essential for the employees of the 21st century.

In addition to BCIT's part-time Certificate programs many part-time programs now lead to nationally recognized diplomas of technology. We have established Advanced Diploma programs in Health, Business and Engineering specialties. We are extremely pleased to stress that some of these specialties are now recognized towards Bachelors degree status.

Our part-time programs respond to your need to succeed in "tomorrow's" competitive workplace.

I encourage you to take advantage of the opportunities for life-long learning that BCIT provides.

Sincerely,

A handwritten signature in cursive script, reading "John Watson". The signature is written in dark ink on a white background.

John Watson

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Changes to Curricula, Regulations and Services

Although it is proposed to adhere to the programs of study as set forth in this calendar, the Institute 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.

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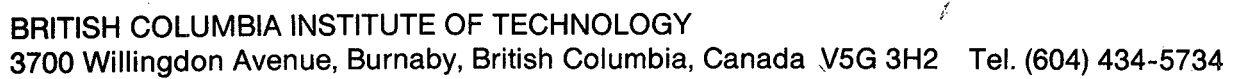
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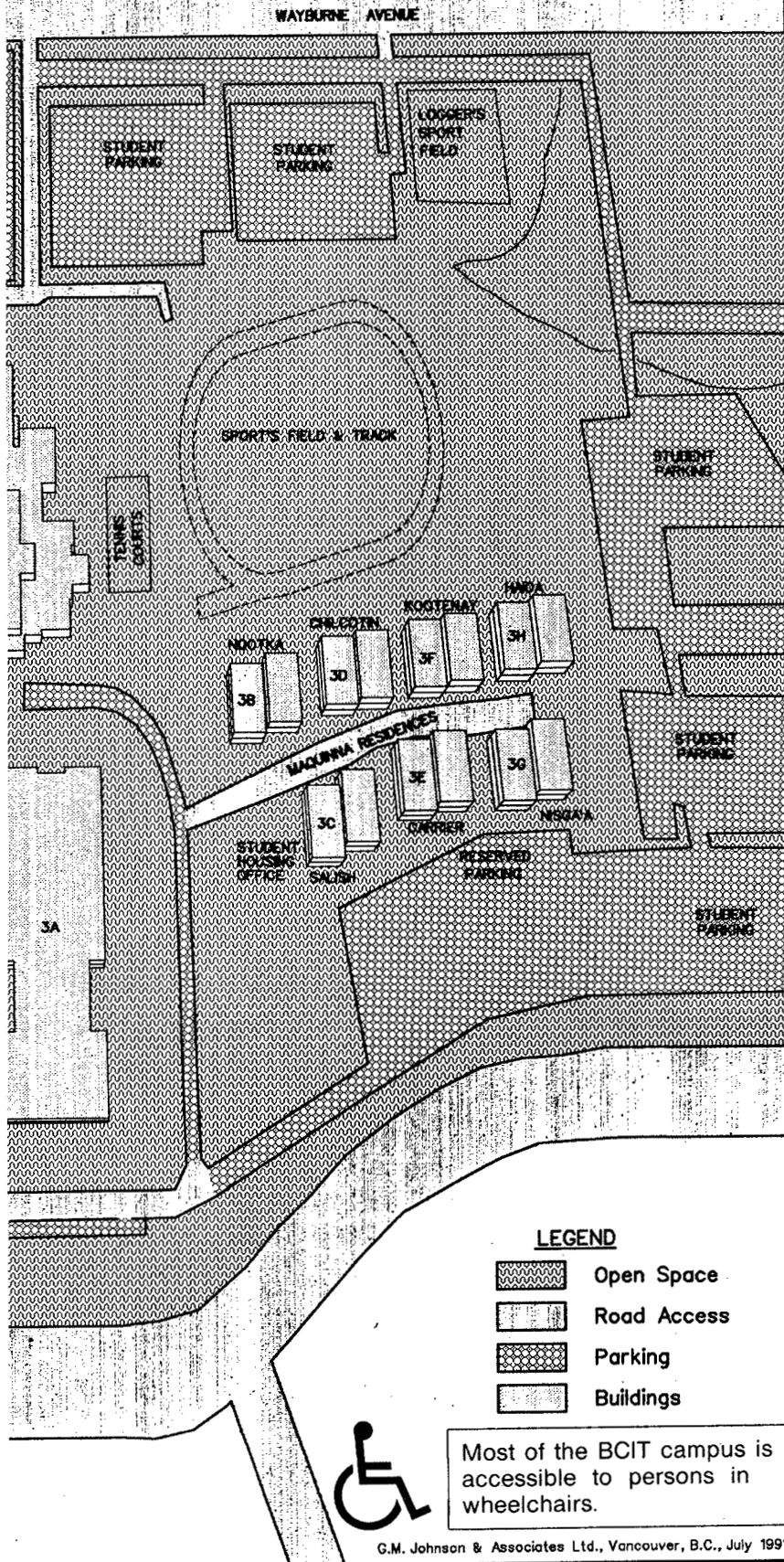
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G.M. Johnson & Associates Ltd., Vancouver, B.C., July 1991

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General Information

CAMPUS LOCATIONS

1 BURNABY, MAIN CAMPUS

Full-time and part-time technology and trades courses and programs.

3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2
Phone: 434-5734 (Campus Switchboard)
Fax: 430-1331

IMPORTANT NUMBERS

Program Advising434-0022
Counselling434-3304
Financial Aid and Awards432-8555
Admission: Full-time programs432-8419
Registration: Part-time Studies434-1610
Student Records432-8498
Cashier (Refunds/Payments)(local 5046) 434-5734

OFFICE HOURS

Office hours for Admission/Registration and General Enquiries:

Mid August to the first week in July the following year:

0830 - 1900, Monday to Thursday

0830 - 1630, Friday

0830 - 1230, Saturday

First week in July to mid August

0830 - 1630, Monday to Friday

Closed Saturday

Please see our advertising supplements (flyers) for specific dates, or call 434-1610.

2 DOWNTOWN EDUCATION CENTRE

Part-time Studies technology courses only.

549 Howe Street
Vancouver, B.C. V3C 2C6
Phone: 687-4666
Fax: 687-2488

OFFICE HOURS

When school is in session:

0830-1830, Monday to Thursday

0830-1630, Friday

Otherwise 0830-1730, Monday to Thursday.

3 KASLO CAMPUS

Health Part-time Studies classroom courses only.

2780 East Broadway
Vancouver, B.C. V5M 1Y8
Phone: 439-4100
Fax: 251-2008

4 SURREY

Part-time Studies technology courses only.

Princess Margaret Senior Secondary School
12870 72nd Avenue
Surrey, B.C. V3W 2N1

NOTE: While the Burnaby main campus and Downtown Education Centre offer year-round registration service for part-time studies courses, the Surrey location has limited registration services. Please see our advertising supplements for registration and course details for this location.

5 SEA ISLAND

Aviation courses and programs only.

Vancouver International Airport (South)
5301 Airport Road, South
Richmond, B.C. V7B 1B5
Phone: 278-4831

6 COQUITLAM COLLEGE

Part-time Studies Computer Systems Technology courses only.

1100 Winslow
Coquitlam, B.C.

7 KINGSTON COLLEGE

Part-time Studies Computer Systems Technology courses only

2286 Holdom Avenue
Burnaby, B.C. V5B 4Y5

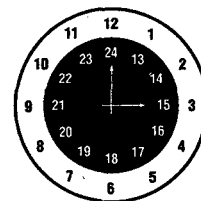
8 RICHMOND

Part-time Studies Computer Systems Technology courses only.

Ano Office Automation
#110-11100 Voyageur Way
Richmond, B.C. V6X 3E1

BCIT USES THE 24-HOUR CLOCK

0001 - 12:01 am	1300 - 1:00 pm
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	



PERSONAL DATA

It is the student's responsibility to ensure all personal data on file with the Registrar's Office is accurate.

REFUND DEADLINE

It is the student's responsibility to check the refund deadline dates in this calendar. Please see refund section on page 18. This information may also be obtained from the Registrar's Office or the cashier.

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 (AIDS virus). BCIT's Medical Services Department will develop a clear set of guidelines for assisting staff and students to understand and deal with the appropriate handling of bodily fluids. BCIT will not insist on mandatory blood testing for the AIDS antibody. 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.

If an employee's or student's health status deteriorates because of AIDS and if his/her condition indicates alternative or special arrangements, the individual will be treated in the same manner and with the same confidentiality as any other person with a serious illness.

DISABLED ACCESS

BCIT is committed to providing students with disabilities with equal opportunity to maximize their potential in our educational setting.

CLEAN AIR POLICY

It is the policy of the British Columbia Institute of Technology that a smoke-free environment be provided for employees, students and visitors. Smoking is, therefore, restricted to specially designated areas throughout the Institute.

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 that they are prepared to conform to all regulations.

- 1 Students are expected to conduct themselves in exemplary fashion at all times and pay diligent attention to their studies. If the School Dean or the Registrar believes a student's conduct is such that it is detrimental to the interests of the Institute, a recommendation may be made to the President to exclude the student from further attendance. The President has the final power to suspend or expel a student for disciplinary reasons, subject to the student's right to appeal this decision to a committee designated by the Board of Governors. A student who has been expelled or suspended for misconduct will not be admitted to the Institute grounds or buildings.
- 2 Acts of cheating, plagiarism and dishonesty will not be tolerated by this Institute, and the degree of punitive action may range from a written warning, to a withdrawal from the program. These penalties may also be applied to students who knowingly contribute to the act of dishonesty, cheating and plagiarism.
- 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 judgement 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, the student may be required to wear a uniform or otherwise dress himself/herself 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 and laboratory, 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, the student must communicate as soon as possible with his/her Program Head or Chief Instructor, indicating the reason for absence.
- 2 Prolonged illness of three or more consecutive days must have a doctor's certificate sent to the department, substantiating the absence.

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

Trade Programs

Students failing to report absences to departments, for three or more days.

Students who are absent for any cause, for more than 10% of the time.

Technology Programs

If a student is absent for any cause, other than illness, for more than 10% of the time prescribed for the subject. In certain programs or courses, special regulations may apply governing attendance; these will be stated in the course outline.

Appeals

Students may appeal the decision through the normal academic channels.

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 which identifies a user to a computer; that is, knowledge of a password which is 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 user's 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 those persons share responsibility for that password.)

- (b) Do not attempt to discover or change any user's charges.
- (c) 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.
- (d) Do not knowingly consume excessive resources.
- (e) 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.
- (f) 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

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B. Copping, M.D., B.Sc., M.Sc., Director Medical Services
Marilyn Wright, Director of Development

OFFICE OF THE REGISTRAR

The Office of the Registrar is located in Building SW1 on the first floor, facing Willingdon Avenue. This office is the administrative centre for all the related activities of the Registrar's Office.

Admissions/Registration

Admissions/Registration receives and processes all applications for full-time programs and part-time courses. Registration for part-time courses can be made over the phone, in person, by FAX or mail.

Enquiries for program information and application requests should be directed to Student Services at 434-3304. People calling from outside the Greater Vancouver area may use the Toll Free Number: 1-800-242-0676.

Office hours are:

Mid August to the first week in July the following year:

0830 - 1900, Monday to Thursday

0830 - 1630, Friday

0830 - 1230, Saturday

First week in July to mid August

0830 - 1630, Monday to Friday

Closed Saturday

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

Student Records

The following services are provided by the Student Records Department:

1. Transcript requests
2. Verification of attendance
3. Graduation eligibility
4. Course credit evaluation
5. Certificate/Diploma processing.

Office hours are 0830 - 1630, Monday to Friday.

Timetabling

The Timetabling Department produces the Institute's master timetables, including those for full-time technology programs, part-time trades and technology programs and full-time technology examinations. It handles day-to-day room bookings for meetings and special events.

Staff

Mario Mazziotti, Dipl.T., B.Sc., Registrar

Jeri Fostvelt, Associate Registrar

Michelle Philippe, B.Sc., Dipl.T., Systems Assistant

Admissions/Registration

Lois Nightingale, Supervisor,

General enquiries: 434-1610

Application requests: 434-3304

Student Records

Susan Morphet, Supervisor

General enquiries: 432-8498

Timetabling

George Brown, Supervisor

General enquiries: 432-8451

BCIT Services

STUDENT SERVICES

The Student Services reception area for Program Advising, Counselling and Financial Aid and Awards is located at the northwest corner, 2nd floor, Building SW1. Our offices are open from 0830 to 1630, Monday to Friday. For telephone enquiries, please call 434-3304. Evening appointments are available for part-time students during Fall, Winter and Spring Terms.

Staff

Val Karpinsky, B.A.(Hons.), Director, Student Services and Enrolment Management Project
Sandie Mooney, Secretary to Director
Joyce Davidson, Clerical Support
Lisa Pederson, Clerical Support
Mariana Rogic, Clerical Support
Muriel Shaw, Clerical Support
Lisa Shelton, Clerical Support
Janet Wadsworth, Clerical Support

Program Advising

Program Advisors provide information, through an interview process, about programs, learning and career opportunities for full-time and part-time students.

Program Advisors will assist with individual course selection. For certificate program approval, you may wish to meet with a Part-time Studies Program Advisor. Business students usually complete one or two courses before meeting with an Advisor. Engineering Technology students may wish to meet with an Advisor prior to course registration. We look forward to hearing from you. Our telephone number is 434-0022.

Program Advisors

Chikako Fong, B.A.
Amanda Hill, B.A.
Pat McCall, B.A.
Ann McNaughton, Cert.
Raelene Rowe, B.A., Coordinator

Program Advisors - Part-time Studies

Karen Cope, B.A., Acting, Engineering Technology & Trades
Mandy Klepic, B.A., (on leave)
Chris Lloyd, Dipl.T., Business

Counselling

Counselling Services offer a free and confidential career counselling service to all current and prospective BCIT students. Professionally trained counsellors will assist students in selecting a career, making a career change, re-entering the work force, or adjusting a career to fit a chosen lifestyle. In addition, group information sessions regarding Health, Business and Engineering career options are offered on a regular basis. Contact Student Services Reception for details.

Any student requiring classroom accommodation or any other support service, please contact Shirley Coomber at 434-3304.

Counselling Services, in conjunction with Part-time Studies, offers several Career Search Workshops during the school year. These workshops are generally 12 hours long (4

evenings or 2 days) and are designed primarily for prospective students who have been in the work force at least two years. Participants examine their career paths and lifestyles in terms of direction and personal satisfaction. Registration for Career Search Workshops is handled through Registration at 434-1610.

For further information about Counselling Services at BCIT, contact Student Services Reception in Building SW1, Room 2300, or telephone 434-3304.

Counselling Staff

Shirley Coomber, B.Ed., M.Ed., Counsellor/Coordinator, Services for Students with Disabilities
Stu Gibbs, B.A., M.S.Ed., Counsellor/Liaison Trades
Heather Hyde, B.A., M.A., R.Psych., Counsellor/Liaison Engineering Technology
Howard Peto, B.S.A., M.Ed., Counsellor/Coordinator, Counselling/Liaison Business
Jean Spence, B.A., M.Ed., Counsellor/Liaison Health Sciences

Financial Aid for Part-time Students

Limited financial assistance is available to students registering for part-time programs of short duration. This assistance is based on financial need.

1. Canada Part-time Student Loan Program

Part-time loans are interest-bearing from the date of negotiation. The first payment is due 30 days after the loan is negotiated. Part-time loans can be used for tuition and book costs, plus other expenses related to taking courses (such as transportation and childcare). Students taking a course load that represents 20% to 59% of a full program of studies can apply for a part-time loan. At BCIT, most full-time programs include 30 credits per term. This means that a BCIT student taking courses over a 12-week period must normally register in at least 6 hours to be eligible for a part-time loan.

Part-time loan applications can be obtained from the Financial Aid Reception in Student Services. Application deadline: End of the second week of classes.

2. British Columbia Part-time Student Assistance Program

Part-time Student Assistance is non-repayable grant funding to assist students with direct educational costs. Due to limited funding at BCIT, assistance is normally restricted to tuition only. The emphasis is on aiding single parents and mature adults who can prove strong financial need. To be eligible to apply, a student must be taking courses at least 12 weeks in length that represent up to 59% of a full program of studies. BC Part-time Assistance applications can be obtained from the Financial Aid Reception in Student Services. Application deadline: Prior to the first day of classes.

3. BCIT Part-time Bursaries

Part-time Bursaries are non-repayable grants intended for BCIT students who have strong financial need. While Part-time Bursaries are usually limited to tuition only, in special circumstances a student can apply for funds to cover tuition and other direct educational expenses such as books, trans-

portation and childcare. Students attending BCIT on a part-time basis can apply (as well as students attending full-time programs less than 12 weeks in duration). Due to limited funding, applicants must make a good case that they have exhausted all other possible sources of funds to assist them attend school. BCIT Part-time Bursary applications can be obtained from the Financial Aid Reception in Student Services. Applications are reviewed once a month. Students should apply by one of the following deadlines:

January 22	April 23	July 23	October 22
February 19	May 22	August 20	November 19

4. Adult Basic Student Assistance Program

Adult Basic Student Assistance is for financial-needy students attending pre-entry and upgrading courses. ABESAP is non-repayable grant assistance. Applicants must be registering in one or more of the following courses:

Chemistry 001
 Communication 001, 002, 003, 004, 990, 988
 Mathematics 001, 002
 Mathematics for Business OPMT 099
 Physics 009
 Career Search Workshop ADMN 916
 Trades Exploratory Program for Women TEXP 900

Students wishing to apply for ABESAP should contact the Financial Aid Reception in Student Services and make an appointment to see a Financial Aid Advisor. Application deadline: Prior to the first day of classes.

FURTHER INFORMATION on financial assistance for BCIT part-time students can be obtained from the Financial Aid Reception in Student Services. (Building SW1, Room 2300) Office Hours: 0830 to 1630 Monday to Friday. Telephone 432-8555.

Financial Aid and Awards Staff

Jennifer Orum, B.Ed., M.A., Coordinator
 Jim Anderson, B.A., Senior Advisor
 Cathy Schweers, Advisor, Trades
 Hanne Logan, Financial Aid Assistant, Trades
 Siok Ang, B.A. (Hons.), Advisor, Technologies, D.P.M., EXD
 Angie Chan, Advisor, Technologies
 Avalon Tagami, Advisor, Technologies
 Desseri Ackerman, B.Comm., Financial Aid Assistant, Technologies
 Lisa Ho, Financial Aid Assistant, Technologies

LIBRARY SERVICES

The BCIT library plays an active role in the educational process by providing the BCIT community and province with access to current technical materials and instruction in research methods using the most advanced information technology. To serve program needs, the library houses over 400,000 books, periodicals, pamphlets and non print material. Major strengths are found in the collections of technical reports, standards, Statistics Canada including Census Canada, company annual reports, topographical and land use maps, legal and legislative materials, microcomputer software. There is a large microcomputer lab in the basement of the library which provides students with the convenience of bookable space and equipment. The library has a large collection of films and videos, and there are preview booths and video viewing facilities on the library's main floor.

Librarians give instruction in library research skills through the use of DOBIS, the online catalog of the library's holdings, periodical indexes in print format and on CD-ROM, and other specialized sources of information. As well as individual and

group instruction, there are printed guides to various information sources, facilities and services.

Library Hours

September – May (subject to change)

Main Library

Monday – Thursday	0730 - 2230
Friday	0730 - 1700
Saturday and Sunday	0900 - 1700

Summer hours vary – check for times.

For loans, overdue and hold information and library hours, phone 432-8370.

Overdues, Fines, Replacement Policies

The purpose of fines is to protect the rights of all library patrons and provide an incentive to return books promptly. Overdue notices are mailed out. Overdue loans result in the blocking of further loan transactions. A nonrefundable fee is levied for overdue material that is not returned. The fee covers the purchase and processing of a replacement copy. No statement of marks, diploma or certificate will be issued until the student settles all financial obligations for overdue material. The rates are 50¢ per day, and 50¢ per hour for reserve material.

Staff

Paula Pick, B.A., M.L.S., Institute Librarian
 Margot Allingham, B.A., B.L.S., M.L.S., Reference Librarian-Engineering
 Yu-Mei Choi, B.S.Sc., M.L.S., Head Cataloguer
 Ana Ferrinho, B.A., M.L.S., Reference Librarian – Health
 Anthony Kelly, B.A., M.L.S., Reference Librarian – Trades
 Frank Knor, Dipl.T., B.Ed., B.L.S., M.L.S., Reference Librarian – Electronics/Current Awareness Coordinator
 Merilee MacKinnon, B.A., M.L.S., DOBIS Systems Librarian
 Gerry Weeks, B.A., B.L.S., M.L.S., Reference Librarian – Business/Reference Services Coordinator
 Robert A. Roy, B.A., M.A., B.L.S., Public/Technical Services Coordinator

FIRST AID

First aid attendants are on call as follows:

Monday – Friday	0700-2200
Saturday	0830-1530

Attendants are located in Bldg. #22.

Emergency: local 8820

Non Emergency: local 8872

Voice pager: 667-2052

When first aid attendants are on duty:

- (a) If injury or health problem is life threatening or if patient is otherwise immobile:
 - (i) Call attendant as above giving precise location of patient;
 - (ii) Call ambulance at 872-5151 advising them to enter the campus via Willingdon/Goard Way;
 - (iii) Call security pager #735-5201, wait for beep tone, give location of patient and request security to meet ambulance at Willingdon/Goard Way entrance and escort ambulance crew to patient.
- (b) If patient is mobile, escort to first aid attendant in Bldg. #22.

When first aid attendants are not on duty:

If injury or health problem is life threatening or if patient otherwise requires medical treatment call ambulance at 872-5151.

Sea Island Campus

Monday – Friday 0800-1600

CAMPUS FOOD SERVICES**Forster's**

Forster's operates two cafeterias on the north side of the campus. The J.W. Inglis building cafeteria is located on the second floor at street level. It is open: Monday to Thursday 0630-2100, (the kitchen closes at 1900); Friday 0630-1500; Saturday 0800- 1230. The Electrical Training Centre cafeteria is open every day at the same times, Monday - Friday, as the J.W. Inglis cafeteria and closed on Saturday.

The SAC

The Student Association offers an A&W outlet in the SAC. Vending machines are located at several points around campus. These services are available from September to the end of June. The summer schedule is not confirmed at time of printing.

HOUSING

The BCIT Housing Office, located on the Burnaby Campus, is available to assist students from out of town in finding suitable off-campus accommodation in the greater Vancouver area.

The Housing Office maintains lists of both long term (several months to several years) and short term (one week to several months) accommodation. Lists include private suites, room and board, and shared accommodation in family homes.

Accommodation lists are updated regularly and can be mailed out on request. Please be aware, however, that accommodation rents change and a list may be partially out of date by the time you receive it.

For more information please call or write the BCIT Housing Office.

Office Hours

September – May
Monday – Friday 0830 - 2200
June - August
Monday – Friday 0830 - 1630

Address

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

Location

Southwest corner of Burnaby Campus, z
Salish House, Maquinna
Residence Telephone 432-8677

TRANSIT

The BCIT campus has frequent daily bus service providing direct access to the campus. In addition, the Sky Train rapid transit service is a short bus ride from the campus. The cost of monthly transit passes varies according to 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 261-5100. You can also pick up bus schedules for Greater Vancouver in the Maquinna Residence.

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. Parking and traffic is administered and controlled by the Safety and Security Department, Building 2T, phone 432-8719. Parking Office hours are 0700-1600, Monday to Friday. Improperly parked vehicles or vehicles not displaying valid permits are subject to impoundment off campus at the owner's risk and expense. License numbers of impounded vehicles are posted at the entrance to the parking office, Building 2T, together with the name and location of the towing company. 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 does not accept liability for theft from, or damage to, vehicles parked on campus.

Parking permits can be purchased from the Admissions cashiers, Building SW1, first floor from 0830-1630, Monday – Friday and during evening peak registration periods. Day parking permits (short-term) can be purchased from the Parking Office, Building 2T, from 0800-1630, Monday to Friday.

The current parking fee for part-time students is \$11 per term (subject to change).

Parking for the Physically Challenged

Special parking arrangements are available by contacting the parking office.

Parking Violations

To avoid vehicle impoundment, please note the following: ensure that a valid permit is displayed at all times while parked on campus day or night; park only in areas authorized by permits; do not park in fire lanes, blocking fire hydrants, along yellow curbs, on roadways or anywhere not designated for parking or that impedes free traffic flow/pedestrian safety; do not block off another parked vehicle; do not use parking permits fraudulently.

Vehicle Assistance

Vehicle breakdowns or other problems should be referred to security staff who will assist if possible.

PLACEMENT CENTRE

The Centre is located in the Student Services area in Building SW1. The office has two distinct functions. The first provides a placement service to certificate and diploma students in the technologies; this includes summer and part-time work for alumni, who are welcome to use the service for two years after graduation. To assist new graduates, the Centre provides an on campus recruiting program from January to June for employers to interview students for career positions, prior to graduation.

The Centre is open throughout the year. Phone 432-8333 for more information

BOOKSTORE

The BCIT bookstore is located at the southeast end of the campus on the ground floor of Building 2D. It sells required textbooks, software and educational material for BCIT courses. Textbook lists may be consulted in the bookstore. In addition to textbooks, a large selection of school, drafting, and engineering supplies as well as computer reference

books is available. Special orders may be placed for books. The bookstore is open from 0800-1600 hours throughout the year, Monday through Friday. Extended hours of operation are offered at the beginning of each term. A schedule of dates and extended hours is posted in the bookstore prior to the commencement of each term.

Textbooks and educational material for courses at the Downtown Education Centre are available at the bookstore outlet at that location. This outlet is open at the start of the Fall and Winter terms. Telephone 432-8379 or 432-8477 for hours of operation.

Used Textbooks

The bookstore stocks a large quantity of used textbooks at the beginning of each term. Used book buy-back dates are posted around campus a few weeks prior to the event.

RECREATION AND ATHLETIC SERVICES

BCIT offers a variety of indoor and outdoor recreational facilities designed to appeal to most students. These include four racquetball/handball courts which now accommodate the new sport, wallyball, and two squash courts; an excellent gymnasium accommodating eight badminton, two basketball and three volleyball courts, which is also used for many other sports and recreational activities. Our activity room is equipped with a universal gym, free weights, exercise area, table tennis, a ballet barre and much more. Four tennis courts, sports field, a fitness trail, as well as a 396 metre track offer excellent outdoor recreation. Complete shower facilities, change and locker rooms for both men and women are included.

Hours of Operation

September - May:

Monday - Thursday	0645-2300
Friday	0645-2100
Saturday	0900-1700
Sunday	0900-1700

June - August: To be announced.

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

Facilities and Services - How to Use Them - All students, staff and alumni are encouraged to use the recreation facilities. Lockers, towel and laundry services are available to rent. Most equipment is provided on loan; current BCIT identification is mandatory. There is a nominal rental fee for balls, birds and racquets. There are many structured programs to participate in as well as plenty of recreation time when the gym is available for your own activity. Check the facility schedule for open and programmed time.

Guests - Students and staff may bring one guest into the facility at any time. Guests cannot sign out equipment and are asked to follow the facility regulations.

Regulations - The Recreation and Athletic Services staff are responsible for the facility. **Smoking is not allowed in any part of the recreation facility.** Alcoholic beverages, including beer and wine, will not be allowed in the recreation facility unless approved by the Institute's chief executive officer and the appropriate permits obtained. Proper attire and accessories, shorts and shirts or sweat suits are highly recommended and clean, non-marking gym shoes (white soles preferred). Safety eye protection is highly recommended while playing squash or racquetball.

STUDENT ASSOCIATION

The Student Association is the independent student union at BCIT. It provides most of the non-academic services and nearly all of the recreation and entertainment on campus.

All BCIT students, whether full-time or part-time, automatically become members of the SA upon registration. The student activity fee, which is paid as a small addition to BCIT course fees, goes directly to the SA to help pay for the recreational and social activities provided on campus.

Another portion of the fee goes to pay for the SA's new Campus Centre, a multi-million dollar recreational and social complex organized and financed by the SA. Phase one, containing squash and racquetball courts, is now complete. Fundraising is under way for the new Campus Centre.

LOST AND FOUND

Please refer enquiries to Safety and Security at 432-8356. The Lost and Found is located in Building SW3, Room 130. Hours are 0800-0900 and 1200-1300, Monday to Friday.

LOCKERS

Lockers at BCIT are available to students on a first-come basis, except in technologies with special requirements such as Forest Resources, Surveying and Building. Students should locate an unreserved locker near their technology and put their lock on it. 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.

BANKING

For your convenience, there is an Instant Teller Machine available with Interac Network operated by the Canadian Imperial Bank of Commerce at the main entrance to the South Campus (adjacent to Building SW3).

CHILDCARE AT BCIT

The new BCIT Childcare Centre opened September, 1990.

The centre houses 25 children, ages 3-5, with the majority of seats being allocated to students' children.

The centre has been designed by Mineo Tanaka Architects using a premanufactured building, and is located between the 3A and SW3 buildings.

Plans are in the works for additional facilities to include two play spaces, an observation building for Early Childhood Educators, and a main care building to house 1-3 year olds and infants. Plans also include a drop-in program for children whose parents are at night school.

The Institute and the Student Association are very pleased that this important service is now available to our students. For more information on the Childcare Centre, please call Lou Schroeder at 432-8919.



Part-Time Studies Registration

PERSONAL DATA

Social Insurance Number			Student Name (Last Name, First Name)		
Date of Birth M D Y		Sex <input type="checkbox"/> Female <input type="checkbox"/> Male	Marital Status <input type="checkbox"/> Single <input type="checkbox"/> Married	Country of Citizenship <input type="checkbox"/> Canada <input type="checkbox"/> Other:	Status <input type="checkbox"/> Landed Immigrant <input type="checkbox"/> Student Authorization
Mailing Address (Number and Street)				R.N. Number (if applicable)	
City/Town		Province	Postal Code	Home Phone Number	
Work Phone Number		Fax Phone Number		Company Name	

EDUCATIONAL RECORD

	Name and Location	Years Completed	Program/Degree	Cumulative Credits/GPA	Period of Attendance	Part Time	Full Time
LAST HIGH SCHOOL							
COLLEGES AND/OR INSTITUTES							
UNIVERSITIES							

PROVINCIAL EXAM NUMBER

--	--	--	--	--	--	--	--	--	--

COURSE REGISTRATION

Course Number	Course Ref. Number (CRN)	Course Title	Course Cost(s)		Start Date			Site
			Fee	Special Fee	M	D	Y	
TOTAL FEES			+	=				

Payment of Fees: ☐ Full Fees Paid by You ☐ Full Fees paid by Employer (Approval Attached) ☐ Special Arrangement (Approval Attached)

FOR "MAIL IN" APPLICATIONS

Paid by: ☐ Cheque/Money Order (enclosed)
☐ Visa
☐ MasterCard

Card Number:

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Issue Date:

--	--	--

Expiry Date:

--	--	--

TOTAL AMOUNT PAID

\$

Signature: _____

CONSENT AND ACKNOWLEDGEMENT

I hereby consent to be bound by and observe all applicable rules, regulations, policies and procedures of BCIT and any amendments made thereto from time to time. I am aware that a copy of all such rules, regulations and procedures is available for review at the office of the Registrar for BCIT and I acknowledge that it is my responsibility to review the same.

Applicant Signature
(Unsigned registration forms may be returned unprocessed.)

Date

Please complete and return to BCIT Registration, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2



PERSONAL DATA

Social Insurance Number 			Student Name (Last Name, First Name) 		
Date of Birth M D Y		Sex <input type="checkbox"/> Female <input type="checkbox"/> Male	Marital Status <input type="checkbox"/> Single <input type="checkbox"/> Married	Country of Citizenship <input type="checkbox"/> Canada <input type="checkbox"/> Other:	Status <input type="checkbox"/> Landed Immigrant <input type="checkbox"/> Student Authorization
Mailing Address (Number and Street) 					R.N. Number (if applicable)
City/Town 			Province 	Postal Code 	Home Phone Number
Work Phone Number 		Fax Phone Number 		Company Name 	

EDUCATIONAL RECORD

	Name and Location	Years Completed	Program/Degree	Cumulative Credits/GPA	Period of Attendance	Part Time	Full Time
LAST HIGH SCHOOL							
COLLEGES AND/OR INSTITUTES							
UNIVERSITIES							

PROVINCIAL EXAM NUMBER

--	--	--	--	--	--	--	--	--	--

COURSE REGISTRATION

Course Number	Course Ref. Number (CRN)	Course Title	Course Cost(s)		Start Date			Site
			Fee	Special Fee	M	D	Y	
TOTAL FEES			+ =					

Payment of Fees: ☐ Full Fees Paid by You ☐ Full Fees paid by Employer (Approval Attached) ☐ Special Arrangement (Approval Attached)

FOR "MAIL IN" APPLICATIONS

Paid by: ☐ Cheque/Money Order (enclosed)
☐ Visa
☐ MasterCard

Card Number:

Issue Date:

Expiry Date:

TOTAL AMOUNT PAID

\$

Signature: _____

CONSENT AND ACKNOWLEDGEMENT

I hereby consent to be bound by and observe all applicable rules, regulations, policies and procedures of BCIT and any amendments made thereto from time to time. I am aware that a copy of all such rules, regulations and procedures is available for review at the office of the Registrar for BCIT and I acknowledge that it is my responsibility to review the same.

Applicant Signature
(Unsigned registration forms may be returned unprocessed.)

Date

Please complete and return to BCIT Registration, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2

Part-time Studies

This calendar contains details of all part-time studies programs, courses and workshops offered by the Schools of Business, Engineering Technology, Health Sciences and Trades Training at the British Columbia Institute of Technology.

Suggested programs of study leading to the granting of Certificates and Diplomas are described, which offer the student both an educational goal and a valuable credential for employment and career advancement.

ACADEMIC TERMS

Term 1 (Fall) September to December

Term 2 (Winter) January to March

Term 3 (Spring) April to June

Term 4 (Summer) July, August

ADMINISTRATIVE PERSONNEL

School of Business

Michael Harrison, B.A.Sc., Dip.B.A., P.Eng., F.I.C.B.,
F.Inst.D., Dean

Regina Trineer, Part-Time Studies Supervisor

General Information: 432-8581

School of Engineering Technology

Dave Chowdhury, D.I.C., M.A., M.B.A., Ph.D., Dean

Alexander (Sandy) McGechaen, B.Sc., M.A., Ed.D.,
Director

Marv Woolley, Dip. T. A.Sc.T., Assistant Director

Ron Issak, Dip. T. A.Sc.T., Assistant Director
Industry Services

School of Health Sciences

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

Kathleen Bach, B.A., Director

Moiria Barnetson, R.N., Program Coordinator

Sonia Williams, B.A.(Hons.), M.Ed., F.S.R.,
Program Coordinator

School of Trades Training

Raymond Walton, B.Sc., M.A., P. Eng., Dean

Sharyl Brown, Program Assistant, Aviation Programs

Nancy Naylor, Program Assistant, Construction and Metal
Industries

Elayne Anderson, Program Assistant, Electrical/Electronic
Trades

Rose Kunkel, Program Assistant, Mechanical Industries
Training

ADMISSION

Part-time Studies courses are taught at a level which assumes students have completed Senior Secondary School (Grade 12) or equivalent. Some courses have specific prerequisites or special conditions for entry; these prerequisites or conditions are presented with each course description in this calendar. Students should ensure they have completed the prerequisites prior to registering in designated courses.

Students who wish to register in a clinical course in Health Sciences must apply to Health Part-time Studies and receive approval prior to registering in the course.

REGISTRATION

Registration is course-by-course on a first-come, first-served basis. First-time students must complete a registration form and return it by mail, or in person, or if paying by Visa or MasterCard, the form may be returned by mail or by fax: 430-1331. Mail registration should be forwarded to the Office of the Registrar. Students previously registered at BCIT may register by phone: 434-1610, if paying by Visa or MasterCard or by FAX: 430-1331.

Students may register in person at the Burnaby Campus, or at the Downtown Education Centre. **The recommended deadline for registration in person is 2 months before classes commence.** The earlier you register, the likelier you are to get your preferred course(s). **Expect telephone delays of 10 - 30 minutes if you wait until just before class commencement.**

Payment of fees must accompany the registration form. Failure to do so may result in cancellation of registration. There is a \$15. charge for all cheques returned NSF. When student fees are to be paid by the employer, written authorization on company letterhead must accompany the registration form.

Late Registration

Late registrations are accepted if space is available. Students must obtain written permission from the instructor before registration will be accepted after the first two sessions of a course.

Cancellation and Restricted Enrollment

The Institute will make every effort to offer all courses as listed in the calendar. Nevertheless, the Institute reserves the right to limit enrollment, to select candidates, to cancel courses, to combine classes or to alter time or date of instruction, without prior notice. Students may request a refund form or transfer paid fees to another course, when a course is cancelled.

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, space being available, with official proof that prerequisites have been met.

A student making application for part-time day classes must obtain the signature of the program head and instructor of each course using the form "Daytime Course-by-Course Registration" available at the Student Records Office. All completed forms must be returned to the Student Records Office. First time applicants to part-time day courses must meet the Institute's general admission requirements of English 12 and citizenship status.

Fees (Subject to change)

Tuition fees are due and payable at time of registration. Tuition fees are assessed by credit. 1991/92 fee per credit is \$65 to the tuition maximum of \$854.

COURSE FORMAT

Credit and non-credit courses and seminars are offered in a variety of time frames and formats throughout the year at the Burnaby Campus, the Downtown Education Centre, in Surrey and other locations.

The most common course formats are:

Total Hours	Course Format	
18	6 weeks Weekend	1 night/week 2 1/2 days
36	6 weeks 12 weeks 1 week	2 nights or one day/week 1 night/week (5 days)
54	18 weeks 9 weeks	1 night/week 2 nights/week
72	12 weeks 24 weeks 2 weeks	2 nights/week 1 night/week (10 days)
90	30 weeks	

Directed Study/Correspondence Guided Learning Courses

The Institute offers career-oriented credit and non-credit correspondence courses. Guided Learning Courses in Health Sciences theory are offered through self study with telephone tutoring.

Clinical courses in Health Sciences are offered in cooperation with hospitals and clinical agencies in various centres in the province.

Some courses travel - that is they are available upon request at centres throughout B.C. Call 434-5734, ask to speak to the appropriate academic area or call the Downtown Education Centre at 687-4666, for information on courses and seminars of interest to you.

For further information contact the appropriate Part-Time Studies departments, or Registration.

MOTH Courses:

Transportation Systems Department: 432-8784

School of Engineering Technology: 432-8521

School of Health Sciences: 432-8376

School of Business: 432-8581

Academic Studies: 432-8769

School of Trades Training: 432-8277

INDUSTRY SERVICES

Customized Programs, Consulting and Development Services

BCIT's Part-time Studies departments will work with your company to help determine your training requirements and to design and present courses for your staff. The full resources of BCIT are available to provide a comprehensive range of training at the supervisory, senior or middle management levels.

Many courses described in this calendar contain material which can be adapted for your company for presentation at the required level. With the rapid growth in the implementation of new technology, it is more important than ever that companies use local resources to train personnel.

If your company has a training project, or if you wish to draw on the resources of BCIT for support in any new venture, contact Part-time Studies to find out how we can help you.

Computerized Maintenance Program

A series of three practical workshops for those who are directly responsible for equipment maintenance, in particular, maintenance managers, superintendents, foremen and planners. Enrollment is restricted to 10 per workshop to allow each participant to work alone on a computer terminal.

Hardware: IBM PCs or compatibles.

Software: COMAC Computerized Preventive Maintenance System.

Eric Morse, Program Head, Industry Services. Tel. 432-8638

FEES

Fees must be paid at the time of registration. Failure to do so may result in cancellation of registration. There is a \$15. charge for all cheques returned N.S.F.

Fees are subject to change each academic year. Fee information is available in our advertising supplements and from registration locations. All fees must be paid in full at the time of registration. BCIT accepts payment by cheque, money order, cash, Mastercard or VISA. Payments may be made by mail, in person or by using the drop box in the cashier's area or you can FAX your registration with your visa or mastercard number. See page 11 for information on financial assistance for part-time students.

Miscellaneous Fees

Please note the following miscellaneous fees payable for the academic year 1991/92 (subject to change for 1992/93)

NSF/returned cheques	\$15.
Duplicate diploma/certificate	50.
Duplicate tax receipt	10.
Duplicate T2202A	10.
Challenge exam fee	Cost of course
Reassessment of Marks	25. per course
Appeal	50. per course
Transcript of marks	5. for first copy and \$1. for each additional copy

Course transfer/ change charge	15. (Part-time Studies courses only)
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Refund processing charge	25. (Part-time Studies courses only)
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Cashiers Hours

The Cashier's Office is open from 08:30-16:30 Monday to Friday throughout the year. Extended hours of operation are offered at the beginning of each term and during peak periods.

Course Cancellation

A full refund of tuition fees or a letter of credit will be issued for courses cancelled by the Institute. The Institute reserves the right to cancel courses if enrollments are insufficient. We regret any inconvenience this may cause.

Course Transfer/Change - \$15 Fee

Please note that a \$15. fee is now charged when you request a course transfer/change. This applies when you request to have your registration changed from one course to another and/or to change your time/date. Please ensure that you are registered in the correct course at the time of registration.

*Course transfer/change must be made by the refund deadline dates outlined in the Refund and Deadlines section.

How to Withdraw

Students who wish to withdraw from a course must do so officially, in writing, once the course has commenced. Withdrawal will be allowed until two-thirds of the way through the course and will result in a "W" on the transcript. If withdrawing after the deadline, the transcript will show "F" for the dropped course. Neglecting to withdraw officially (course abandonment) will result in an "OF" on the transcript. The standard refund policy applies to all withdrawals.

Refunds and Deadlines

Full refund, less \$25, if within the following guidelines:

Course Duration	*Deadline Dates
Over 4 weeks	1 day prior to the 2nd night of scheduled class.
4 weeks and under	1 week prior to the class start date.
Distance Education	Before material has been sent.

Guided Learning

Refund requests must be in writing to the Institute by the refund deadline date. Fees for some special courses are non-refundable and others have different refund requirements and deadlines. Please check refund requirements and deadline dates at the time of registration.

A charge of \$25 per course is deducted for refund processing when you withdraw from a course. A Letter of Credit may be issued after the deadline, based on medical reasons only.

Tax Receipts - T2202A - (1992) subject to change.

An official tax receipt will be mailed by Financial Services on or before February 28. To allow for normal mail delivery, students should wait until March 31 before contacting Financial Services if a tuition fee tax receipt has not been received. A \$10 charge will be levied for duplicate receipts.

To ensure that the receipts are sent to the correct address, students should notify the Student Records Office immediately of any change of address.

Additional Expenditures

Textbooks, Instruments and Supplies

Costs vary according to courses and are approximately \$100 to \$200. The Institute bookstore carries a complete line of drafting and writing supplies. Students are advised not to make any purchases until they have received a book list showing the required texts. Some courses may require the purchase of a pocket calculator costing approximately \$50 to \$250.

TRANSFER FROM FULL-TIME TO PART-TIME STUDIES

A student transferring to part-time studies from a full-time diploma program may be granted credit exemption for all courses successfully completed prior to withdrawal from full-time studies. A student who wishes to discontinue full-time studies is encouraged to consider part-time studies programs.

EXAMINATIONS, GRADING AND MARKS

Formal examinations are written at the end of each term. Students are required to take the examinations for each course at the time set by the Institute. Students unable to write examinations due to special circumstances should first contact their instructor; then, if necessary, consult the Associate Dean.

Challenge Exams for Credit

Students may acquire credit recognition for knowledge and skills obtained through independent study and/or work experience. By challenging a course, students claim they already have the knowledge and abilities to be gained from taking the BCIT course. Because of the learning format of some courses and the cost necessary to prepare required challenge material, the challenge privilege is not extended to all courses.

Where approval has been granted to challenge a course, a formal evaluation procedure will take place. The student's abilities will be assessed through a written and/or oral examination, research paper or other means, determined by the evaluator. Challenge credit will be recorded only after the student has completed a specified number of credits of course work at BCIT. Only a specified number of challenge credits will be allowed for each program.

A total of 15 challenge credits will be allowed for each certificate program.

Challenge credit is not considered as work completed at BCIT, but when a course is successfully challenged the number of credits required for a certificate will be reduced. If a student is successful the Code CH EXAM will appear beside course name, and a grade "C" is recorded.

Fees to challenge a course must be paid before the formal evaluation takes place. The fee for challenge is the cost of the course. Application Forms to challenge a course are available in Student Records.

Return of Examinations

Final examinations are not normally returned, however, part-time students wishing to have their examination papers returned should make arrangements with the course instructor.

Determination of Standing

Final standing is determined based on term progress and examination results.

80 - 100%	First Class Standing
65 - 79%	Second Class Standing
50 - 64%	Pass Standing
0 - 49%	Failure

Failure: %

%PP - less than 50% except some course(s)/program(s) may have a fail grade greater than 50% as outlined in course descriptions/outlines.

F - formal withdrawal after official term deadline.

OF - unofficial/unapproved withdrawal, (course abandonment)

Withdrawal:

W - approved official withdrawal from a course/program within course deadline.

Satisfactory:

S - course requirements fulfilled, no % mark assigned.

Unsatisfactory:

U - course requirements not fulfilled, no % mark assigned.

Course Credit:

- C – recognition of approved equivalent studies outside BCIT
- successful Challenge Exam.

Course Exemption:

- EC – recognition of previous course exemption completion at BCIT (used only when course numbers differ and/or program goal changes).

Aegrotat:

- %A – pass standing granted to a student who has a good term record but has an incomplete evaluation due to illness or other extenuating circumstances.

Adjudicated Pass:

- AP – course standing raised to pass level based upon overall performance, permitting the student to continue in the program or to graduate.

Provisional Pass:

- %PP – 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 (%F)ail depending on success in the relevant continuing subject area.

Provisional Pass Fulfilled:

- P – provisional pass conditions achieved

Not complete:

- N – course requirements not complete.

Audit:

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

Attended Non-Examined Course:

- X – no examination or grade given for this course.

Outside Source Grade:

- R – refer to outside source for student achievement, eg: Apprenticeship Board-apprenticeship programs. Grade not calculated in weighted or cumulative term averages as not being taken as part of a full-time Technology program.

Marks Distribution

Students will not be provided with marks prior to the issuance of a Statement of Marks by the Registrar's Office. Marks will not be released over the telephone.

Transcripts resulting from final examinations are mailed to graduating students by the Office of the Registrar. All other students will receive a Statement of Marks for the term.

Financial Obligation to the Institute

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

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, reassessments seldom result in a higher mark.

Students wishing a 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 that discussion, with the Technology Associate Dean.

Failing a resolution, 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 7 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.

There is a fee of \$25 for each subject reassessed. If the mark or standing is adjusted favorably, the fee will be refunded.

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

Marks Appeals

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

The student must first discuss the problem with the Dean of the appropriate School. 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 two weeks of the mailing of the reassessment result to the student.

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.

A student who has been permitted to audit classes during the reassessment may continue to do so during the appeal.

Auditing

A student may audit a course with the permission of the instructor. The request to audit must be submitted to the instructor by the second class. An audit student is not formally evaluated and does not write examinations. However, the student is expected to take an active part in classroom discussions and laboratory exercises, maintain satisfactory attendance and pay the full course fee.

An auditing student does not receive credit for the course, but will receive a Statement of Marks with "Audit" indicated. A student may change his status in the course from audit to credit, with written permission of the instructor during the course, but will not receive credit by applying after the course is completed.

Attendance

See Conduct and Attendance, page 8.

PART-TIME STUDIES APPLICATION FOR:

☐ PROGRAM APPROVAL

☐ TRANSFER CREDIT

DATE _____

Mo. Day Yr.

Student Number		Student Name		
Address (Number and Street)				
City/Town		Province	Country	Postal Code
Area Code	Home Telephone Number	Area Code	Business Telephone Number	Local

CERTIFICATE CLASSIFICATIONS:

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Business Certificate • Senior Business Certificate • Health Care Management Certificate, Level 1 • Health Care Management Certificate, Level 2 • Intermediate Certificate of Technology | <ul style="list-style-type: none"> • Certificate of Technology • Associate Certificate • Diploma of Technology • Advanced Diploma of Technology • Other: |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

[illegible]

- If transfer credit is requested, Transcripts and course outline must be attached.

• If transfer credit is requested, Transcripts and course outline must be attached.				OFFICE USE ONLY
INSTITUTION	COURSE NAME	COURSE NUMBER	BCIT EQUIVALENT COURSE	TECH. APPROVAL OF EQUIVALENCE
Student Signature			Date	

FOR OFFICE USE ONLY	Recorded By – Signature	Date
Total Transfer <input type="text"/>	Approved By – Program Head Signature	Date
Credits Allowed <input type="text"/>		

PART-TIME STUDIES APPLICATION FOR:

☐ PROGRAM APPROVAL

☐ **TRANSFER CREDIT**

DATE _____

Mo. Day Yr.

Student Number		Student Name		
Address (Number and Street)				
City/Town		Province	Country	Postal Code
Area Code	Home Telephone Number	Area Code	Business Telephone Number	Local

CERTIFICATE CLASSIFICATIONS:

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Business Certificate • Senior Business Certificate • Health Care Management Certificate, Level 1 • Health Care Management Certificate, Level 2 • Intermediate Certificate of Technology | <ul style="list-style-type: none"> • Certificate of Technology • Associate Certificate • Diploma of Technology • Advanced Diploma of Technology • Other: |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

[illegible]

- If transfer credit is requested, Transcripts and course outline must be attached.

• If transfer credit is requested, Transcripts and course outline must be attached.				OFFICE USE ONLY
INSTITUTION	COURSE NAME	COURSE NUMBER	BCIT EQUIVALENT COURSE	TECH. APPROVAL OF EQUIVALENCE
Student Signature			Date	

FOR OFFICE USE ONLY		Recorded By – Signature	Date
Total Transfer	<input type="text"/>	Approved By – Program Head Signature	Date
Credits Allowed	<input type="text"/>		



COURSE CREDIT

A credit is defined as 1 classroom hour per week over a 12-15 week term. Therefore, a course taught for three hours per week for 12 weeks would normally be assigned 3 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 Credit

Transfer credit is a means whereby a student may acquire recognition for academic work completed at another recognized post-secondary institution not previously used as part or whole requirement for a diploma or degree which has been conferred or granted. The course work for which the student is requesting transfer credit must be related to the student's program of studies at BCIT. Credit for 50% of the course work required for each Certificate program must be completed through BCIT and be used for only one certificate.

Transfer Credit Application Procedure

Students must apply in writing to a program advisor and must provide the following:

1. An official transcript from the institution where the courses were taken, photocopies are not acceptable;
2. A course description which outlines:
 - (a) the topic covered
 - (b) the number of hours of classroom and laboratory study
 - (c) the types and number of assignments and examinations completed
 - (d) the name, author and publisher of the textbooks used.
3. A completed application form for program approval identifying the certificate program, courses to be completed at BCIT, and the courses for which transfer credit is requested.

It is the responsibility of the student to provide the documentation for a transfer credit application. Failure to submit the required documentation may result in rejection of the transfer credit application.

Please allow 4-6 weeks for processing.

Advanced Placement

1 Course Exemption

Where the individual course completed at BCIT is equivalent in course content and assessment to the same, or another BCIT course that is required within the program from which certification is sought.

2 Course Credit

Where the individual course(s) and/or experience is equivalent in content and assessment to a BCIT course that is required within the 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) documented experiential learning validating mastery in a course based on approved academic evaluation criteria.

3 Unassigned Credit

Where a course-to-course equivalent 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, eg. Economics -3 credits, or in a program area, eg. 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, 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, and only a specified number of Challenge Credits will be allowed for each program.

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 are reduced. (see Challenge Exams for Credit section).

"In-House" Training for Credit toward BCIT Certificates

BCIT students may obtain transfer credits for approved courses taken within, or sponsored by a company, government body or organization associating with BCIT in a joint development program for the student-employee.

Credit for in-house courses may be applied to specific BCIT courses or block credit may be granted for an approved program of study; this may be available in some programs. Please check with a program advisor.

This program is an additional service to students and recognizes that many worthwhile "in-house" training courses are conducted either through internal resources or by hiring reputable outside agencies. However, these organizations may lack the resources to present a totally well-rounded program such as is available at BCIT.

Any company or organization wishing to have credit granted to employees for "in-house" training should submit details to the appropriate Part-time Studies department for approval before making a commitment to the employee. Applications should include course content, duration, qualifications of the instructor and any pertinent data. This need only be done once, unless there is a change. Courses for credit should be related to one or more BCIT Certificate Programs (see those within this Calendar) and normally represent a transferable skill. For example: "Principles of Supervision" would be acceptable, whereas a course on company policy and procedures, or interpretation of the company labor agreement would not be acceptable. On-the-job training, skill or techniques unique to the company would also not be appropriate for recognition.

Requests for transfer credit may be submitted by individual employees to a Part-time Studies program advisor at any time after completion of BCIT course work. Such submissions should be supported by the employer's documentation of successful completion.

It is anticipated that this interest and encouragement to employees to develop and upgrade their qualifications will be rewarding to both employee and employer. Enquiries should be directed to the Registration office or Part-time Studies program area.

CAREER SEARCH WORKSHOPS (ADMN 916)

BCIT offers a series of special workshops, lead by professionally trained career counsellors, to help you set goals and plan your career based on your own interests, values and abilities.

BCIT's Career Search Workshop will help you to:

- make a first-time career choice
- build on life experiences to re-enter the workforce
- make a career change
- develop new career paths
- gain current information about training/educational opportunities
- access information on jobs of the future in technology
- assist in career development.

This four-week course covers:

- Interest testing
- Aptitude testing
- Decision-making
- Goal-setting and implementation

Participation is limited to 15 so register early for this unique four-session workshop.

Contact Student Services at 434-0022 for more information, or Registration at 434-1610 to register.

CERTIFICATES AND DIPLOMAS

Certificate Program Approval

BCIT offers certificates through many of its technologies in Business, Engineering Technology, Health Sciences and Trades Training. Although most programs are standard, students may amend these recommended programs to suit their career needs; it is often necessary and always advisable for students to apply for program approval. Program Approval forms are available in this calendar, from Student Records, Registration, Student Services and the program advisors for Part-time Studies. Program Approval forms and all appropriate documentation should be submitted to the program advisor (Building SW1, 2nd Floor). Program approval assures students that their academic efforts will result in the desired certification.

Program approval is required:

- when a student wishes to modify a certificate program outlined in the calendar;
- when a student wishes to amend an approved program;
- when a student requests a transfer credit;
- for all Senior Certificates, Certificates of Technology and National Diplomas of Technology;
- for all combined Engineering Technology and Business Certificates;
- whenever challenge credit is requested;
- when an elective is included in a program;
- when alternative courses are included in a program.

A student must apply for program approval in a written submission detailing the proposed courses and programs. Forward submissions to Student Records or the appropriate Technology department, Engineering, Business or Health Sciences (as applicable). Please allow 4-6 weeks for processing.

Levels of Certification	School of Business	School of Engineering Technology	School of Health Sciences	School of Trades Training
Advanced Diploma	Advanced Diploma in Business	Advanced Diploma in Engineering Technology	Advanced Diploma in Health Science	Diploma of Trades Training Minimum 1900 hrs
Advanced Certification			Advanced Specialty Certificate	
Diploma	Diploma of Technology	Industrial Education Dip.	Diploma of Technology	Advanced Certificate of Trades Training Minimum 400 hrs
		Diploma of Technology		Certificate of Trades Training Minimum 600 hrs
Certification Level 3	Senior Management Certificate	Industrial Education Cert.	Certificate of Technology	
		Certificate of Technology		
Certification Level 2	Management Certificate	Intermediate Certificate Of Technology	Certificate & Health Care Mgmt Level 2	
Certification Level 1	Associate Certificate	Associate Certificate	Health Care Mgmt Certification Level 1 & Associate Certificate	
Statement of Completion & Attendance				



Application for Certification

TYPE OF CERTIFICATE (Please Check ✓):

- | | |
|----------------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Business Certificate | <input type="checkbox"/> Certificate of Technology |
| <input type="checkbox"/> Senior Business Certificate | <input type="checkbox"/> Associate Certificate |
| <input type="checkbox"/> Health Care Management Certificate, Level 1 | <input type="checkbox"/> Diploma of Technology |
| <input type="checkbox"/> Health Care Management Certificate, Level 2 | <input type="checkbox"/> Advanced Diploma of Technology |
| <input type="checkbox"/> Intermediate Certificate of Technology | <input type="checkbox"/> Other: |

PROGRAM NAME: (e.g. Financial Management – Accounting Option)

Student Name (as it appears on certificate)			Social Insurance Number
Home Address (Number and Street)			
City/Town	Province	Country	Postal Code
Home Telephone Number		Business Telephone Number	

COURSES COMPLETED TOWARD THIS CERTIFICATE: (At least half the program must be BCIT credits.)

Course Number	Course Title	Grade	Credits	Year Completed	Name of Institution

Applicant Signature	Date
Approved by – Program Coordinator, Part-time Studies	Date
Approved by – Director, Part-time Studies	Date



Application for Certification

TYPE OF CERTIFICATE (Please Check ✓):

- | | |
|----------------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Business Certificate | <input type="checkbox"/> Certificate of Technology |
| <input checked="" type="checkbox"/> Senior Business Certificate | <input type="checkbox"/> Associate Certificate |
| <input type="checkbox"/> Health Care Management Certificate, Level 1 | <input type="checkbox"/> Diploma of Technology |
| <input type="checkbox"/> Health Care Management Certificate, Level 2 | <input type="checkbox"/> Advanced Diploma of Technology |
| <input type="checkbox"/> Intermediate Certificate of Technology | <input type="checkbox"/> Other: |

PROGRAM NAME: (e.g. Financial Management – Accounting Option)

Student Name (as it appears on certificate)			Social Insurance Number
Home Address (Number and Street)			
City/Town	Province	Country	Postal Code
Home Telephone Number		Business Telephone Number	

COURSES COMPLETED TOWARD THIS CERTIFICATE: (At least half the program must be BCIT credits.)

Course Number	Course Title	Grade	Credits	Year Completed	Name of Institution

Applicant Signature	Date
Approved by – Program Coordinator, Part-time Studies	Date
Approved by – Director, Part-time Studies	Date



Program Advising

Part-time Studies programs are designed to enhance career aspirations. Program advisors are available to assist students in course selection and program planning appropriate to their career needs. Students are advised to confer with a program advisor prior to completion of their program of studies at BCIT. It is recommended that proposed programs be submitted to a program advisor for approval.

At the **Burnaby Campus**, program advisors for part-time studies are available throughout the year. For an appointment, or additional information, please call 434-0022. Evening appointments are available during fall, winter and spring terms.

At the **Downtown Education Centre**, assistance with Business Courses and Certificate Programs is available. For information call 687-4666.

Business, Engineering Technology, Health Sciences and Trades Training Certificates and Diplomas

Outlines of technology certificate and diploma programs are located in the individual technology sections of the calendar.

Engineering Technology Certificate Programs

Engineering technology part-time programs are based on the former BCIT part-time programs leading to the Engineering Technician Certificate and the Senior Engineering Technician Certificate. The new programs now lead to the award of the Certificate of Technology and the Intermediate Certificate of Technology.

- * The Certificate of Technology is awarded for successful completion of an approved program of study of at least 75 credits; Certificate of Technology programs are technician-level programs developed in response to the needs of students who cannot, or do not wish to, follow a technologist program. Most of these programs will not be exactly equivalent to Year 1 of corresponding BCIT full-time technology programs, but it will be possible for part-time students to ladder into a Diploma program on completion of appropriate courses and to progress to the Diploma full-time or, in certain technologies, part-time. This will help more part-time students progress to a Diploma of Technology.
- * The Intermediate Certificate of Technology is awarded for successful completion of an approved program of study of at least 45 credits. This certificate will be awarded at the same point as the former Engineering Technician Certificate.

If you have any questions about your existing program and the programs published in this calendar, please contact one of the Technology representatives listed in the Programs section.

Combined Business and Engineering Technology Certificates

BCIT will award combined Business and Engineering Technology Certificates to students who successfully complete a program of study drawn from both departments. The object of these certificates is to provide a course of studies with a general business base and the flexibility to include engineering courses to suit the interest of each individual. Students must have a complete program approved in advance.

Application for Certificates

The responsibility for applying for a certificate rests with the student. Application should be made only when the student has completed the requirements indicated on their pre-approved program. See section on Program Approval.

Applications are available at Registration and Student Records at the Burnaby Campus and Downtown Education Centre.

Diploma of Technology

After obtaining the Senior Certificate or Certificate of Technology, students may advance to an approved national Diploma. Students will be required to complete additional approved program work. However, the amount of course work a student is required to complete will vary, depending on previous academic course work completed. Students must confer with a program advisor and obtain program approval before beginning a diploma program.

TECHNOLOGY CENTRE

The Venture Program

The concept of setting up programs for persons wanting to develop or start-up their own business is not new to BCIT. In 1986, a successful new business start-up program called the Venture Project was initiated as a major pilot project; there have been two regular intakes each school year since 1989. The ideal candidate has been an individual seeking the opportunity to develop a viable business related to a technology or trade program focus who has a definite career preference to set up and manage an independent business.

The program targets the "launch" period - the steps to successful business planning and business start-up. It attracts individuals whose business ideas have reached "prototype" stage. As such it concentrates on defining a product or service for the marketplace and on the establishment of the related business.

The immersion or concentrated phase involves two-to-three months developing a practical business plan, followed by a networking and launch phase over the succeeding 18 months.

Program Components and Overview

Immersion Phase

The calendar time frame for the immersion program is three months maximum duration. Provision for completion in two months would make it possible to move to stage two at this point.

These time frames are intended to allow those in the program the best possible exit opportunity to pursue their business, once the concept is at the launch stage.

Program Focus

- 40% Business plan development
- 15% Product and market-match development
- 15% Entrepreneurial and business management skills
- 10% Life planning, health and stress management
- 10% Business and industry contacts
- 10% Experience/progress sharing

40% Business Plan Development

This allotment is the major focus of the program. The thrust focuses on having the participant develop a fully operational (bankable) plan over the period of the immersion phase. It is

expected that some participants will actually have business underway at the conclusion of the program. This is the "traditional" business plan development curriculum content.

15% Entrepreneurial and Business Management Skills

This section focuses on subjective aspects of what it takes to be an entrepreneur and on the specific skills needed. Key topics include persuasive presentation, line management, managing change and negotiation. Particular emphasis is placed on the use of the microcomputer as a decision tool in reflecting the impact of changes in the conditions under which the business must be run.

15% Product and "Market-Match" Development

This section focuses on identifying the market need for the product/service and specific product/service characteristics. Recognition of potential consumer/buyer behavior will aid in the ultimate acceptance of the product in the market place.

10% Life Planning, Health and Stress Management

This aspect is a critical part of the Venture Program and focuses on "Life Styling" for the participants as independent entrepreneurs.

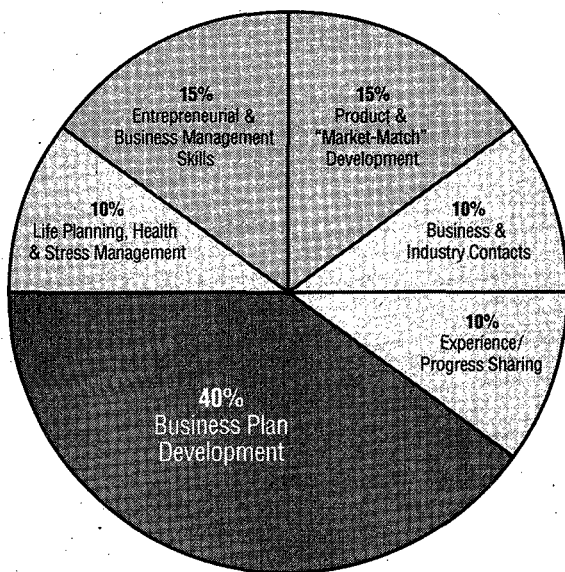
10% Business and Industry Contacts

Each participant will make the contacts that are necessary to validate the business plan components. Suppliers, key potential customers, accounting and legal support, and other similar network contacts will be developed.

10% Experience/Progress Sharing

Continually throughout the program, efforts are made through regular meetings, and through informal contact, to encourage participants to meet together and share information and experiences. The support structure of the group maintains enthusiasm and provides motivational structure to all efforts.

At-a-glance allocation of Venture Program Activities



PROGRAM CALENDAR

Month One

Formal class/lesson sections introduce and develop the planning/start-up or incubation of the participant's business. Formal program components tend to be on a "need to know" basis.

Program focus

- Business Plan Development
- Product and Market-Match Development
- Entrepreneurial and Business Management Skills

Month Two

At this point, the business plan is clearly underway and the focus shifts to other components rather than the "how to" focus of the first month. At the end of two months or at some point in month three, the plan is evaluated internally and externally. This evaluation results in an incentive package for the participant that will be discussed later in this brochure under the heading of fees and incentives.

Program focus

- Life Planning, Health and Stress Management
- Business and Industry Contacts
- Experience/Progress Sharing
- Business Plan Completion

Month Three

By now some participants may be ready to launch the business; others may require additional time for aspects of the previous two parts of the program.

An integral part of the program is to finish up the networking and business start-up period of 18 months, that will focus on monthly dinner seminars for participants.

Who Should Apply

The program will be of major interest to BCIT participants or alumni from full or part-time programs; either Trades or Technology. It is of particular value to people from programs where entrepreneurial business skills development is not part of the curriculum.

This is not the sole criterion and others not directly involved in the BCIT environment are welcome to apply. However everyone should have the following criteria in mind:

- a definite career preference to set up and manage an independent business;
- technical skills either through formal education or on-the-job training and experience;
- general management experience or a desire to manage;
- willingness to make a personal/financial commitment to a new enterprise.

To apply: fill out a regular BCIT full-time Application Form and forward it to the Venture Program at BCIT. For further information please call 432-8774 or 432-8767.

Calendar of Events 1991-92

FALL TERM 1991

Monday	Jun. 3	Registration for Fall opens.
Tuesday	Jul. 2	Recommended deadline for mail registrations for September Intake.
Friday	Jul. 12	Recommended registration deadline for Health Sciences Guided Learning courses commencing September 4.
Monday	Aug. 5	B.C. DAY
Monday	Sept. 2	LABOUR DAY
Tuesday	Sept. 3	Health Guided Learning Courses begin. Registration for Winter opens.
Monday	Sept. 16	Business, Health Sciences, Engineering, and most Trades courses begin.
Monday	Oct. 14	THANKSGIVING DAY
Monday	Nov. 4	Recommended deadline for mail registrations for January 1992 courses.
Monday	Nov. 11	REMEMBRANCE DAY
Friday	Nov. 15	Recommended registration deadline for Health Sciences Guided Learning courses commencing January 1992.
Monday	Dec. 2	Last week for most courses.

WINTER TERM 1992

Thursday	Jan. 2	Registration for Spring & Summer opens. Health Sciences Guided Learning courses begin.
Monday	Jan. 13	Most other courses begin.
Friday	Feb. 21	Recommended registration deadline for most Health Sciences courses starting April 13.
Monday	Mar. 30	Start of last week for most courses.

SPRING TERM 1992

Monday	Apr. 13	Most courses begin.
Friday	Apr. 17	GOOD FRIDAY
Monday	Apr. 20	EASTER MONDAY
Monday	May 18	VICTORIA DAY
Monday	June 29	Start of last week for most courses.

SUMMER TERM 1992

Wednesday	July 1	CANADA DAY
Monday	July 6	Start of summer term courses.
Monday	Aug. 3	B.C. DAY

FALL TERM 1992

Monday	June 1	Registration for Fall opens.
Friday	Jul 1	Recommended deadline for mail registrations.
Friday	Jul 17	Recommended registration deadline for Health Guided Learning courses.
Monday	Aug. 3	B.C. DAY
Monday	Sept. 7	LABOUR DAY
Monday	Sept. 14	Most classes begin.
Monday	Oct. 12	THANKSGIVING
Friday	Nov. 1	Recommended deadline for mail registrations for January 1993.
Wednesday	Nov. 11	REMEMBRANCE DAY
Friday	Nov. 13	Recommended registration deadline for Health Guided Learning courses.
Monday	Nov. 30	Last week for most courses.

School of Business

FACULTY AND STAFF

Michael Harrison, B.A.Sc., Dip. B.A., P.Eng., F.I.C.B.,
F.Inst.D., Dean

Regina Trineer, Continuing Education Supervisor,
Part-time Studies

General Information: 432-8581

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CERTIFICATE PROGRAMS

This Certificate Program section is made up of course groupings representing the suggested basic Certificate Programs within the School of Business. The basic certificate represents approximately 15 courses and can be easily attained in 3 - 5 years. The period is flexible and suggested programs can, in most cases, be amended to suit the individual career goals of the student.

Prior to embarking on a part-time studies Business Certificate Program it is advisable to consult a program advisor. All programs developed with a program advisor or revisions to existing programs must be approved by the appropriate department. Programs for Senior Certificates and Diplomas of Technology must be approved in advance.

For more information, see Course Descriptions and Credits section.

Administrative Systems

Business Certificate in Management Systems
Business Certificate in Human Resource Systems
Business Certificate in Operations Management:
 Industrial Engineering Option
 Management Engineering Option
 Materials Management Option
 Transportation Logistics Option

Broadcast Communications

Business Certificate in Broadcast Communications
(with specialization in Radio, Television and Broadcast Journalism)

Financial Management

Business Certificate in Professional Accounting
Business Certificate in Finance
Associate Certificate in Financial Planning

Marketing Management

Business Certificate in General Marketing Management
Business Certificate in Marketing Communications
(with options in Advertising, Sales Promotion and Public Relations)
Business Certificate in Technical Sales
Business Certificate in International Marketing

Business Client Studies

Business Certificate in Media Techniques for Business
Business Certificate in Interior Design
Training Partnerships

Combined Business and Engineering Certificate Programs

Industrial Management
Technical Marketing

Employment Specific Certificates

Legal Steno-Typist
Medical Office Assistant

Employment Specific Training

Cashier Training Completion Certificate

Cooperative Association Programs and Certificates

Canadian Association of Financial Planners
Canadian Association for Production and Inventory Control (CAPIC)
Canadian Credit Union Institute Fellows' Program (CCUI)
Certified General Accountants Association of British Columbia (CGA)
Institute of Chartered Accountants of British Columbia (ICABC)
Institute of Chartered Secretaries and Administrators (ICSA)
Municipal Administrators Education Council of British Columbia
American Society for Quality Control (ASQC)
Society of Management Accountants of British Columbia (CMA)
Trust Companies Institute
Canadian Institute of Management (CIM)
Canadian Supervisory Management (CSM)
Administrative Housekeepers Association (C.A.H.A.)

Senior Certificate and National Diploma of Technology

The Senior Certificate and the National Diploma of Technology are available in most technologies. These programs must be individually approved and are developed to meet the dual needs of individual career aspirations and academic requirements. Specific approval is required for such programs and a program advisor should be consulted in every case.

ADMINISTRATIVE SYSTEMS TECHNOLOGY

Management Systems Human Resource Systems

Operations Management

- Industrial Engineering
- Management Engineering
- Material Management
- Transportation Logistics

BUSINESS CERTIFICATE IN MANAGEMENT SYSTEMS

A. Complete the following

ADMN 110	Management 1
ADMN 211	Management 2
ADMN 222	Organizational Behavior 1
FMGT 109*	Accounting for the Manager

B. Complete at least 1 of the following

ADMN 100	Microeconomics
ADMN 200	Macroeconomics
ADMN 306	Economic Issues
ADMN 406	Economic Issues for Financial Planners

C. Complete

ADMN 385	Business Law
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D. Complete 4 of the following

ADMN 204	Human Resource Management
ADMN 324	Interpersonal Skills
ADMN 332	Labor Relations 1
ADMN 432	Labor Relations 2
MKTG 102	Essentials of Marketing

E. Complete 1 of the following

Computer related course or courses with a value of 3 credits.

F. Three courses to be selected from the list of electives.

Course selection should reflect the student's career objectives.

*Those considering CGA, CMA or other professional programs are referred to the Professional Agencies section of this catalog. This is especially true for courses in Group A where we suggest both FMGT 101 and 201 be taken in lieu of FMGT 109.

Students involved in, or considering, the Diploma Program must consult with the Program Head. This is especially important since day school requirements in the various areas often exceed certificate requirements.

BUSINESS CERTIFICATE IN HUMAN RESOURCE SYSTEMS

A. Complete the following

ADMN 110	Management 1
ADMN 204	Human Resource Management
ADMN 211	Management 2
ADMN 222	Organizational Behavior 1
ADMN 322	Organizational Behavior 2
FMGT 109	Accounting for the Manager

B. Complete at least 1 of the following

ADMN 100	Microeconomics
ADMN 200	Macroeconomics
ADMN 306	Economic Issues

C. Complete

ADMN 385	Business Law
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D. Complete at least 4 of the following

ADMN 127	Training Techniques
ADMN 128	Occupational Health and Safety
ADMN 205	Selection Interviewing
ADMN 304	Human Resource Planning
ADMN 305	Salary Administration
ADMN 308	Strategic Performance Management
ADMN 324	Interpersonal Skills
ADMN 332	Labor Relations 1
ADMN 432	Labor Relations 2
ADMN 442	Training and Development
ADMN 444	Human Resource Information Systems

E. Complete 1 of the following

Computer related course or courses with a value of 3 credits.

Students involved in the Diploma Program must consult with the Program Head.

Suggested Electives

Electives should be chosen to complement career goals. The following electives are suggested as a guide for a standard path of studies. Variations must be approved by a program consultant.

ADMN 127	Training Techniques
ADMN 128	Occupational Health and Safety
ADMN 201	Counselling 1
ADMN 204	Human Resource Management
ADMN 205	Selection Interviewing
ADMN 222	Organizational Behavior 1
ADMN 302	Problem-Solving and Decision-Making
ADMN 304	Human Resource Planning
ADMN 307	Counselling 2
ADMN 308	Strategic Performance Management
ADMN 322	Organizational Behavior 2
ADMN 324	Interpersonal Skills
ADMN 332	Labor Relations 1
ADMN 380	Business Law 1
ADMN 406	Economic Issues for Financial Planners
ADMN 407	Adv. Problem-Solving and Decision-Making
ADMN 432	Labor Relations 2
ADMN 442	Training and Development
ADMN 444	Human Resource Information Systems
ADMN 480	Business Law 2
MKTG 102	Essentials of Marketing
MKTG 323	Effective Public Speaking
MKTG 324	Small Business Development
OHCE 101	Accident Prevention 1: Job Safety Analysis
OHCE 201	Industrial Health & Safety 1: Legislation
OPMT 102	Basic Mathematics of Finance
OPMT 197	Statistics for Business and Industry

* See Advanced Studies Section for additional courses.

Faculty and Staff

Barney Morrow, B.Comm., Associate Dean
Tel. 434-5734, Local 5229
Len Johnson, Program Head, 1st year Management Systems
Tel. 434-5734, Local 5222
Gordon Storey, Part-Time Studies Coordinator/ Head, Administrative Systems and Human Resource Management Programs
Tel. 434-5734, Local 5237

OPERATIONS MANAGEMENT PROGRAMS

Industrial Engineering Management Engineering Materials Management Transportation Logistics

Operations Management puts you in the position to help business meet its productivity improvement goals while enhancing your quality of work life. Operations Management offers several options each oriented to specific operating sectors, each bringing its own rewards and advancements.

The programs will assist entrepreneurs, divisional managers, line supervisors and first level employees, to attain both their personal and corporate goals. These programs are very results oriented in that course content can be used immediately for productivity improvement at the student's place of employment.

BUSINESS CERTIFICATE IN INDUSTRIAL ENGINEERING

This program is designed for people who work, or wish to work, in the manufacturing/warehousing functions of an organization. It is suited to those who are or will be production forepersons, analysts or supervisors in inventory control, product cost estimating, standard setting, production planning and control, project administration and technical sales.

ADMN 124	Supervisory Skills
COMM 183	Technical Reports
FMGT 109	Accounting for the Manager
OPMT 102	Basic Mathematics of Finance
OPMT 103	Quality Control Methods I
OPMT 106	Manufacturing Quality Assurance 1
OPMT 187	Project Planning and Scheduling
OPMT 188	Management Information Systems
OPMT 191	Purchasing
OPMT 197	Statistics for Business and Industry
OPMT 192	Inventory Planning and Control
OPMT 198	Productivity Engineering 1
OPMT 203	Quality Control Methods 2
OPMT 290	Performance Measurement
OPMT 298	Productivity Engineering 2

BUSINESS CERTIFICATE IN MANAGEMENT ENGINEERING

This program is designed for people who work in the private and public sectors of service industries - health care, education, justice services. Special attention is paid to ways in which management engineering tools may be applied to organizations whose results are not quantifiable.

ADMN 124	Supervisory Skills
ADMN 145	Managing Change
ADMN 170	Government and Business
ADMN 222	Organizational Behavior 1
COMM 183	Technical Reports
FMGT 109	Accounting for the Manager
OPMT 102	Basic Mathematics of Finance
OPMT 106	Manufacturing Quality Assurance 1
OPMT 187	Project Planning and Scheduling
OPMT 188	Management Information Systems
OPMT 191	Purchasing
OPMT 197	Statistics for Business and Industry
OPMT 198	Productivity Engineering 1
OPMT 290	Performance Measurement
OPMT 298	Productivity Engineering 2

BUSINESS CERTIFICATE IN MATERIALS MANAGEMENT

This program provides working adults with the training and education necessary to pursue a career in materials management.

The program is of interest to anyone involved in production and inventory control, buying, or related professions. Others benefitting from this program include: production and inventory control professionals who want to increase their knowledge of the field; newcomers to the profession who want to acquire a solid foundation on which to build a career and those choosing careers in purchasing, accounting, production supervision, traffic or warehousing.

This certificate uses the Canadian Association for Production and Inventory Control PIM courses.

Materials Management Option

ADMN 124	Supervisory Skills
COMM 183	Technical Reports
CPIC 105	Master Planning Certification Review (CAPIC)
CPIC 110	Principles of Inventory Control
CPIC 120	Manufacturing Resource Planning 2
CPIC 210	Inventory Management Certification Review (CAPIC)
CPIC 310	Material Requirements Planning (CAPIC)
CPIC 410	Capacity Management (CAPIC)
CPIC 510	Production Activity Control (CAPIC)
CPIC 600	Just-In-Time Certification Review (CAPIC)
OPMT 106	Quality Assurance 1
OPMT 175	Warehouse Management
OPMT 191	Purchasing
OPMT 198	Productivity Engineering 1
OPMT 298	Productivity Engineering 2
TDMT 409	Harmonized Systems FTA
TDMT 352	Transportation

BUSINESS CERTIFICATE IN TRANSPORTATION LOGISTICS

This program is designed for those engaged in both the buying and selling of transportation and distribution of goods.

Transportation Logistics Option

ADMN 124	Supervisory Skills
MKTG 314	Introduction to International Business
OPMT 102	Basic Mathematics of Finance
OPMT 188	Management Information Systems
OPMT 191	Purchasing
OPMT 192	Inventory Planning and Control
OPMT 197	Statistics for Business and Industry
OPMT 198	Productivity Engineering 1
TDMT 101	Geography of Trading 1
TDMT 150	Distribution 1 (C.T.T.T.)
TDMT 202	Transportation Regulations
TDMT 203	Transportation Economics
TDMT 304	Introduction to International Trading
TDMT 409	Harmonized Systems FTA
TDMT 410	Logistics Management
TDMT 413	Traffic and Transportation Management

Faculty and Staff

B.R.M. Morrow, Associate Dean, Administrative Systems	Tel. 434-5734, Local 5805
B. Curtis, Program Head, Transportation Logistics	Tel. 432-8850
J. Ribic, Part-Time Studies Coordinator	Tel. 434-5734 Local 5225

BROADCAST COMMUNICATIONS TECHNOLOGY

Business Certificate in Radio

Business Certificate in Television

Business Certificate in Broadcast Journalism

Prospective applicants are advised to attend a counselling session prior to enrolling in any Broadcast Communications part-time course. These sessions are held at 1730 in Room 1A-129 (just off the main lobby) on the following days: the last Monday in August, and the first Monday of every month thereafter through June. (Where a first Monday is a Statutory Holiday, the seminar will be held on the second Monday.) Confirmation of dates can be obtained by contacting 432-8863.

The following courses are available through part-time offerings from the Broadcast Communications Technology. These courses are normally twelve weeks in length, running one night per week, three hours per night.

First Level Courses

BCST 101	Technical Introduction
BCST 140	Broadcast Industry Organization
BCST 143	Music Business
BCST 144	Writing for the Media
BCST 145	Copywriting for Radio and TV
BCST 146	Broadcast Advertising and Promotion
BCST 148	Interviewing for Radio and Television
BCST 150	Radio Broadcasting Introduction
BCST 151	Radio and TV Announcing
BCST 160	Television Broadcasting Introduction
BCST 161	Film for Beginners
BCST 162	Dramatic Writing for Film and TV
BCST 165	30 Images a Second: Examining TV News
BCST 166	Inside Television
BCST 167	Production Assistant for Television News
BCST 168	The Writer/ Producer/ Director
BCST 170	Broadcast Journalism Introduction
BCST 171	Broadcast News Writing
BCST 172	Investigative Reporting

Second Level Courses (requiring one or more prerequisites)

BCST 222	Theory of Color Television Systems
BCST 223	Television Production Planning
BCST 252	Radio: Commercial and Audio Production
BCST 253	Radio Operations Lab
BCST 260	Television Production Techniques
BCST 263	Television Technical Production

BUSINESS CERTIFICATE IN BROADCAST COMMUNICATIONS

The courses required to obtain the Business Certificate in Broadcast Communications, and additional courses from either Broadcast or other business programs are listed below.

Students intending to pursue a Certificate in Broadcast Communications should choose a specific program (Radio, Television or Broadcast Journalism). Each program requires 8 specific Broadcast Communications courses, 2 elective Broadcast Communications courses, and 7 additional approved business courses.

Program and course selection should only be done with the guidance and advice of a program advisor. The program must be reviewed and approved by the Broadcast Communications Associate Dean and Part-time Studies Coordinator.

Radio

BCST 101	Technical Introduction
BCST 140	Broadcast Industry Organization
BCST 145	Copywriting for Radio and TV
BCST 150	Radio Broadcasting Introduction
BCST 151	Radio and Television Announcing
BCST 170	Broadcast Journalism Introduction
BCST 252	Radio: Commercial and Audio Production
BCST 253	Radio Operations Lab
BCST	*** Electives

Television

BCST 101	Technical Introduction
BCST 140	Broadcast Industry Organization
BCST 145	Copywriting for Radio and TV
BCST 160	Television Broadcasting Introduction
BCST 170	Broadcast Journalism Introduction
BCST 222	Theory of Color Television Systems
BCST 223	Television Production Planning
BCST 260	Television Production Techniques
BCST	***Electives

Broadcast Journalism

BCST 144	Writing for the Media
BCST 150	Radio Broadcasting Introduction
BCST 151	Radio and TV Announcing
BCST 160	Television Broadcasting Introduction
BCST 170	Broadcast Journalism Introduction
BCST 171	Broadcast News Writing
BCST 172	Investigative Reporting
BCST	***Electives

Broadcast (BCST) electives may be chosen from the list of First and Second level Broadcast Communications courses.

Business electives may be chosen from the following list:

ADMN 110	Management 1
ADMN 200	Macroeconomics
ADMN 211	Management 2
ADMN 222	Organizational Behavior 1
ADMN 385	Business Law
COMM 160	Intro to Business and Technical Communication
COMM 171	Business Reports
MKTG 102	Essentials of Marketing
OPMT 197	Statistics for Business and Industry

Other courses will be considered if they have a business application.

Entry into the Second Year Day School Program

Students who wish to enter the second year of the full-time day school program may qualify to do so by successfully completing the Broadcast Communications Certificate program and by subsequently attending an "intersessional" - an intensive full-time practical program operated 5 days a week for 4 weeks, commencing in the middle of April every year, operated in conjunction with the day school "first year practicum" session.

Students meeting these requirements may then be able to enter the second year program if positions are available and a selection committee deems them qualified for entry, based upon normal selection procedures and guidelines.

Approval for day school second year entry must be obtained from the Associate Dean of Broadcast Communications. An interview will be required. It is recommended that certificate program students intending to enter a second year program upon completion of their certificate, should contact the

Associate Dean for an interview early in their program of studies. This interview will determine initial suitability for second year entry.

Faculty and Staff

R. Piercy, Associate Dean
Tel. 432-8809
J. Ansell, Program Head, Radio
Tel. 432-8414
T. Handel, Program Head, Television
Tel. 432-8748
Y. Eamor, Program Head, Broadcast Journalism
Tel. 432-8667
M.K. Purkis, Continuing Education Coordinator
Tel. 432-8748

BUSINESS CLIENT STUDIES

Business Client Studies and Your Company - A Team Effort!

The Business Client Studies Department provides in-house training to business and industry in all areas of business and management. We work with companies to help increase productivity, remain competitive, build a highly skilled work team and motivate employees. We will:

- 1) Deliver any of the over 150 existing part-time studies business courses, at your work site and at your convenience, giving employees accreditation towards BCIT certificates. Course content is modified to relate specifically to your organization, so that work-related issues can be covered.
- 2) Custom design courses of any length to meet specific needs of your organization where they may not be addressed in existing courses. We can design and deliver courses of 4 hours duration or longer, during time frames and at locations that suit you.

For more information on what Business Client Studies can do for you, please contact us at 432-8255.

Business Courses Delivered At Your Site And At Your Convenience

The BCIT School of Business is one of the province's leaders in providing work-related business training through Part-time Studies courses and programs. Over 17,000 registrants attend each year. The Business Client Studies Department gives employers the opportunity to offer a wide selection of courses to their employees in-house. We provide training in a wide range of areas, including:

- Business Management
- Marketing
- Financial Management
- Computer Proficiency
- Operations/Production Management

Our training is done at your convenience. We can work with you at BCIT's Burnaby or Downtown Centre campuses, or at your worksite, and yes, we'll travel throughout the province! Training times are flexible; daytime, evening or weekends, with programs starting and ending at times that suit you.

Accreditation:

Most courses we offer your employees can be accredited towards BCIT certificate and diploma programs. Many of your employees may already be working on business certificates; part-time studies courses offered in-house will help them achieve their goal!

Training Partnerships

If your company is committed to on-going training, a Training Partnership Agreement is for you!

Training Partnership programs are designed to recognize the

unique needs of organizations, allowing employees to work towards BCIT certification based on courses you select. These courses can put your employees on track for a recognized BCIT certificate.

Courses can be chosen not only from BCIT's business programs, but also from a wide range of topics in engineering, health and trades.

This certificate may provide partner companies with accreditation of their in-house training at the same time as employees undertake training specifically tailored to meet corporate goals by developing employee skills and knowledge. You can choose from a wide range of existing BCIT courses, or we can custom-design courses for you.

Training Partnership Arrangements, equivalent to about fifteen 36-hour courses, include:

- 144 hours (about 4 courses) selected from BCIT's Business core curriculum.
- 108 hours (about 3 courses) of in-house company training that may be "block credited" upon assessment and approval.
- 288 hours (about 8 courses) selected and customized (where required) to meet your needs.

These arrangements are normally established with a company or association where the number of individuals involved justifies the establishment of a specific, pre-approved program.

Computer Proficiency Training

Do your employees need computer skills training? Business Client Studies has developed a unique computer skills training method to reduce apprehension and improve retention of knowledge in using computers.

We combine group instruction with on-the-job, small group coaching sessions. In group instruction, students learn theory, then practice this in class. Then, they are visited frequently on their job site by a coach, who assists them with specific work-related computer problems, reinforcing the group training and improving skills.

Computer proficiency training can be taught in either an IBM DOS or Macintosh environment, with employers choosing from several different software programs, depending on those used at your worksite. Some of the areas we train in include word processing, spreadsheets, databases, desktop publishing and programming. Training is matched to the existing computer skill levels of employees, allowing them to enter and exit the program with flexibility.

Custom Courses

If you need training unique to your organization, we can design, develop and deliver a program for you. BCIT faculty have over 20 years' experience in designing work-related training programs. Their expertise can help in:

- Determining your training needs
- Setting training goals and objectives
- Writing curriculum
- Delivering training using a variety of methods suited to your needs.
- Customized training has proven to be EFFECTIVE and COST EFFICIENT.

Short Seminars and Workshops

Too busy for lengthy training programs? We can help! We offer a variety of short seminars and workshops that can provide a "quick fix" to a specific problem.

We'll modify existing programs to cover just those topics you need, or create new short seminars for you.

Give us just 4 hours and we'll give you valuable training.

MEDIA TECHNIQUES FOR BUSINESS

This new program is designed for people with an interest in sales, marketing, public relations, motivation, fundraising and internal corporate communication. Students will learn and develop the current skills and techniques used in corporate, industrial, educational and marketing communications. Basic courses provide a pragmatic grounding; the skills will be applicable immediately.

The complete Certificate Program integrates MEDIA TECHNIQUES FOR BUSINESS courses with those from other disciplines. Students have a wide range of electives from which to choose, so they can develop a program that meets their specific needs and goals.

The MEDIA TECHNIQUES FOR BUSINESS Certificate Program requires the completion of the following 9 basic and a minimum of 6 elective courses totalling 18 credits.

Required Basic Courses

BCST 160	Television Broadcasting Introduction
BCST 161	Film for Beginners
MDIA 101	Photography
MDIA 103	Multi-Image Techniques Level 1
MDIA 104	Graphics Level 1
MDIA 110	Intro to Business Communications/Media Techniques
MDIA 206	Effective Presentation Techniques
MDIA 207	Video for Business
COMM 160	Intro to Business and Technical Communication

Elective Courses

ADMN124	Supervisory Skills
BCST 145	Copywriting for Radio and TV
BCST 148	Writing for the Media
BCST 252	Radio: Commercial Audio Production
COMM171	Business Reports
COMM175	Business and Technical Correspondence
COMM183	Technical Reports
COMP 293	Introduction to Multimedia
FMGT 109	Accounting for the Manager
MDIA 105	Pagemaker MS DOS -Introduction
MDIA 109	Pagemaker MacIntosh-Introduction
MDIA 111	Aldus Freehand- Introduction
MDIA 115	Quark X-Press - Introduction
MDIA 201	Advanced Photography
MDIA 202	Advanced Darkroom Techniques
MDIA 203	Multi-Image Techniques 2
MDIA 204	Graphics Level 2
MDIA 205	Pagemaker MS DOS -Advanced
MDIA 208	Communications Management
MDIA 209	Pagemaker MacIntosh - Advanced
MDIA 211	Aldus Freehand - Advanced
MDIA 215	Quark X-Press
MDIA 301	Commercial Photography
MDIA 304	Computer Generated Graphics
MKTG 102	Essentials of Marketing
MKTG 202	Principles of Promotional Marketing
MKTG 218	Intro to Media
MKTG 219	Professional Sales 1
MKTG 321	Public Relations 1
MKTG 322	Advertising 1
MKTG 323	Effective Public Speaking
MKTG 324	Small Business Development
MKTG 348	Media Planning and Buying
MKTG 427	Creative Advertising Design

Other elective courses are being developed. Check future flyers for additional choices. Not all courses are offered every term. For further information, please call: Business Client Studies at 432-8255 or 432- 8614.

BUSINESS CERTIFICATE IN INTERIOR DESIGN

A program designed for those working in or seeking employment in areas such as kitchen outlets, furniture or drapery centres, wallpaper outlets or retail sales. Graduates may also be suited for employment as assistants in a design office.

The courses required to obtain the Business Certificate in Interior Design are listed below.

INTD 100	Interior Design Basic
INTD 101	History of Furniture
INTD 102	Interior Design Drafting 1
INTD 200	Color and Lighting
INTD 202	Interior Design Drafting 2
INTD 301	Graphic Presentation
INTD 302	Interior Design Drafting 3
INTD 304	Space Planning 1
INTD 305	Detailing and Construction Materials
INTD 307	Materials
INTD 400	Directed Study Project
INTD 403	Business Practices for Interior Design
INTD 404	Space Planning 2
MKTG 323	Effective Public Speaking

EMPLOYMENT SPECIFIC CERTIFICATES

Legal Steno/Typist

Medical Office Assistant

LEGAL STENO/TYPIST CERTIFICATE PROGRAM

CORT 932 Part 1 (30 hours)

CORT 933 Part 2 (54 hours)

This legal steno/typist certificate program will appeal to those seeking advancement into this clerical specialty. The first part provides an introduction to legal office procedures, documentation and terminology which will enable students to decide if they wish to pursue this career. The second part includes theoretical and practical work in legal paperwork: criminal, litigation, divorce, labor, wills and estates, corporate and conveyancing. Graduates will be qualified as junior legal stenographers and may work in law firms, insurance, estate companies, financial institutions and notaries public. Prerequisite: Typing speed of 45 wpm and word processing proficiency. Students not proficient at word processing must show proof of completion of a word processing course by the end of CORT 933. Dictaphone is desirable.

MEDICAL OFFICE ASSISTANT CERTIFICATE PROGRAM

A medical office assistant (MOA) certificate is presented to students who successfully complete OFFC 934, 935, 936, 937, 938 and 939.

OFFC 934 Medical Office Computer Literacy (36 hours) – Introduces the principles and concepts of microcomputer use in medical offices to those with little or no computer experience who need a better understanding of basic application programs such as word processing and straightforward database systems. Students will be introduced to general concepts of DOS, word processing, the Medical Office Billing program and the characteristics of application programs that interface with the provincial plan.

OFFC 935 Medical Office Assistant: Medical Transcription (42 hours) – Designed for persons employed as medical office assistants or students taking medical office assistant training who require additional medical transcription instruction and experience. Of assistance to persons employed in clinics, doctors' offices, hospitals and other medical areas needing transcription experience. Includes transcribing medical letters, consultations and admissions from tapes; surgical, pathology and special consultation reports. Students will utilize dictaphone equipment and computers in this course. Students enrolling in this course should have a medical background, be working or training to work in a medical office, or be registered in the M.O.A. Certificate program. Prerequisite: OFFC 934 and 937 and keyboarding skills of 40 wpm.

OFFC 936 Medical Office Assistant: Anatomy and Physiology (42 hours) – Successful graduates of the program will understand human anatomy and physiology. Students learn basic structure and function of the human body and how it works. (Recommended first course of the program).

OFFC 937 Medical Office Assistant: Terminology (45 hours) – Successful graduates of this program will be able to use basic medical terms and know how to spell and pronounce them. Course content includes terms related to the parts of the body, systems and diseases. Of great value to students who are pursuing the MOA certificate program and of interest to others who need to understand medical terminology. Course content is concentrated; most students require a great deal of home study to absorb the material. Prerequisite: OFFC 936.

OFFC 938 Medical Office Assistant: Office Practice (24 hours) – Students will learn to perform the clerical duties associated with medical office assistance. Essential for students who must understand medical forms, perform private and insurance billing, know about community resources and be proficient in the day-to-day operation of the medical office.

OFFC 939 Medical Office Assistant: Clinical Procedures (30 hours) – Students will learn the use of medical equipment, how to perform laboratory tests and assist physicians with specific examinations, medical asepsis, infection control, CPR and M.O.A. skills.

EMPLOYMENT SPECIFIC TRAINING

OFFC 925 Cashier Training (18 hours) – Provides practical training in the operation of electronic cash registers. Course topics cover salesmanship, touch checking, taxable and non taxable including GST, and public relations. Successful graduates will have marketable skills and may seek employment in cashier/clerk positions.

Staff

Mike Powley, Acting Director
Debbie Saxby, Coordinator

FINANCIAL MANAGEMENT TECHNOLOGY

Professional Accounting
Finance
Financial Planning

BUSINESS CERTIFICATE IN PROFESSIONAL ACCOUNTING

1) Required Courses

FMGT 101	(or FMGT 115) Accounting 1
FMGT 201	(or FMGT 215) Accounting 2
FMGT 301	Cost and Managerial Accounting 1
FMGT 302	Financial Accounting 1
FMGT 316	Taxation 1
FMGT 401	Cost and Managerial Accounting 2
FMGT 402	Financial Accounting 2
FMGT 408	Taxation 2

2) Must Complete:

ADMN 100	Microeconomics and
ADMN 200	Macroeconomics
or	
ADMN 110	Management 1 and
ADMN 211	Management 2
or	
OPMT 102	Basic Mathematics of Finance and
OPMT 132	Business Statistics

3) Must complete at least one of:

Computer related course or courses with a value of 3 credits.

4) Electives

Courses should be selected from the suggested electives or from the alternative courses shown above. The selected courses must equal a minimum of 72 contact hours.

BUSINESS CERTIFICATE IN FINANCE

1) Required Courses

FMGT 101	(or FMGT 115) Accounting 1
FMGT 201	(or FMGT 215) Accounting 2
FMGT 302	Financial Accounting 1
FMGT 307	Finance 1
FMGT 315	Security Analysis 1
FMGT 402	Financial Accounting 2
FMGT 404	Finance 2
OPMT 102	Basic Mathematics of Finance

2) Must complete:

FMGT 301	Cost and Managerial Accounting 1 and
FMGT 401	Cost and Managerial Accounting 2
or	
ADMN 100	Microeconomics and
ADMN 200	Macroeconomics
or	
FMGT 316	Taxation 1 and
FMGT 408	Taxation 2

3) Must complete at least one of:

Computer related course or courses with value of 3 credits.

4) Electives

Courses to be selected from the suggested electives or from the alternative courses shown above. The courses selected must be a minimum of 90 course contact hours.

Entry into Levels 2, 3 or 4 of the Day School Programs

Students who wish to enter the upper levels of either the Professional Accounting program or the Finance Program may qualify to do so by successfully completing the courses listed in the lower level day school programs.

Individuals wanting to qualify for admission to day school must also be interviewed by the Departmental Selection Committee to ensure that they qualify for entry, based upon normal selection procedures and guidelines.

Students should contact the Associate Dean early in their program of studies.

ASSOCIATE CERTIFICATE IN FINANCIAL PLANNING

BCIT and the Pacific Chapter of the Canadian Association of Financial Planners are pleased to announce these courses leading to a BCIT Associate Certificate in Financial Planning. Each of these courses is available at our downtown campus at 549 Howe Street, Vancouver.

ADMN 385	Business Law
ADMN 406	Economic Issues for Financial Planners (or ADMN 306)
FMGT 109	Accounting for the Manager (or FMGT 101)
FMGT 119	Personal Financial Planning 1
FMGT 317	Taxation and Financial Planning (or FMGT 316)
FMGT 325	Investment and Risk Management
FMGT 444	Personal Financial Planning 2

* FOR INDIVIDUAL COURSE DESCRIPTIONS, SEE THE COURSE DESCRIPTIONS SECTION.

Suggested Electives for All Certificates

Electives should be chosen to complement career goals. The following courses (as well as alternative courses listed under either of the certificate options given) are suggested as a guide for a standard path of studies. Variations must be approved by a program consultant.

ADMN 222	Organizational Behavior 1
ADMN 322	Organizational Behavior 2
ADMN 332	Labor Relations 1
ADMN 385	Business Law
ADMN 432	Labor Relations 2
COMP 104	Computers in Business
COMP 160	Computer Systems Introduction
FMGT 106	Credit and Collections
FMGT 119	Personal Financial Planning 1
FMGT 310	Auditing 1
FMGT 315	Security Analysis 1
FMGT 322	Micro Basic Accounting
FMGT 325	Investment and Risk Management
FMGT 331	Money and Banking
FMGT 406	Auditing 2
FMGT 410	Security Analysis 2
FMGT 441	Financing International Trade
FMGT 444	Personal Financial Planning 2
MKTG 102	Essentials of Marketing
MKTG 323	Effective Public Speaking
MKTG 324	Small Business Development
TDMT 409	Harmonized Systems FTA

Faculty and Staff

G. Farrell, Associate Dean
Tel. 432-8898
M. Briscall, Technology Head,
Tel. 434-5734, Local 5498
R. Dolan, Program Head, Finance
Tel. 434-5734, Local 5526
R.C. Nichols, Program Head, Professional Accounting
Tel. 434-5734, Local 5498
G. Farrell, Part-Time Studies Coordinator
Tel. 432-8898

MARKETING MANAGEMENT TECHNOLOGY

Business Certificate in:
General Marketing Management
Marketing Communications
Technical Sales
International Marketing

GENERAL MARKETING MANAGEMENT

For those who work in the retail, wholesale, manufacturing and service industries, this program offers an assortment of courses designed to provide you with an understanding of all the elements of Marketing Management. Studies will include marketing planning, promotion, research, demand development, and sales. The courses required to obtain your certificate are listed below. The balance of courses may be selected from the list of suggested electives.

Required

MKTG 102	Essentials of Marketing
MKTG 202	Principles of Promotional Marketing
MKTG 212	Principles of Customer Service
MKTG 205	Marketing of Services
MKTG 219	Professional Sales 1
MKTG 322	Advertising 1
MKTG 340	Marketing Planning Fundamentals
MKTG 341	Marketing Research
MKTG 501	Strategic Marketing Management

Complete 3 of the following

ADMN 110	Management 1
ADMN 222	Organizational Behavior 1
FMGT 109	Accounting for the Manager
MKTG 112	Customer Relations
MKTG 324	Small Business Development
MKTG 441	Applications of Marketing Research
COMP ____	Complete any Computer course worth 3 credits

3 Electives

You may choose 3 electives which you feel will enhance your personal growth. Courses may be selected from other options or the suggested list.

MARKETING COMMUNICATIONS

This program is designed to give you specialized training in specific design and campaign development requirements. Included in this broad yet detailed spectrum are the development of advertising objectives, selection of appropriate message design and media, establishment of campaign timing and expenditure, and analysis of budgeting control. Listed below are the courses required to obtain your certificate. The balance of courses may be selected from the suggested electives.

Required

MKTG 102	Essentials of Marketing
MKTG 112	Customer Relations
MKTG 202	Principles of Promotional Marketing
MKTG 218	Introduction to the Media
MKTG 219	Professional Sales 1
MKTG 318	Media Planning and Buying
MKTG 321	Public Relations
MKTG 322	Advertising 1
MKTG 341	Marketing Research

Complete 4 of the Following

ADMN 110	Management 1
COMP ____	Complete any Computer course with 3 credits
FMGT 109	Principles of Customer Service
MKTG 120	Event Marketing
MKTG 125	Consumer Behavior
MKTG 323	Effective Public Speaking
MKTG 337	Corporate Communications
MKTG 342	Trade Show Marketing
MKTG 433	Advanced Public Relations

2 Electives

You may choose 2 electives which you feel will enhance your personal growth. Courses may be selected from other options or the suggested list.

TECHNICAL SALES

Enhance your ability to sell products or services to consumers, the commercial market and professional buyers. Analyze buyer needs, plan detailed and exciting presentations and utilize professional oral and written skills. Courses required to obtain your certificate are listed below. The balance of courses may be selected from the suggested electives.

Required

MKTG 102	Essentials of Marketing
MKTG 112	Customer Relations
MKTG 202	Principles of Promotional Marketing
MKTG 219	Professional Sales 1
MKTG 220	Managing the Sales Force
MKTG 307	Industrial and Organizational Marketing
MKTG 319	Professional Sales 2
MKTG 335	Marketing and Sales Presentations
MKTG 342	Trade Show Marketing

Complete 3 of the Following

COMM 171	Business Reports
COMP ____	Complete any Computer course worth 3 credits
MKTG 125	Consumer Behavior
MKTG 212	Principles of Customer Service
MKTG 213	Creating a Service Edge
MKTG 340	Marketing Planning Fundamentals
MKTG 341	Marketing Research
MKTG 441	Applications of Marketing Research

3 Electives

You may choose 3 electives which you feel will enhance your personal growth. Courses may be selected from other options or the suggested list.

INTERNATIONAL MARKETING

This program is designed to provide a selection of courses that will assist those who wish to gain an understanding of what is required to market a product or service as well as understand the specifics required to either import or export. It would be of interest to those looking for entrepreneurial people who wish to do it on their own.

Required

MKTG 102	Essentials of Marketing
MKTG 202	Principles of Promotional Marketing
MKTG 219	Professional Sales 1
MKTG 322	Advertising 1
MKTG 340	Marketing Planning Fundamentals
MKTG 341	Marketing Research

MKTG 342	Trade Show Marketing
MKTG 414	International Marketing Management
MKTG 501	Strategic Marketing Management

Complete 3 of the Following

ADMN 110	Management 1
ADMN 385	Business Law
FMGT 109	Accounting for the Manager
FMGT 441	Financing International Trade
MKTG 441	Applications of Marketing Research
TDMT 304	Intro to International Trading
COMP ____	Complete any Computer course worth 3 credits
TOUR ____	1 Language course

3 Electives

Suggested Electives

Electives should be chosen to complement career path. Students may choose from other Marketing Certificate Programs or from the suggested list.

Suggested Electives

Electives should be chosen to complement career paths. Students may choose courses from other Marketing Certificate Programs, from other Business School Programs and from the following list:

MKTG 107	Marketing Strategies in the Fashion Industry
MKTG 111	Retail Fashion Buying
MKTG 118	Sales Promotion
MKTG 212	Principles of Customer Service
MKTG 213	Creating a Service Edge
MKTG 323	Effective Public Speaking
MKTG 324	Small Business Development
MKTG 325	Importing
MKTG 327	Exporting
MKTG 328	Principles of Property Management
MKTG 437	Principles of Direct Marketing
TOUR 212	Basic Japanese
TOUR 213	Basic French
TOUR 313	Basic French 2
TOUR 350	Domestic Air
TOUR 351	International Air 1
TOUR 365	Intermediate Communication in Japanese
TOUR 431	Developing Conventions and Conferences

Faculty and Staff

R. Vandermark, Associate Dean	Tel. 432-8382
M. Shacker, C.E. Coordinator	Tel. 432-8572
G. Urbshadt, Program Head, Technical Sales	Tel. 434-5734, Local 5587
C. Nelson, Program Head, Advertising	Tel. 434-5734, Local 5381
B. Brett, Program Head, Tourism	Tel. 434-5734, Local 5238

ADVANCED STUDIES IN BUSINESS

The aim of this program is to provide BCIT's Specialized Business Diploma graduates with further education to meet the needs of B.C.'s business, government, industry and professionals; for more highly trained management generalists, through a program leading to a Bachelor's degree in business; for more highly trained specialists, through a program leading to an Advanced Diploma in Business.

There are thus two distinct but interrelated parts to the Advanced Studies in Business program: the degree completion "track" (for the business generalists) and the advanced diploma "track" (for the management specialists).

Purpose and Benefits

To provide advanced business training to Diploma of Technology graduates (or equivalent) to:

- prepare them for increased responsibilities;
- obtain an Advanced Diploma in Business
- obtain a designation granted by a professional society;
- complete a bachelor's degree in Business Management through the B.C. Open University (BCOU), or other university; and from there,
- enter more advanced studies, such as Master of Business Administration.

The Program

This new program, together with all School of Business programs, is currently under development. It forms an important element in BCIT's mandate which ".....focus on those initiatives that increase the level of entrepreneurial activity within the province".

Advanced Studies in Business is the second module of an educational and work experience structure built upon BCIT's well respected base - the Diploma of Technology - or upon another degree, diploma or equivalent work experience. The objective is to develop graduates with enhanced job ready skills equipping them for more responsible positions in business, industry, government and the professions.

The first Advanced Studies in Business courses was offered full-time and part-time in September 1990. The first groups of full time students will complete their program of studies in April 1991.

Ongoing liaison will be maintained with the B.C. Open University, the Professional Associations and industry to continuously articulate and monitor course requirements.

DEGREE COMPLETION TRACK

The B.C. Open University grants BCIT Business Diploma graduates in Administrative Systems, Financial Management, Marketing Management or Operations Management, block transfer of 84 credits towards a Bachelor of Administrative Studies. These BCIT graduates need only to complete 36 additional credits at BCIT and other institutions to meet the B.C. Open University requirement of 120 credits for a degree. For additional information on credit transfer for these and other diploma programs please contact the office of the Dean of Business, tel. 432-8581.

BCIT Business Diploma	84 credits
B.C. Open University & BCIT Courses	<u>36 credits</u>
Bachelor of Arts in Administrative Studies	120 credits

The 36 credits required may be earned through five arts and sciences elective courses approved by the B.C. Open University and taken through accredited universities and colleges, and the seven advanced business courses taken at BCIT selected from the following list and the next section:

ADMN 705	Intermediate Macroeconomics Analysis
ADMN 710	Business and Society
ADMN 720	Organizational Behavior 2 - Management of Change
ADMN 790	Strategic Management
OPMT 740	Integrated Management Information Systems
OPMT 741	Mathematical Models in Business
ADMN 799	Directed Studies
MKTG 799	Directed Studies
OPMT 799	Directed Studies
FMGT 799	Directed Studies

Students having credit for, or wishing to take, the arts and sciences required by the B.C. Open University may apply at any time after their programs have been approved by the Dean, School of Business.

ADVANCED DIPLOMA TRACK

While the degree completion track is designed for the business generalist who wishes to obtain a Bachelor's degree in Administrative Studies, 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 aim of the Diploma is to provide a program of theoretical and practical education in the current skills required to integrate all business functions, in order to effectively manage an advanced technology enterprise at the strategic level.

The Advanced Diploma in Business will consist of twelve advanced business courses selected from the "generalist" courses listed above and the "specialist" courses in the four areas as follows:

ADMN 710	Business and Society
ADMN 720	Management of Change
ADMN 790	Strategic Management
OPMT 740	Integrated MIS
Management of Advanced Technology Enterprise (MATE)	
OPMT 710	Quality Assurance
OPMT 730	Logistics
OPMT 750	High-Tech Processes
OPMT 752	Decision Support Studies
MKTG 710	Advanced Technology Marketing
ADMN 385	Business Law
ADMN 749	Human Resources/Industrial Relations
FMGT 731	Financial Planning

International Business

MKTG 700	Foreign Language
MKTG 710	International Business Methods
MKTG 730	Intercultural Communications
MKTG 770	Multinational Markets
FMGT 725	International Finance/Capital Markets

Human Resource Management

ADMN 740	Human Resource Planning
ADMN 741	Issues in Compensation and Benefits
ADMN 742	Issues in Human Resource Management
ADMN 743	Human Resource Information Systems
ADMN 744	Issues in Industrial Relations
ADMN 745	Strategic Performance Systems
ADMN 746	Employee Wellness
FMGT 730	Business Planning and

Control

Accounting

FMGT 711	Advanced Accounting
FMGT 713	Taxation
FMGT 714	Management Accounting
FMGT 715	Auditing
FMGT 720	Advanced Finance

Specific course requirements will vary according to the area of specialization. Course descriptions are currently under development. Students interested in the Advanced Diploma should contact the Dean's office at 432-8581 for details on the program options.

Admission Requirements

The minimum entrance requirements will be:

- 1 average grade standing of not less than 65%;
- 2 letter of recommendation;
- 3 statement of interest in the program;
- 4 evidence of computer fluency;
- 5 resume showing experience relevant to the program;
- 6 successful personal interview.

Prerequisite

Diploma of Technology in Business or Management Systems or Financial Management or Marketing Management or Operations Management or Transportation Logistics. Previous business experience is preferable, but only mandatory for those entering the Advanced Diploma program.

COMBINED BUSINESS AND ENGINEERING TECHNOLOGY CERTIFICATE PROGRAMS

Industrial Management Technical Marketing

Students have the opportunity to acquire the techniques needed to solve complex business problems that have applications to both the business and engineering fields.

BCIT will award combined Business and Engineering Technology Certificates to students who successfully complete 15 courses drawn from both schools. The object of these certificates is to provide a course of studies with a general business base and the flexibility to include engineering courses to suit the interest of the individual.

These programs must be individually approved and are developed to meet the dual needs of individual career aspirations and academic requirements. Specific approval is required for such programs and a program advisor should be consulted in every case.

Course Descriptions & Credits

ADMINISTRATIVE SYSTEMS

ADMN 100 Microeconomics – The major areas studied are the product and resource markets. Students analyze supply and demand, how production costs vary and how prices are determined in various market structures. In addition, resource allocation and economic policy implications are explored. **3 credits**

ADMN 110 Management 1 – An insight into the basic nature of business problems and the administrative process involved in handling them, with emphasis on the personnel management function. Study and discussion is undertaken of actual business situations illustrating problems frequently met in industry which require managerial analysis, decision and action. **3 credits**

ADMN 124 Supervisory Skills – Designed for new supervisors or aspirants for leadership responsibilities in large or small companies, institutions, government departments, municipalities, or associations. Students increase their confidence and abilities as leaders and establish a foundation for further training in supervision and management. Persons taking the first step into supervision study delegation, grievances, work planning, and roles and relationships within an organization. **3 credits**

ADMN 127 Training Techniques – Useful to people responsible for personnel training in business, industry, government and institutions. Members of personnel departments contemplating a training program, and supervisors involved with on the job training, will be particularly interested. The student develops a good grounding in current training methodology, techniques and aids. Topics include learning theory, determining training needs, writing objectives, designing training programs using outside resources, and evaluation. **3 credits**

ADMN 128 Occupational Safety and Health – A practical course conducted by the B.C. Safety Council for those responsible for occupational safety and health in an industrial setting including managers, supervisors, shop stewards, safety committee members, members of the industrial relations or personnel department. Topics include: Worker's Compensation Act; Factories Act; rules and regulations; types of organizational structure; the role of the committee; creating a 'thinking' state of mind; pros and cons of reward systems; union/management cooperation; other ways and means of getting this important job done. **3 credits**

ADMN 200 Macroeconomics – Develops an understanding of the organization and operation of the Canadian Economy in an international setting. The theoretical tools of the economist are used to expand the concepts of national income, employment, inflation, money and banking, international trade and growth. An appreciation of the relationship between economic theory and economic policy is provided. **4 credits**

ADMN 201 Counselling 1 – Demonstrates that communication skills can be learned and that, through training, everyone can learn to become a more effective communicator. The instructional method focuses on learning to recognize various levels of communication through lectures, listening, observing and practising. Discrimination training focuses on empathy, respect, genuineness, concreteness, self-disclosure and confrontation. Live interaction and observer feedback are essential aspects of this developmental training. **3 credits**

ADMN 204 Human Resource Management – An introductory course recommended for all persons interested in management and/or supervision. It develops an understanding of significant human resource management programs 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 functions with some emphasis upon practical application of the techniques studied. Prerequisite: ADMN 110, 222. **4 credits**

ADMN 205 Selection Interviewing – This course is presented for people in the fields of personnel, management, supervision, or anyone involved in interviewing applicants for employment. It identifies techniques, styles, stages, uses, pitfalls and key points in interviewing, with particular emphasis on questioning techniques and selective listening. Prerequisite: ADMN 204. **4 credits**

ADMN 208 Municipal Law – In addition to an overview of the B.C. Municipal Act and other provincial statutes governing local government activities, this course covers areas of administrative practice. Additional topics include: municipal powers and duties; municipal councils; elections; by-laws; acquisition and disposal of land; contracts and franchises; revenues, assessment and taxation; B.C. statutes and case law relating to the principal services provided by municipal authorities. **3 credits**

ADMN 211 Management 2 – A continuation of the study of functions of management begun in ADMN 110. Prerequisite: ADMN 110. **3 credits**

ADMN 222 Organizational Behavior 1 – For persons with no formal training in organizational behavior, a study of basic behavioral concepts and their application to management situations. These include operational definitions or terminology common to psychology and other social sciences, and allow the student to easily understand the information conveyed in all areas of organizational behavioral studies. The beginning concentrates on the individual, focusing on the determinants of behavior - heredity, culture, motivation, perception, attitudes, learning and leadership. The conclusion focuses on understanding group behavioral processes. Prerequisite: Recommend completion of ADMN 110 and 211. **3 credits**

ADMN 302 Problem-Solving and Decision-Making – Participants learn to apply various techniques to problem-solving and decision-making with emphasis on problem analysis. Group dynamics, demonstrations, lectures and practice sessions relating to real applications prevail. Rational and creative methods, using the principle of learning through interpersonal workshops or group involvement, establish a high level of confidence in the student's ability to deal with problems effectively. Prerequisite: ADMN 110 and 211. **3 credits**

ADMN 304 Human Resource Planning – Designed for anyone in a planning organization involving people resources. Presents the techniques used in utilizing people potential within organizations. Topics include human resource planning, methods of assessing present stocks and flows, future projections, sources of supply, identifying training needs, related strategic policies, budgeting and costing, and program evaluation. Prerequisite: ADMN 204. **4 credits**

ADMN 305 Salary Administration – Students learn the 'whys' and 'hows' of salary administration and develop a basic knowledge of techniques in this field. Topics include alternative methods of job evaluation; job description; establishing and maintaining salary schedules; administering a salary plan; general and specific adjustments for promotions and demotions; how to set up a simple plan. Prerequisite: ADMN 204. **4 credits**

ADMN 306 Economic Issues – A general economics course for the noneconomist business student who is interested in general economic issues. The course will discuss selected issues such as free trade, marketing boards, inflation, and government's role in economics. **3 credits**

ADMN 307 Counselling 2 – This second phase of interpersonal communications skill development is an opportunity to practice communication skills in supervised training sessions. Focuses on the application, integration and refinement of the core dimensions: empathy, respect, genuineness, concreteness, self-disclosure and confrontation. Dyads and double dyads comprised of counsellor, client and peer-group observers combine with audio and video tapes as ongoing feedback. Prerequisite: ADMN 201. **3 credits**

ADMN 322 Organizational Behavior 2 – Persons in counselling situations or with leadership responsibilities who have completed part 1, will benefit from a deeper appreciation of organizational theory and its application. Examines theories of people and management and how to understand and cope with human behavior in the world of work. Topics include organization structures, culture, attitudes and their importance in change, leadership styles, and conflict in goals and objectives. Prerequisite: ADMN 222. **4 credits**

ADMN 324 Interpersonal Skills – This course will help managers, supervisors, team leaders and others develop interpersonal skills through hands-on role playing and experimental learning exercises in a variety of business related situations. **3 credits**

ADMN 332 Labor Relations 1 – For those involved in or associated with labor relations as management or union. People in the personnel field, shop stewards, supervisors, managers and union members will find the coverage of the collective bargaining process and day-to-day contract administration extremely useful. They will learn to approach their responsibilities for matters covered by collective agreements with more confidence and expertise. Topics include related laws, typical contract clauses, grievance procedures, responsibilities of the supervisor and the shop steward, and current activities in the labor relations field. Prerequisite: ADMN 110, 222. **4 credits**

ADMN 385 Business Law – A survey course which acquaints students with the basic knowledge of Canadian law including the legal system, contracts, torts, sale of goods and consumer protection, secured transactions and creditors' remedies, employment law and agency, business organizations, negotiable instruments, real estate and administrative law. **4 credits**

ADMN 400 Special Project – An opportunity for advanced level students to do an independent, in-depth study in the business management field, under the guidance of an instructor. Students take a problem or situation that they face in their work and tackle it, with the guidance of an expert in the field. The specific objective is set by the student. Students interested in pursuing this course should approach a program advisor for assistance in developing a proposal for the project. **12 credits**

ADMN 406 Economic Issues for Financial Planners – A technical issues course for the noneconomist who is interested in general economics. The course will discuss free trade, marketing boards, inflation, and government's role in economics. **3 credits**

ADMN 407 Advanced Problem-Solving and Decision-Making – A continuation of ADMN 302 for the student seeking further development of problem-solving and decision-making techniques. Prerequisite: ADMN 302. **3 credits**

ADMN 432 Labor Relations 2 – A thorough explanation of collective administration, agreements, wage issues, economic supplements, arbitration, mediation, preparation for collective bargaining and collective bargaining techniques. Prerequisite: ADMN 332. **3 credits**

ADMN 443 Training and Development – Focuses on the development of training programs and curricula from both theoretical and practical perspectives. This is an advanced level course for functional specialists. Prerequisite: ADMN 127, 204, 222, 322. **3 credits**

ADMN 444 Human Resource Information Systems – Examines human resource management information systems from the perspective of the specialist responsible for their development and administration. Familiarizes the student with software programs applicable to the personnel / industrial relations field. Develops an appreciation for the effective use of human resource information systems in various work situations. Prerequisite: ADMN 204. **3 credits**

ADMN 705 Intermediate Macroeconomic Analysis – This course extends the macroeconomic analysis introduced in ADMN 200. It develops modern theories of the determination of income, employment and prices with attention to their application to the Canadian experience. Throughout, the course emphasizes the application of theory to understanding the workings of macroeconomic policy. Prerequisite: Diploma graduate and acceptance in the Advanced Business Program, ADMN 100 and 200. **3 credits**

ADMN 710 Business and Society – A variety of topics are discussed. 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 in the Advanced Diploma in Business Program. **3 credits**

ADMN 720 Management of Change – Further analysis of human behavior in the organization toward development of models in the decision-making process. The extended analysis will encompass the development of organizations toward open systems capable of effective responses to change. Prerequisite: Acceptance in the Advanced Studies in Business Program. **3 credits**

ADMN 790 Strategic Management – Examines the components and processes of the strategic management model using examples from Canada and the United States. The student learns to do case analyses throughout the course. Topics include: strategic management, social responsibility, environmental and internal analysis and diagnosis, strategy selection, implementation and evaluation. Prerequisite: 6 courses completed in Advanced Studies and ADMN 410 Management Policy or equivalent. **3 credits**

BROADCAST COMMUNICATIONS

BCST 101 Technical Introduction – Students are introduced to the basics of electricity, magnetism, batteries, etc., which are then applied to the equipment they will be working with. The origin of sound is traced through the entire processing and transmission system to its ultimate reception in the listener's home. The same is done with the sending and receiving of television pictures. This is an elementary introduction to explain "how things work." **3 credits**

BCST 140 Broadcast Industry Organization – Directed Study. Discusses regulatory bodies, associations, government agencies, audience measurement services, societal issues, music licensing, regulations, etc., which affect the day-to-day operations of broadcasting outlets. As a directed study course, the materials direct students to sources of information on all appropriate topics. Class will meet the first night only - all work is done at home. **3 credits**

BCST 143 Music Business – Course topics include the roles, responsibilities and operation of talent agencies and management; concert promotion and merchandising; song writing and publishing, copyright; record companies and manufacturing, recording studios; getting "air-play" on radio stations, contracts, etc. **3 credits**

BCST 144 Writing For The Media – A practical guide to freelance writing for radio and television, focusing on format, presentation, style, markets and methods. Equips you with the tools required to enter the freelance market. **3 credits**

BCST 145 Copywriting For Radio and TV – CREATIVE MADNESS! Write commercials for television and radio. Learn professional techniques, tips, tricks and trade secrets of writing and producing commercials while maintaining your sanity and sense of humor. Career-oriented. Weekly practical application. No text required. **3 credits**

BCST 146 Broadcast Advertising and Promotion – Techniques and strategies involved in the commercial and public broadcast promotion areas. Could also appeal to those interested in a marketing career. **3 credits**

BCST 148 Interviewing for Radio and TV – Students will be exposed to various industry examples of interview styles and techniques and will be encouraged to analyze them thoroughly. The class will also be required to conduct their own interviews, which will be critiqued in the classroom. The course will conclude with each student presenting a produced interview of broadcast quality to the class. **3 credits**

BCST 150 Radio Broadcasting Introduction – The radio industry presents many exciting and challenging career opportunities. This course is for those interested in a radio career or in finding out more about "how radio works". Students are introduced to industry and station operations, equipment and procedures, and spend a great deal of time in simulated on-air operations, acting in a variety of positions as part of an on-air team. **3 credits**

BCST 151 Radio and TV Announcing – An introduction to basic announcing skills. This course will improve students' presentation and articulation by employing several styles and techniques of announcing practice followed by critiques and evaluation. A voice audition may be required. **3 credits**

BCST 160 Television Broadcasting Introduction – Television and video production of all kinds provide attractive and diverse career opportunities. This introductory courses is designed for those seeking a career in television broadcasting and video production, those employed in non-production areas who wish to gain more understanding of video production, and those seeking more information about "how television works". Basic equipment operation and production procedures provide a foundation for practical work in the studio. **3 credits**

BCST 161 Film For Beginners – An introduction to cinematography which discusses equipment operation, scripting, filming techniques and basic editing. An excellent foundation for those considering work in film production. **3 credits**

BCST 162 Dramatic Writing For Film and TV – Provides a solid base for people interested in pursuing opportunities in the expanding areas of film and television dramatic script writing. Addresses a variety of topics and skills including format, style, script development, timing, etc. **3 credits**

BCST 165 30 Images a Second: Examining TV News – Pictures tell the story but do they tell the WHOLE story? This behind-the-screen course will show you how news is gathered, packaged, and presented to viewers. Television doesn't simply mirror society, it reworks reality in a powerful way. Through practical exercises, documentaries and discussions, students will explore the strength and weakness of TV news. **3 credits**

BCST 166 Inside Television – For students considering a career in television performance or for those who want to better understand what goes on behind the TV show you enjoy. We will analyze and conduct interviews, determine camera angles and set design, research show concepts, study live production vs. taped, design "mini-shows" from technical, creative and content perspectives. No prerequisites are required but this course is a good follow-up to BCST 160 or BCST 170. **3 credits**

BCST 167 Production Assistant for TV News – Learn the job of one of the many behind-the-screen people who bring you TV news - the production assistant. You'll learn what goes on in the control room, how to time a show, and some of the preparation behind your nightly news. **3 credits**

BCST 168 The Writer/ Producer/ Director – To be successful today, many people are combining job functions. We'll study: the fundamentals of effective writing for commercials and corporate videos, from budget breakdown to crew selection and finally.....directing....from block shots to talent direction. **3 credits**

BCST 170 Broadcast Journalism Introduction – An introduction to all aspects of news operation in the broadcast industry: basic reporting, writing and presentation of radio and TV news; newsroom operations, methods and practices; editing, line-up and content of news stories. **3 credits**

BCST 171 Broadcast News Writing – Writing techniques used in radio and TV news writing for those in the field who wish to develop additional skills, and for employees in the industry who wish to add news writing to their present skills, and for general interest. **3 credits**

BCST 172 Investigative Reporting – Anyone interested in the motives and processes of investigative reporting will find this course interesting. Although the course should not be regarded as sufficient preparation for employment as an investigative reporter, content is detailed enough to be useful to anyone contemplating a reporting career, with the addition of a broader journalism course. **3 credits**

BCST 173 Sportscasting – Designed for those contemplating a career in radio or television sports broadcasting. Topics include sports reporting, sportscast organization and presentation, interviewing techniques, play-by-play, and industry background information. **3 credits**

BCST 222 Theory of Color Television Systems – The course begins with the psychophysics of human vision and explains how the eye perceives and adapts to color. This theory is applied to the NTSC system. The color TV signal path is explained, from the camera through production and measuring equipment to final display. Prerequisite: BCST 101. **3 credits**

BCST 223 Television Production Planning – Enables students to plan the elements necessary to guarantee a TV production which will meet the professional standards of the television production industry, and to organize and conduct pre and post production meetings as the producer/director of a proposed series pilot. Prerequisite: BCST 160 or BCST 220. **3 credits**

BCST 252 Radio: Commercial and Audio Production – Learn how to produce commercials and other audio features using modern radio commercial production and recording theories and techniques. Prerequisite: for those who have completed BCST 150 or who have industry experience. **3 credits**

BCST 253 Radio Operations Lab – Most students find upon completion of BCST 150 that they are just becoming familiar with equipment and operations when the course ends. This course provides 36 hours of advanced practice in simulated station operations. Group and individual critiques are made after simulation to evaluate performance. **3 credits**

BCST 260 Television Production Techniques – Offers practical application opportunities for students who have completed BCST 160 and BCST 323. Each session consists of a lecture followed by setup and shooting of interviews, demonstrations, commercials and promos, including the introduction of special techniques which allow students to add more professional polish to their work. Prerequisite: BCST 160, 223. **3 credits**

BCST 263 Television Technical Production – The technical production of television programs for remotes, studio and electronic field productions. Students will examine the planning necessary to technically produce these highly specialized programs and visit remote broadcast locations. Students will gain skills and knowledge of equipment terminology, techniques and crew positions used in the industry. Prerequisite: BCST 160. **3 credits**

CANADIAN ASSOCIATION FOR PRODUCTION AND INVENTORY CONTROL

CPIC 105 Master Planning Certification Review – Provides a detailed knowledge of MRP 2 Master Planning. Topics include forecast source data, order entry, demand management, developing a production plan, master production scheduling, final assembly scheduling, management considerations. Students should have taken CPIC 210 or have a good knowledge of MRP 2. This course is primarily intended for those writing the APICS Master Planning Certification exam. **2.5 credits**

CPIC 110 Principles of Inventory Control – An introductory course that covers basic methods of planning and controlling inventory in manufacturing, institutional, distribution and retail environments. The questions of what to stock, when to stock, how much to stock, how to control stock are addressed through an examination of the current and evolving technologies of inventory management. This is an introductory course intended for those who have little or no experience in inventory management. **3 credits**

CPIC 120 Manufacturing Resource Planning 2 (MRP 2) – This course covers the concepts of computer based information systems used by manufacturing companies to plan and control their operations. Topics include production planning, master scheduling, material requirements planning, bills of material, inventory accuracy, capacity management and plan execution. System justification and implementation issues will also be covered. This course is intended for those who are considering installing an MRP 2 system or are currently working with one. **3 credits**

CPIC 210 Inventory Management Certification Review – Provides an increased depth of knowledge of inventory management. Topics include inventory objectives, policy development, accounting, physical control, aggregate management, relationships, lot sizing models, customer service, replenishment systems, dependent demand (MRP), JIT, and distribution requirements planning. This is an advanced course in inventory management. Students should have taken CPIC 110 or have a good inventory management background. This course is primarily intended for those who are writing the APICS Inventory Management Certification exam. **2.5 credits**

CPIC 310 Material Requirements Planning (MRP) – Reviews the subject areas that lead to an understanding of material requirements planning (MRP). The course starts with a session on background and basis of MRP logic, and proceeds through detailed reviews of each of the inputs into the system, bills of material, inventory status, lead times, master schedule, etc. Topics such as planned orders, order action and planning, managing the MRP system, system implementation and installation are explained. **2.5 credits**

CPIC 410 Capacity Management – Provides an understanding of the topics related to capacity management, master planning, inventory management, MRP, rough cut capacity planning, routing, work centre balance, scheduling input/output control are among the topics explained. **2.5 credits**

CPIC 510 Production Activity Control – Students will learn the principle approaches and techniques used by managers to plan, schedule, control and evaluate the effectiveness of shop production operations. Topics of capacity, scheduling options, database, requirement load measurements, dispatching and control are covered. **2.5 credits**

CPIC 600 Just-In-Time Certification Review – JIT is the most important productivity enhancing management innovation developed in the last 50 years. JIT production systems combine the elements of total quality control, waste elimination and continuous improvement. Course topics include eliminating waste, housekeeping, reducing set up times, flow production, worker skill development, group problem solving, pull systems, uniform plant load, supplier involvement and implementation issues. **2.5 credits**

COMMUNICATION

COMM 160 Introduction to Business and Technical Communication – Practical techniques for planning, organizing, selecting and presenting information in a business or industry environment. Students apply these skills to communication common in most office jobs - routine memos, instructions, procedures, summaries, oral presentations. Practical "case" assignments are used. Ideal course for those with little experience in business or technical communication. **3 credits**

COMM 171 Business Reports – For those in the business environment who must learn how to write problem-solving reports and proposals. The course emphasizes the persuasive skills needed to sell ideas, methods and products. Specific applications include comparison and recommendation reports, proposals, feasibility studies, executive summaries, formal report format, persuasive presentations and effective use of graphics. **3 credits**

COMM 175 Business and Technical Correspondence – Emphasizes communication fundamentals and writing strategies for solving correspondence problems such as business letters and short memo reports. **3 credits**

COMM 183 Technical Reports – Gives writers from technical or industrial backgrounds practice in writing problem-solving reports. Emphasizes the communication skills needed when solving engineering problems and describing methods and products. Specific applications include comparison and feasibility reports, technical proposals, journal reviews, executive summaries and formal report format. Persuasive presentations, meetings, and effective use of graphics are also covered. **3 credits**

COMM 196 Writing Manuals for the Computer Industry – This 18-hour course is for anyone who writes user manuals. It covers planning, researching, organizing, formatting and writing the manual, and testing and packaging the finished product. It emphasizes techniques for translating technical material for the non-technical reader. The course is offered in weekend and 3-day formats at the Burnaby and Downtown campuses. **1.5 credits**

COMPUTER SYSTEMS

COMP 104 Computers in Business – For those with a basic understanding of programming and computer systems who are not directly involved in data processing but require familiarity with current terminology and concepts used in the computer industry. Students learn to communicate effectively with data processing personnel and to recognize the potential use of computers in a business environment. Topics include data entry and output options; batch, on-line and distributed processing; telecommunications; recognizing the difference between micros, minis, and mainframe computers; project management techniques; methodology for evaluating software application packages and the hardware related to implementing a package within a company. Prerequisite: COMP 101/102/103/105/126. **3 credits**

COMP 160 Computer Systems Introduction 1 – Introduces the basic definition and design of computer systems. Emphasis is on the fundamentals of systems analysis including development of system objectives, problem definition, information gathering, effective written and verbal communication (particularly with user department personnel), systems problems and possible computer solutions. The course presents the systems development process and covers basic systems theory, the systems development cycle, information gathering, flowcharting, report writing, forms design and presentation techniques. Additional techniques and their applications to common business systems are presented in COMP 260. **3 credits**

FINANCIAL MANAGEMENT

FMGT 101 Accounting 1 – Permits persons with little or no accounting background to become familiar with the techniques of working through the full accounting cycle. It provides theoretical and practical training in basic accounting as preparation for FMGT 201. Topics include accounting as an information system; introduction to accounting theory; income measurement; traditional record-keeping procedures; the accounting cycle; special journals; cash; investments and receivables. This course also available by distance education. **4 credits**

FMGT 104 Accounting Essentials for Small Business – Covers the minimum that a proprietor of a business should be familiar with. Topics include recordkeeping, budgeting and cash flow, financial statements, funding mechanisms and legal requirements. **4 credits**

FMGT 106 Credit and Collections – A detailed examination of credit granting, collection techniques and credit philosophy in all levels of business, prepares the student to assist the credit manager of a large or small business in any area of the subject. Topics include determining credit risk; credit instruments and collateral security; types of consumer credit and credit cards; sources of consumer credit information; collections; credit department management. **4 credits**

FMGT 109 Accounting for the Manager – For the manager who wants to understand basic accounting principles without taking a formal accounting course. The student studies the accounting function and the services it provides the manager and learns to interpret statements, reports, budgets, etc., in managerial decision-making. Topics include the accounting cycle, inventory valuation and control, depreciation methods, credit control, budgeting, and analysis of financial statements. **3 credits**

FMGT 112 Managerial Finance – For the manager or entrepreneur who wants to understand the basic principles of business finance without formal study in finance or the usual preparatory courses for formal study. The student develops a working understanding of business finance, cash flow management and financial planning in large and small businesses. **3 credits**

FMGT 115 Accounting 1L – Enables students to start the basic course in accounting in January. It is the equivalent of FMGT 101 and the first six weeks of FMGT 201, for a total of 18 weeks of the 30-week presentation. The balance of the course, FMGT 215, may be taken in either May or September. For a description of the course content see FMGT 101/201. **5.5 credits**

FMGT 116 Principles of Accounting (Accelerated) – This course, equivalent to FMGT 101/201, presents a full introduction to accounting in 15 weeks. Prospective students are cautioned against enrolling in this course without a strong background in accounting. Students must be prepared to spend a minimum of 10 hours per week out of class working on the course material. See FMGT 101/201 for details. **10 credits**

FMGT 118 Intermediate Managerial Finance – Covers a broad range of corporate finance theories and teaches practical financial management skills as they apply to large and small business operations. The following concepts and techniques will be covered: financial statement analysis, financial planning and cash flow forecasting, working capital management, short term and long term sources of financing and capital budgeting. Prerequisite: FMGT 101, 201 or equivalent. **3 credits**

FMGT 119 Personal Financial Planning 1 – Introduces a variety of savings and investment aspects to build a sound program to achieve long term financial goals. Lectures and discussions will provide an interesting course for individuals of all ages. Topics include money management, insurance, investments and portfolio distribution, wills, estates, pension management and tax planning. **3 credits**

FMGT 201 Accounting 2 – The follow-up to FMGT 101. Topics include inventory, long-lived assets, liabilities, forms of business organizations, cash-flow and working capital analysis, manufacturing accounting, management accounting, consolidated statements, analysis of financial statements and price level changes. Prerequisite: FMGT 101. This course is also available through distance education. **5.5 credits**

FMGT 215 Accounting 2S – Follow-up course to FMGT 115, enabling students to complete the last 12 weeks of the basic accounting course. See FMGT 201 for details. Prerequisite: FMGT 115. **4 credits**

FMGT 293 Working Capital Management – Enables students to understand the relationship 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. **2 credits**

FMGT 301 Cost and Managerial Accounting 1 – Emphasizes the role of the management accountant, cost terms and purposes, cost-volume-profit relationships, job order accounting, budgeting, responsibility accounting and standard costs. Prerequisite: FMGT 201. **4 credits**

FMGT 302 Financial Accounting 1 – For students with basic accounting knowledge to broaden their understanding of the accounting process and its underlying theory. This course and FMGT 402 prepare them for career advancement and advanced study in accounting. Topics cover development of financial information for external circulation; the accounting process from a more analytical standpoint; the income statement and balance sheet; cost, valuation, presentation and income measurement problems associated with current assets and current liabilities. Prerequisite: FMGT 201. **5 credits**

FMGT 305 Cost Accounting Computer Systems – Direct costing and the contribution approach; cost-volume-profit analysis; cost analysis for managerial planning and decisions; inventory planning, control and valuation; budgeting and profit planning; standard costs; cost and price variance analysis; capital budgeting. Applications on HP 3000 will be studied during late term labs. Prerequisite: FMGT 201. **4 credits**

FMGT 307 Finance 1 – Those with little or no knowledge of financial management will 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 planning, cash and capital budgeting and inventory control. Prerequisite: FMGT 201. **4 credits**

FMGT 308 Security Analysis 1 – This is an introductory level course in investments. Topics include: the nature of common shares and the markets in which they trade, the impact of fluctuations in the business cycle on security prices, the analysis of securities from a fundamental and technical perspective. Prerequisite: FMGT 201 or 215. **4 credits**

FMGT 310 Auditing 1 – Discusses auditing principles, specific techniques in analytical auditing and some asset classifications. Students study the meaning and purpose of the audit function and are introduced to techniques and procedures. Topics include history, professional ethics, internal control, auditing EDP systems, gathering evidence, audit work papers. Prerequisite: FMGT 201. **3 credits**

FMGT 314 Financial Accounting 1 and 2 Accelerated – This course is equivalent to FMGT 302/402 and offers both financial accounting courses in 15 weeks. Prospective students are cautioned against enrolling in the course unless they have a reasonable background in financial accounting and are prepared to spend a minimum of 12 hours per week out of class working on the course material. See FMGT 302, 402 for details. Prerequisite: FMGT 201. **12 credits**

FMGT 315 Security Analysis – Provides students with an understanding of the function and operation of the stock market. **3 credits**

FMGT 316 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 408 completing it. Topics include tax information sources, residency, classes of taxpayers, employment income, business income, investment income, capital cost allowance and capital gain rules. Prerequisite: FMGT 201.

3 credits

FMGT 317 Taxation and Financial Planning – Refer to FMGT 316 description. Prerequisite: FMGT 101 or FMGT 109.

3 credits

FMGT 319 Cost and Managerial Accounting 1L – Designed to permit students to start cost accounting in January, this course is equivalent to FMGT 301 and the first 6 weeks of FMGT 401 for a total of 18 weeks of the 30-week presentation. The remaining 12 weeks can be completed either by taking FMGT 401 over 6 weeks, 2 nights per week commencing in May, or over 12 weeks commencing in September. See FMGT 301/401 for details. Prerequisite: FMGT 215.

6 credits

FMGT 320 Financial Accounting 1L – Permits students to start financial accounting in January. The course covers the equivalent of FMGT 302 and the first 6 weeks of FMGT 402 for a total of 18 weeks of the 30-week presentation. The remaining 12 weeks can be completed either by taking FMGT 402 over 6 weeks, on a 2 nights per week basis commencing in May, or over 12 weeks commencing in September. See FMGT 302/402 for details. Prerequisite: FMGT 215.

7 credits

FMGT 322 Micro Based Accounting – Enables individuals with an introductory financial accounting background to utilize this knowledge in a computerized setting. Students progress through two micro computerized accounting packages that provide the flexibility to adapt to many accounting packages currently available in the market place. The emphasis of this course is to upgrade the ability to handle modern accounting software packages on the microcomputer.

3 credits

FMGT 325 Investment and Risk Management – An overview of Canada's capital markets including a review of securities, international funds, insurance aspects and other financial institutions. Emphasizes portfolio input from a financial planning perspective. Prerequisite: FMGT 119.

3 credits

FMGT 331 Money and Banking – The study of money and money substitutes, currency supply, creation of credit; uses of money; practices, policies, functions and services of commercial banks; central banking and monetary control; objectives and techniques of monetary policy and debt management; financial assets and financial markets; money and the international economy.

4 credits

FMGT 339 Finance 1L – This course will cover the equivalent of FMGT 307 and the first 6 weeks of FMGT 404. Topics include control and financial management of the business firm, profit planning, cash and capital budgeting and inventory control. Prerequisite: FMGT 201.

6 credits

FMGT 401 Cost and Managerial Accounting 2 – Enables the student who has completed FMGT 301 to understand cost accounting techniques which assist management in planning, control, income determination and decision-making. The course emphasizes 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 301.

5.5 credits

FMGT 402 Financial Accounting 2 – Completes the study of intermediate accounting necessary for employment in more responsible accounting positions. Topics include cost, valuation, presentation, income measurement problems associated with long term assets and liabilities, shareholders' equity accounts, income tax allocation, statement of charts in financial position, statements from incomplete data, accounting changes and price-level and fair-value accounting. Prerequisite: FMGT 302.

6.5 credits

FMGT 404 Finance 2 – 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 307.

5.5 credits

FMGT 406 Auditing 2 – Follow-up to FMGT 310. The student studies general auditing principles and specific audit procedures and learns to critically assess accounting procedures. Topics include auditing assets, liabilities, owner's equity, revenues, cost, expenses, financial statements and audit reports. A short audit case will be undertaken. Prerequisite: FMGT 310.

5.5 credits

FMGT 408 Taxation 2 – Students expand on the study of Canadian income tax begun in FMGT 316 and become aware of the complexities and problem areas involved in tax planning. Topics include tax on individuals (including proprietors and partners), corporations and trusts, corporate surplus distributions, international income, appeal procedures, tax planning and tax avoidance versus tax evasion. Prerequisite: FMGT 316.

3 credits

FMGT 410 Security Analysis 2 – Techniques and principles of security analysis: valuation of securities; analysis of risks inherent in all types of fixed income investments. Emphasizes the investment setting, the securities market, investment timing and portfolio analysis of both individual and institutional investors. Prerequisite: FMGT 308.

3 credits

FMGT 415 Advanced Accounting – The student will review GAAP and objectives of financial reporting as these relate to the main objectives of this course. A closer examination of corporate combinations will be undertaken including consolidations for wholly owned and non-wholly owned subsidiaries (both in the year of acquisition and in subsequent years) and pooling of interests. Consolidations will be examined for up to two subsidiaries. Accounting for foreign currency transactions will also be studied, along with fund accounting. Prerequisite: FMGT 320.

5.5 credits

FMGT 419 Cost and Managerial Accounting 2S – As a follow-up course to FMGT 319, FMGT 419 completes the last portion of the cost accounting courses. See FMGT 401 for details. Prerequisite: FMGT 319.

4 credits

FMGT 420 Financial Accounting 2S – The follow-up course to FMGT 320, enables students to complete the last portion of the financial accounting course. See FMGT 402 for details. Prerequisite: FMGT 320.

3 credits

FMGT 435 Cost and Managerial Accounting 1 and 2 – Contains the elements of a full two-term cost and managerial accounting course. Complete detailed information is available from FMGT 301/401.

6 credits

FMGT 439 Finance 2S – Instructs students in 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 market and pension portfolios as they affect business decisions of the Canadian firm. Prerequisite: FMGT 339.

3 credits

FMGT 441 Financing International Trade – Covers the various financing methods in both import and export situations. Documentation requirements are thoroughly covered. Students become familiar with the operations of foreign exchange markets and methods of financing foreign investments. **3 credits**

FMGT 444 Personal Financial Planning 2 – An in-depth look at the topics commenced in FMGT 119. Prerequisite: FMGT 119, 109, 316 or 317, 325, ADMN 380 or 385 and 406. **3 credits**

FMGT 711 Accounting Advanced -TBA **3 credits**

INTERIOR DESIGN

INTD 100 Interior Design Basic – Introduces students to the many areas of interior design including furniture arrangement, color and lighting. How to critically analyze a space and how to organize and present information. Serves as a stimulus for generating ideas. **3 credits**

INTD 101 History of Furniture – Covers the history of furniture from ancient Egypt to the present. Illustrated lectures, discussions, class projects, assignments and field trips introduce students to furniture periods, construction and quality. Some sketching and design work will be included to encourage individual expression. Prerequisite: INTD 100. **3 credits**

INTD 102 Interior Design Drafting 1 – Presents aspects of architectural drafting beginning with lettering, equipment awareness and technical vocabulary. Enables students to present plans, elevations, site and plot plans, with correct architectural symbols in presentation. Prerequisite: INTD 100. **6 credits**

INTD 200 Color and Lighting – Provides students with basic theories of color mixing and harmonies to enable them to produce color schemes. A basic knowledge of lighting methods, effects and products will be covered. Prerequisite: INTD 100. **3 credits**

INTD 202 Interior Design Drafting 2 – Presents isometric views, shadow and light. Provides training in the presentation of sections through walls, windows, doors and other architectural components. Focuses on the presentation of one and two point perspective. Prerequisite: INTD 102. **6 credits**

INTD 301 Graphic Presentation – Develops the student's ability to present design plans, elevations and perspectives. Subjects include the importance of presentation in the design process, seeing texture graphically, presentation methods in rendering plans, elevations and perspective sketches. Prerequisite: INTD 302. 65% minimum required to pass course. **3 credits**

INTD 302 Interior Design Drafting 3 – Students study the reflected ceiling plan, organization of its legend and specification, types and characteristics of lighting. Students complete one major assignment combining plans, elevations, sections, perspectives, lighting plans and specifications. Prerequisite: INTD 202. **3 credits**

INTD 304 Space Planning 1 – Introduces factors in space planning including zoning and circulation considerations. Topics include social and private areas in the home, kitchens and types of plans and renovations. Prerequisite: INTD 302. 65% minimum required to pass course. **3 credits**

INTD 305 Detailing and Construction Materials – Acquaints students with the properties, characteristics and uses of materials for interior construction, custom furnishing and decor. Introduces methods and techniques used in the preparation of working drawings for interior construction elements, building components, millwork, custom furniture and built-in cabinets. Prerequisite: INTD 100, 302. Students should bring drafting samples to first class. 65% minimum required to pass course. **3 credits**

INTD 307 Materials – Introduces students to various interior materials including material characteristics, terms, specifications, budget costs and installation methods. Presents information on a variety of topics including carpets, wood floors, blinds, vinyl/rubber flooring, textiles, wall coverings, ceramics, marble, stone, wood, metals, plastics. The course will provide students with the foundation of their own material resource libraries. Prerequisite: INTD 100. **3 credits**

INTD 400 Directed Study Project – Students incorporate the material from previous courses in a major project representing a 450 square metre residential and commercial space including planning, color scheme selection, furniture selection, lighting and electrical planning, developing drawings of custom millwork. Graphic presentation is of major importance. Classroom time will be available for advice from instructors. Prerequisite: Completion of all other courses in the Interior Design Certificate Program with a minimum final grade of 65%. **1.5 credits**

INTD 403 Business Practices for Interior Design – This compact course provides students with the basics to market their skills to the profession and supply industry. The course will instruct students on how to present a portfolio of their work, how to write resumes and how to approach the design industry. Areas of design will be discussed: residential, commercial contract resource and retail. Prerequisite: INTD 100. **1.5 credits**

INTD 404 Space Planning 2 – Introduces factors in commercial space planning and problem-solving using recognized factors. Topics include offices, restaurants and retail stores. Prerequisite: INTD 304. 65% minimum required to pass course. **3 credits**

MARKETING MANAGEMENT

MKTG 102 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. It includes the controllable and uncontrollable elements of marketing, strategy planning, market characteristics, marketing research techniques, market segmentation and target market selection. **3 credits**

MKTG 107 Marketing for the Fashion Industry – A course designed to investigate, develop and implement specific marketing strategies as they relate to the field of fashion. A hands-on look at the world of fashion **1.5 credits**

MKTG 111 Retail Fashion Buying – Develops a practical and comprehensive knowledge of merchandise buying functions for fashions. Coverage includes product research, developing assortments and buying techniques. **2 credits**

MKTG 112 Customer Relations – A course for people involved in service industries, public relations and promotion, government agencies and organizations who deal with the public. Students cover telephone techniques, customer relations and effective speaking. **3 credits**

MKTG 118 Introduction to Sales Promotion – Provides an overview of sales promotion techniques for marketing and advertising campaigns. Students develop realistic sales promotion campaigns through major project applications. **3 credits**

MKTG 120 Special Event Management – The focus of this course is on learning how to plan, market, produce and manage special events such as social functions, conventions, fundraisers, appreciation nights, etc. The course will cover such things as budgeting, location, entertainment, timing, sponsors, themes and promotion. A major project in which students will develop an event plan of their own is the key component of this course. **3 credits**

MKTG 125 Consumer Behavior – An introduction to the subject of consumers and why they buy. The course examines topics such as segmentation, consumer needs, attitudes, learning and life style analysis. The focus will be on the application of consumer behavior concepts to marketing situations. **3 credits**

MKTG 202 Principles of Promotional Marketing – Presents an overview of promotional strategies; advertising, sales promotion, direct marketing, multi-level marketing and public relations. It is intended for those students pursuing the concentrated marketing program. The course examines the areas of campaign planning, message design and media characteristics as they apply to product and service suppliers in both profit and non-profit sectors. Prerequisite: MKGT 102. **3 credits**

MKTG 205 Marketing of Services – Covers the development of a marketing mix for companies in service industries. The course will focus on the differences between developing strategies for services rather than products. Prerequisite: MKTG 102. **3 credits**

MKTG 212 Principles of Customer Service – An introductory course designed to provide an overview of what constitutes the area of customer service. Will cover such things as corporate image, personal presentation, customer interaction, customer definition and industry trends. **3 credits**

MKTG 213 Creating a Service Edge – The purpose of this course is to provide the basics to assist in developing a system to analyze internal and external customer service. Material will include client/customer questionnaires, employee climate surveys, methods of improving service, recognizing and rewarding staff, and thriving on change. Prerequisite: MKTG 212. **3 credits**

MKTG 218 Introduction to Media – Through lectures and guest speakers, students will learn about media/industry terminology; strengths and limitations of each medium; industry-related research tools; the role of sales representatives; the role of the computer in the media planning and buying process; the role of the planner/buyer; tips, pitfalls and exceptions within the planning and buying process, and the application of various creative elements within the media mix. This course will appeal to advertising agency and media sales personnel, and individuals considering career entry in the advertising industry. MKTG 322 or related experience is recommended. **3 credits**

MKTG 219 Professional Sales 1 – Provides basic training for the sales aspirant or person with no formal sales training. Students will develop selling techniques through practical applications in role playing. **3 credits**

MKTG 220 Managing the Sales Force – The role of sales manager in planning, directing and controlling, will be the focus of this course. Coverage will also include the selection of sales representatives as well as training, supervision, motivation and leadership. Prerequisite: MKTG 219 or related experience. **3 credits**

MKTG 307 Industrial and Organizational Marketing – This course deals with industrial markets focussing on how businesses market to each other. Coverage will include the industrial buying process, segmenting, and the industrial marketing framework. Emphasis is placed on decision-making through case studies and projects. Prerequisite: MKTG 101. **3 credits**

MKTG 318 Media Planning and Buying – 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. The main objective of this course is to provide marketable skills in media planning and buying to qualify students for career entry consideration in advertising agencies. Prerequisite: MKTG 218. **3 credits**

MKTG 319 Professional Sales 2 – Examines power selling. Students will learn about power phrases, buying signals, buying motivation, getting attention, arousing interest, sales interview process, selling more, selling the end result, art of persuasion, benefits, and value vs. price; how to deal with no's, prospecting for sales, selling yourself and your company, generating sales through telephone and follow-up techniques, goal setting and personal motivation. Prerequisite: MKTG 219 or related experience. **3 credits**

MKTG 321 Public Relations – For anyone in business, government, municipalities, associations and organizations, responsible for internal and external communication. Students learn to fulfil their information and communication assignments with increased confidence and competence. Topics include planning and executing a public relations program; communication techniques, principles of news writing and preparation of news photographs; utilizing the media; press and community relations; external/internal communications and meetings. Prerequisite: MKTG 202. **3 credits**

MKTG 322 Advertising 1 – Advertising philosophy and purpose; organization of the advertising function; relationship of advertising to other business divisions; advertising planning; the business management of advertising. The creative process, research, media - newspaper, radio, TV, magazines, direct mail, outdoor, public relations. Copy, layout, art, strategies and campaigns, production and communications, controls, evaluating results. The course is designed to make the student a competent advertising critic. Prerequisite: MKTG 101. **3 credits**

MKTG 323 Effective Public Speaking – Emphasizes the development of public speaking skills and the principles of effective oral communication. Topics include communication as it applies to public speaking and the rudiments of improving the speaking voice. Films, buzz groups and closed circuit TV are utilized. Each person is expected to prepare and deliver an oral assignment weekly. **3 credits**

MKTG 324 Small Business Development – Discusses the planning stages involved in starting a new business including market, financial and legal feasibility requirements. Major emphasis is on the preparation of a business plan. **3 credits**

MKTG 325 Importing – Provides students with importing business basics. Discussion covers methods of sourcing overseas suppliers, assessing market potential, payment mechanisms and foreign exchange. Students will learn how to set up their own import businesses. **3 credits**

MKTG 327 Exporting – Provides students with complete information on export business basics. Discusses opportunities, research, planning, distribution, promotion and customs practices. Students will learn how to set up their own export businesses. **3 credits**

MKTG 328 Principles of Property Management – Lays the foundation for a sound education in property management by presenting the basic theories and techniques of long range and day-to-day investment in real estate management. **3 credits**

MKTG 337 Corporate Communications – Covers the spectrum of promoting and communicating a company's image. Areas examined include advertising, public relations, media relations, investor relations, promotional print material, trade shows and other activities. The emphasis is on consistency of image and professionalism throughout all activities. The main objective of this course is to provide the student with a working knowledge of the corporate communications function within a business. **3 credits**

MKTG 340 Marketing Planning Fundamentals – A decision-making oriented course. Students will be expected to apply the concepts of marketing and planning to real world situations. The course will include market forecasting, buyer behavior, product planning, pricing, distribution, and communication strategies. Prerequisite: MKTG 202, 341. **3 credits**

MKTG 341 Introduction to Marketing Research – Introduces the basics of marketing research. The student will be able to identify the needs for marketing research and develop a knowledge of the procedures and applications of research. Prerequisite: MKTG 202. **3 credits**

MKTG 414 International Marketing Management – A course designed to cover international trade concepts. Course material will include cultural dynamics, economic, political and legal considerations, product strategies, pricing methods, how to develop a distribution system, and promotional techniques. Prerequisite: MKTG 102. **3 credits**

MKTG 422 Advertising 2 – Clarifies the material covered in MKTG 322 permitting persons holding advertising positions to advance to more responsible areas. The course explains the interrelationship between marketing and advertising. Measuring advertising effectiveness; differences between advertising and sales promotion; media planning and budgets; the makeup of advertising campaigns; how an advertising agency operates; implementing marketing plans, coordination, control and measurement. Prerequisite: MKTG 322. **3 credits**

MKTG 427 Creative Advertising Design – Moves the student from the development of creative strategy through the concept stage to the details of creative execution. Both print and broadcast advertising techniques will be explored with the guidance of professionals who are currently working in a variety of creative advertising areas. The primary objective of the course is to have each student produce high quality creative projects to enhance their portfolios. Prerequisite: MKTG 322 or related experience. **3 credits**

MKTG 433 Advanced Public Relations – This course emphasizes the behavioral science foundation of public relations and looks in depth at program planning and budget development; issues identification, analysis and management, dealing with specialized publics; and managing public relations. Prerequisite: MKTG 321. **3 credits**

MKTG 437 Principles of Direct Marketing – Provides information on how to use marketing as an effective medium. The course will cover planning direct marketing campaigns and the use of telemarketing as a prime tool in direct marketing strategy. **1.5 credits**

MKTG 441 Applications of Market Research – This course is a follow up to MKTG 341. Familiarizes students with the practical applications of research in the business context. Experience will be gained in the design and implementation of research projects. Prerequisite: MKTG 201, 341. **3 credits**

MKTG 501 Strategic Marketing Management – Provides students with a multi-dimensional learning environment. A program of lectures, readings, discussions, and simulation exercises is prescribed. The role and importance of planning and information for marketing decision-making is an underlying precept. Simulations are intended for use in the application phase of an education program that applies knowledge and practical experience. This course demands that students draw heavily from all other marketing knowledge gained in previous courses. MKTG 441 and 322 are recommended. Prerequisite: MKTG 201, 340. **3 credits**

MEDIA TECHNIQUES FOR BUSINESS

MDIA 099 Photography (Entry Level) – Basic Photography – Learn how to handle a 35 mm Single Lens Reflex camera and accessories! Through lectures, videos, slides, and a workshop you will learn, and understand, basic photographic concepts like: depth of field, aperture/shutter relation, exposure control, night photography, and more. If you have an interest, but no previous experience in photography, we encourage you to enroll in this exploratory course to foster that interest and determine your potential. You will need your own 35mm SLR with 50mm lens, and have to supply your own film. A tripod is recommended. 4 weeks (5 sessions). **Non credit**

MDIA 101 Photography – Improve your knowledge of handling 35mm equipment and accessories, (including flash), learn composition, choose the right film, how to get the most out of available light, and determine correct exposure for any light condition. You will also get hands-on experience in basic portrait techniques, using studio lighting equipment, plan and carry out assignments, process and print Black & White film, and set up your own darkroom. All darkroom material is included! You need a 35mm SLR camera, with at least a 50mm lens, and a tripod. You have to supply your own film. 8 weeks (8 sessions). Prerequisite: Basic Photography (MDIA 099) or permission of the instructor. **3 credits**

MDIA 103 Multi-Image Techniques Level 1 – Designed for beginners with an interest in producing slide/tape multi-image shows. Students will receive hands-on training in the theory and elements required for multi-image shows. **3 credits**

MDIA 104 Graphics Level 1 – Introduces layout, design, illustration, printing methods, camera-ready artwork and typography. Those with an interest, but no previous experience in graphic art are encouraged to enroll in this exploratory course, to foster that interest and determine their career potential. **3 credits**

MDIA 105 Introductory Desktop Publishing, MS DOS IBM PC Aldus Pagemaker – This introductory course of Aldus Pagemaker 4.0 is a practical "hands-on" course teaching design, layout and production of professional high impact publications, using Aldus Pagemaker page assembly software program. Learn to create numerous publishing projects, including advertisements, brochures, bulletins, flyers and forms. Aldus Pagemaker gives you everything you need to produce any document electronically. VHS video tapes on desktop design are shown during this course. Students have their own workstations using an IBM 286 AT computer. Consider the advantages of obtaining professional training at BCIT and the many ways it can advance your business career. **1.5 credits**

MDIA 109 Introductory Desktop Publishing, Apple Macintosh Aldus Pagemaker – This introductory course of Aldus Pagemaker 4.0 is a practical “hands-on” course teaching design, layout and production of professional high impact publications, using Aldus Pagemaker page assembly software program. Learn to create numerous publishing projects, including advertisements, brochures, bulletins, flyers and forms. Aldus Pagemaker gives you everything you need to produce any document electronically. VHS video tapes on desktop design are shown during this course. Students have their own workstations using an Apple Macintosh SE computer. Consider the advantages of obtaining professional training at BCIT and the many ways it can advance your business career. **1.5 credits**

MDIA 110 Introduction to Media Techniques for Business – As the core of the MEDIA TECHNIQUES FOR BUSINESS Program, MDIA 110 introduces students to communication tools and audiovisual techniques. Students will become familiar with audiovisual production, speaker support, multi-image and video presentations, and will understand the steps necessary to complete these projects. **3 credits**

MDIA 111 Introductory Desktop Publishing Graphics, Apple Macintosh Aldus Freehand – A graphics program that turns the Apple Macintosh into the ultimate drawing tool. This graphics program makes drawing by computer easier and faster than drawing by hand. Learn how to create any graphic imaginable, with more precision and control than ever before. You'll never have to go back to the drawing board again! Students in stage design, architectural studies, landscaping, and the fine arts can experiment with design techniques using Aldus Freehand. Graphic arts students produce logos, product designs, packaging plans, and illustrations in Aldus Freehand as they explore their own style and artistic potential. Students have their own workstations using an Apple Macintosh SE computer. VHS video tapes on desktop design will be shown during this course. Come and learn how to create this graphic magic at BCIT. **1.5 credits**

MDIA 115 Introductory Desktop Publishing, QUARK XPress – An introduction to the most powerful page layout program currently available. This course is designed to give a complete overview of the abilities of XPress. Students will gain a solid understanding of text importing, formatting and manipulation, graphics integration and pagination. Students have their own workstations using a Macintosh SE computer. Students must have a solid working knowledge of the Macintosh. **1.5 credits**

MDIA 201 Advanced Photography – During eight classroom sessions, four workshops in darkroom and studio (including a practical make-up demonstration), and one fieldtrip you will develop the basic skills to plan, and carry out, a wide variety of assignments in studio and on-location, select and handle sophisticated camera and studio lighting equipment, how to set up a darkroom for advanced B&W printing, shoot Still Life and portraits, set up and organize a small studio; work from a layout to meet both client's requirements and quality standards in the industry, put together a powerful portfolio and make a presentation. All darkroom material is included! You need a 35 mm SLR, with at least a standard lens, as well as a flash unit and a tripod. 12 weeks (13 sessions). Prerequisite: Intermediate Photography (MDIA 101) or permission of the instructor. **3 credits**

MDIA 202 Advanced Darkroom Techniques – During three classroom sessions and nine darkroom sessions, students will develop the practical skills to create fine Black & White enlargements by using a variety of techniques and materials. Through practical assignments you will learn to determine your personal film exposure index and development time, assess negatives and printing quality, manipulate film and

prints, make high-quality enlargements on Resin-coated as well as Fibre-based paper, learn how to set up and organize a B&W darkroom, and get hands-on experience with spotting, toning, and hand-colouring. All darkroom materials are included! You will need a 35mm SLR camera and supply your own film. 12 weeks (12 sessions). Prerequisite: MDIA 101, MDIA 201 (recommended) or permission of the instructor. **3 credits**

MDIA 203 Multi-image Techniques Level 2 – A continuation of MDIA 103, covering hands-on training in the theory and elements required for multi-image shows. **3 credits**

MDIA 204 Graphics Level 2 – A continuation of MDIA 104. Students develop their graphic art skills in layout, design and mechanical artwork for 4 color printing; paper selection, print production, commercial photography, costing and estimating. Includes a tour of a large printing plant. Prerequisite: MDIA 104. **3 credits**

MDIA 205 Advanced Desktop Publishing, MS DOS, IBM PC Aldus Pagemaker – This advanced course of Aldus Pagemaker 4.0 guides the student through Pagemaker's advanced features. Learn how to create your documents in readiness for sending your files to a service bureau thereby reducing pre-press costs. You will also learn how to create color separation files. VHS video tapes on desktop design are shown during this course. Students have their own workstations using an IBM 286 AT computer. Consider the advantages of obtaining professional training at BCIT and the many ways it can advance your business career. Prerequisite: MDIA 105 or permission of instructor. **1.5 credits**

MDIA 206 Effective Presentation Techniques – Consists of two sections designed to prepare students to present material effectively. The 1st section explores delivering an introduction, impromptu talk, and a prepared presentation. The 2nd section deals with effective and proper use of grammar. The course is ideal for those who prepare and present written and spoken material in today's corporate world. **3 credits**

MDIA 207 Video for Business – For people interested in using video to communicate with employees, customers, investors and other members of the public. The student will learn how to plan and organize a video production and will write a proposal, treatment, budget and script. The student will also become acquainted with the technical resources (crew, equipment, etc.) necessary to mount a production. **3 credits**

MDIA 208 Communications Management – This course will examine trends in modern business communications and how those trends are affecting the types of jobs available in business and government. Students will learn about the basic tools newsletters, magazines, videos, brochures, annual reports, etc., which are used in communications programs. Students will also be assisted in charting a personal career path in this exciting and demanding field. **3 credits**

MDIA 209 Advanced Desktop Publishing, Apple Macintosh Aldus Pagemaker – This advanced course of Aldus Pagemaker 4.0 guides the student through Pagemaker's advanced features. Learn how to create your documents in readiness for sending your files to a service bureau thereby reducing pre-press costs. You will also learn how to create color separation files and work with our desktop greyscale scanner. VHS video tapes on desktop design are shown during this course. Students have their own workstations using an Apple Macintosh SE computer. Consider the advantages of obtaining professional training at BCIT and the many ways it can advance your business career. Prerequisite: MDIA 099 or permission of instructor. **1.5 credits**

MDIA 211 Advanced Desktop Publishing Graphics, Apple Macintosh Aldus Freehand – This advanced course of Aldus Freehand explores freehand's tools in greater detail. Learn how to lay-out any graphic with graduated screens and bends with more precision and control. Discover how to use process color in developing your illustrations. Use our desktop greyscale scanner to create your own templates prior to drawing. Learn how to print, process and spot color separations off our laser printer. Students can produce color logos with blends and learn how to create traps to compensate for press misregistration. Students have their own workstations using an Apple Macintosh SE computer. VHS video tapes on desktop design will be shown during this course. Come and learn how to create this graphic magic at BCIT. Prerequisite: MDIA 211 or permission of instructor.

1.5 credits

MDIA 215 Advanced Desktop Publishing, QUARK X>Press – Students will learn advanced publishing techniques using Quark X>Press 3.0 including integration with word processing and graphics software and the use of spot and process color. Students have their own workstations using a Macintosh SE computer. Prerequisite: MDIA 115 or permission of instructor.

1.5 credits

MDIA 301 Commercial Photography – A must for the aspiring professional! This course introduces you to today's business practices, and teaches you the basics of setting up, and managing a commercial studio: how to select and operate sophisticated medium and large format camera equipment and accessories, work with studio lighting equipment, know how to prepare an estimate, and understand how to market your services, and create a working relation with clients as well as suppliers. You will get hands-on experience in carrying out a variety of assignments in areas such as Still Life, People, Editorial, Architecture, and others. You will learn to work from a layout to meet a client's requirements, and quality standards in the industry, and the techniques to develop a powerful personal portfolio. All dark-room material, and some film is included. You will need a 35mm SLR, or medium format camera, with at least a standard, a wide angle, a telephoto lens, a tripod, and a flash. 12 weeks (12 sessions). Prerequisite: Advanced Photography (MDIA 201) and Advanced Darkroom Techniques (MDIA 202), or permission of the instructor.

3 credits

MDIA 304 Computer Generated Graphics – The use of computers has altered the way business communications develop print and slide graphics. This course gives students a hands-on opportunity to learn the theory and development of computer generated graphics, and their applications in audiovisual presentations and business communications. Software of choice is the latest version of CoreDraw, the market leader in PC based graphics communications software. Prerequisite: Working knowledge of DOS and/or Windows.

3 credits

MDIA 914 Persuasion Macintosh Aldus Persuasion 2.0 – Aldus Persuasion 2.0 is the fastest way to transform text and data into impressive visuals for all your meetings. Learn how to use this exciting new software from Aldus Corporation. Type your text into Aldus Persuasion's outliner and your visuals are automatically formatted. Persuasion 2.0 is a complete solution for creating organizational charts, diagrams, and a variety of graphs, with valuable features like 36 pre-designed templates, spell checking, and a library of clip art. With Aldus Persuasion, your presentations will look like you spent days, not minutes.

non credit

MDIA 920 Multimedia Communications Solutions Today and Tomorrow – Do you need to communicate effectively, whether it is to your own employees, your boss or your clients? Do you need to educate, enlighten or entertain? This seminar will show you the tools available to you today.

Multimedia has the potential to offer you increased productivity from your employees, better communications internal and external, more vibrant and informative presentations and more effective use of resources.

non credit

OPERATIONS MANAGEMENT

OPMT 099 Mathematics for Business – Upgrades and refreshes the mathematical skills of students who intend to enter the School of Business at BCIT. A suitable prerequisite for the mathematics courses in the School of Business as it meets the Math 11 entrance requirement. The course includes arithmetic, elementary algebra, graphical techniques, ratios and percentages, and the elementary business applications of these concepts.

non credit

OPMT 102 Basic Mathematics of Finance – Discusses interest and its effects upon business and industry. The student learns to discriminate between common situations, apply necessary analysis and perform appropriate calculations. Topics include simple and compound interest, present values and discounts, annuities, evaluation methods and basic replacement analysis. Prerequisite: Basic algebraic skills to at least the Grade 11 level. Others should consider OPMT 099.

3 credits

OPMT 103 Quality Control Methods 1: Statistical Process Control – A basic statistical quality control course focusing on control charting methods. The course will cover basic principles of pre-production process capability studies and process control during production. This course and OPMT 203 will assist students preparing to write the A.S.Q.C. Certified Quality Technician Examination.

3 credits

OPMT 105 Engineering Economics – Emphasizes the importance of making sound economic decisions when faced with alternative methods of solving technical problems. Provides the basic skills and concepts required to analyze comparative costs and to understand the time value of money (interest), inflation, depreciation, running costs, salvage value and tax considerations.

4 credits

OPMT 106 Manufacturing Quality Assurance 1 – An introductory course in Quality Assurance for the Manufacturing industries. The course presents a general overview of quality management topics. Establishing the desired product, quality and reliability, and the conditions necessary to achieve them. Quality planning. Standards for Quality Management programs. Economic factors. Quality assurance and production processes. Investigating quality problems in production. Inspection and test operations. Total quality concepts. Class activities include: films, video, group discussions and in-class group exercises.

3 credits

OPMT 107 Quality Management for Service Industries – An introductory course in quality management for service industries. The course presents an overview of the need for a quality system in the service industries, and in the administrative or service functions of the manufacturing industries. Methods and techniques for service quality assurance programs. Cost of programs. Strategies for quality improvement. Case studies include banking, insurance, education, retail trade, transportation, health services, public utilities, government, food services, hospitality, real estate and personal services.

3 credits

OPMT 115 Software Quality Assurance – Covers the application of quality assurance principles to the development of computer software. The course will appeal to those students involved in software development who want to meet modern requirements for design, verification and re-usability.

3 credits

OPMT 151 Choosing and Using Microcomputers in Manufacturing – Introduces small manufacturers to the uses of microcomputers. Topics include spreadsheets, database, micro MRP packages, CAD on microcomputers and cost estimating packages. **3 credits**

OPMT 175 Warehouse Management – Provides a basic understanding of the major factors in managing a warehouse. The key subjects are: receiving, stock location planning, order picking, shipping, time/space management, data processing and loss control. The course also introduces specific procedures such as inventory accuracy, cycle counts, inventory adjustments and inventory turnover. **3 credits**

OPMT 187 Project Planning and Scheduling – For those who require basic information about the critical path method (CPM) and its application to project management. The course introduces the fundamentals of CPM as used in planning, scheduling, resource allocation and project management. It includes an introduction to planning and scheduling techniques; Gantt charts, arrow diagrams; precedence diagrams; PERT; time/cost relationships; resource allocation; bid determination; project management and the role of the computer. **3 credits**

OPMT 188 Management Information Systems – Students learn to use a managerial systems approach to the management information area; review, assess and evaluate information processing hardware and software; evaluate management needs for information and integrate those needs into the management system; design and implement a simple management information system. The course is not intended to produce highly skilled MIS practitioners, but to provide an understanding of basic MIS concepts. Students learn how to relate to MIS specialists and managers in large organizations and how to approach a MIS problem in a small organization that would not normally have MIS specialists on staff. **3 credits**

OPMT 189 Operations Management – Presents broad interpretation of operations management and details some of the problems faced by different types of enterprises (private and public) in the management of their production systems. The student studies the nature, purpose and processes associated with operations management; the relevance of systems design, resource allocation, operations planning and control to the individual firm; how to identify and solve operational problems using quantitative methods. **4.5 credits**

OPMT 191 Purchasing – Designed for those entering or related to the purchasing field, the course examines the fundamentals, principles and practices of purchasing. Topics include the function of a purchasing department and its relationship and responsibilities to management; centralized purchasing; negotiating; buying for quality, quantity and price; timing and sources of supply; receiving and warehousing; inventory control. See OPMT 192 for a supporting course in Inventory Planning and Control. **3 credits**

OPMT 192 Inventory Planning and Control – Presents the fundamentals of inventory planning for those preparing to enter the inventory planning field, and those in related areas that interact with an inventory system including purchasing agents, buyers, maintenance planners, production schedulers, sales managers, warehouse managers, mill storekeepers and parts people. Examines the basic techniques used in the design and control of inventory systems. Topics include forecasting inventory requirements, the ABC classification, material requirements planning, the role of the computer, inventory information flow and control design. Prerequisite: Understanding of basic algebra. **3 credits**

OPMT 197 Statistics for Business and Industry – A comprehensive study of elementary statistical methods as applied to objective decision-making. Suitable for persons requiring statistics to 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; inferential statistical topics: sampling, estimation, hypothesis testing, goodness of fit, regression analysis, correlation and time series analysis. **4.5 credits**

OPMT 198 Productivity Engineering 1 – A fundamental course in productivity improvement, which is based on a systematic, scientific approach to problem solving methods improvement. Selection of study areas involves; economic feasibility, recording techniques, assembly and analysis of data, critical examination, the development and selection of alternative solutions. While the emphasis is on productivity improvement, case materials will explore various application areas; manufacturing, warehouse, office, materials management and general management engineering. **3 credits**

OPMT 203 Quality Control Methods 2: Acceptance Sampling – This course continues from OPMT 103 and deals with statistical methods in Acceptance Sampling. Review of probability and statistics with emphasis on attributes and variables. The economics of sampling plan concepts and OC curves. The economics of sampling, variables sampling, Dodge plans, Single, double, and sequential sampling. The use of ANSI Z1. (MIL-STD-105) and ANSI Z1.9 (MIL-STD-414) are covered. OC curves on microcomputer. Participants in this courses should have taken OPMT 103 or have elementary algebra. **3 credits**

OPMT 206 Quality Assurance 2 (Manufacturing) – This course continues from OPMT 106 and examines basic principles of modern quality assurance which students can relate to situations encountered in their own work, and apply the techniques for resolving quality problems. Topics include quality assurance as it relates to marketing, engineering, purchasing and customer relations. Quality assurance during product development, concepts of Taguchi methods, vendor quality assurance, vendor rating systems and certification, quality auditing, human factors in quality management, employee involvement and motivation, quality circles, legal aspects of quality and product liability and the impact of just-in-time production on quality. Prerequisite: OPMT 106. **3 credits**

OPMT 275 Advanced Warehouse Management – Students who have completed OPMT 175 will benefit from this course. Upon successful completion, the student will have a sound understanding of Advanced Warehouse Management. Prerequisite: OPMT 175. **3 credits**

OPMT 287 Project Cost Estimating – A basic course in the principles and methodology of cost estimating and the procedures for estimating project costs. The basic elements of estimates will be defined and sources of information identified. Students will develop their own model estimates progressively, during the course. The uses, accuracy and methods of evaluating risk and uncertainty of estimates will be examined. **3 credits**

OPMT 290 Performance Measurement – This is an introductory, applications course to work measurement. Using the principles of work study, methods study, motion study and time analysis techniques, the student is well equipped to solve work study problems. Time measurement techniques such as stop watch, M.T.M. (Methods Time Measurement), M.O.S.T. (Maynard Operating Sequence Technique) will be discussed. This course will not license

students as work study practitioners but will give them a basic understanding of the principles of work study, work methods and work measurement techniques. Prerequisite: OPMT 198. **3 credits**

OPMT 298 Productivity Engineering 2 – For students with the basics of OPMT 198. OPMT 298 allows the student to complete a more detailed and complex study to final report and presentation in the areas of manufacturing, warehousing and storage. The course will stress and expand upon productivity improvement through systematic scientific problem-solving. Prerequisite: OPMT 198. **3 credits**

TOURISM

TOUR 212 Basic Japanese – English speaking persons will develop basic Japanese conversational skills. Persons employed in restaurants, hotels and motels, travel offices, information, customs and government offices, and persons intending to travel to Japan, will benefit greatly from the course. Topics include cultural differences; geographical and historical background; language technique; Hirigana in Roman lettering; food, clothes, souvenirs and items of general interest for Japanese travellers; currency and exchange; dealing with tour guides and limited English translators; the importance of this language group to tourism in Canada and British Columbia. Practical subjects include basic vocabulary and pronunciation skills; sentence structure; making initial conversational approaches and basic reading and spelling. **3 credits**

TOUR 213 Basic French – English speaking persons will develop basic French conversational skills. Persons employed in restaurants, information, government and customs offices, will benefit greatly from the course. Topics include cultural differences, geographical and historical background; techniques of speaking the language; how to deal with tour guides and limited English translators; importance of this language group to tourism in Canada and British Columbia. Topics include basic vocabulary and pronunciation; sentence structure; basic reading and spelling, and making initial conversational approaches. **3 credits**

TOUR 313 Communication in French 2 – A continuation of basic French. Designed to provide students with additional skills in conversational French. Prerequisite: TOUR 213. **3 credits**

TOUR 350 Domestic Air – Working with the official North American Passenger Tariff and the Official Airline Guide, students study the fundamentals of domestic (within Canada and the U.S.A.) passenger air travel. The course includes the construction of normal and special fares, terminology, schedules, ticketing procedures, etc., related to today's world of travel. Approximately 3-5 hours per week of home study is required. Note: A deposit is required on the second night of class for tariff and schedule books. 50% is refundable upon return of the materials to the course instructor. On no account can the tariff materials be retained by the student. **3 credits**

TOUR 351 International Air 1 – Provides instruction in Transatlantic and Transpacific passenger rules, regulations and fares. Familiarizes students with the terminology and fundamentals of Transatlantic and Transpacific fare construction and enables them, under supervision, to handle all facets of these air travel sales for travel agencies and carrier ticket offices. Topics include the Air Tariff Book 1 general rules; fare construction rules (fare construction units, the mileage system, HIPs, backhauls, etc.); normal and special fare rules for fare types which are generally saleable from Canada. Lectures and prescribed itineraries will be used. Approximately 2-6 hours per week of home study is

required. Ticketing is limited to discussions of specific ticket entries. Note: A deposit will be required on the first night of classes for tariff and schedule books. 50% is refundable upon return of the materials to the course instructor. On no account may the tariff materials be retained by the student. Prerequisite: Tour 350. **3 credits**

TOUR 365 Intermediate Communication in Japanese – This course is designed for students who have completed "Basic Japanese" or who have an equivalent knowledge of Japanese. Upon successful completion of the course, the student should be able to read and write hiragana and katakana (the two Japanese syllabaries) and about 20 kanji (Chinese characters); be able to initiate and respond to simple conversations with the average Japanese person; and be informed about the values, behavior and protocol necessary to create a long-term business relationship with the Japanese. Important contemporary issues, such as the media and women's society, will be dealt with through films, videos, lectures and guest lecturers from the local community. This course should be of interest to those in both tourist and non-tourist related professions committed to establishing business relations with the Japanese. Prerequisite: Tour 212. **3 credits**

TOUR 431 Developing Conventions and Conferences – This course examines the detail involved in conference planning as well as supplier interaction. Details include site selection, venue determination, housing and hospitality issues, conference program development, audiovisual and engineering requirements, and the trade show and exhibition industry. Prerequisite: Tour 230. **3 credits**

TRANSPORTATION LOGISTICS

TDMT 101 Geography of Trading – Transportation is the basis of all economic systems including agricultural production, industrial location, settlement patterns, marketing systems and consumer shopping. The course studies 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. **3 credits**

TDMT 150 Distribution 1 (CITT) – This course covers transportation regulations; Canadian transportation modes - including water, rail, air and pipeline; intermediate transportation agencies; domestic and international transportation rates, tolls and tariffs. **4 credits**

TDMT 202 Transportation Regulations – Familiarizes the student with transportation regulations at federal, provincial and regional levels. The Acts governing intra and inter-provincial transportation and regulation of common, contract and private carriers, including their rights and responsibilities, and the deregulated U.S. transportation industry. **4 credits**

TDMT 203 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. **4 credits**

TDMT 250 Distribution 2 (CITT) – Deals with contracts and bill of lading; marine cargo insurance; warehousing; Canadian Customs; dangerous goods transportation; damage prevention and claims; materials handling; unitization devices; physical distribution; computer applications to transportation. **4 credits**

TDMT 304 Introduction to International Trading – Give students a global overview of international business and trading strategies. The student will understand the interdependence of nations and appreciate the diversity between free, controlled and third world countries' trading patterns. It examines the importer-manufacturer's evolution to exporting. Protectionism, tariff and non-tariff barriers, subsidies, etc., will be covered focusing on Canada's competitive position. Emphasis is given to costing for export/import to maximize profit. **3 credits**

TDMT 352 Transportation – Provides a basic understanding of the operation of the four modes of transportation. The course highlights municipal, provincial and federal regulations/deregulations and introduces students to the essentials of freight rate applications and waybill audit. The course is tailored to the users of transportation services. **3 credits**

TDMT 409 Harmonized Systems FTA – Introduces the Harmonized System of exporting/importing. The EEC, USA, and most OECD countries use the same documentation and valuation system for customs purposes. The course also familiarizes students with Canada - USA Free Trade Agreement (FTA) Regulations. Prerequisite: TDMT 305. **2.5 credits**

TDMT 410 Logistics Management – An overview of the total distribution concept. The course examines distribution facility location analysis, information systems, control systems and 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. **5.5 credits**

TDMT 413 – Traffic and Transportation Management - Details the complexities of the industrial traffic departments of a transportation company. The course provides the comprehensive practical knowledge required by the shipper and receiver of the goods in an industrial setting. Topics include: traffic management, decision making, freight tariffs, provisions used in determining the applicable rate, special and ancillary services, marine cargo insurance, transportation. **4.5 credits**

COOPERATIVE ASSOCIATION PROGRAMS AND CERTIFICATES

CANADIAN ASSOCIATION FOR PRODUCTION AND INVENTORY CONTROL (CAPIC)

The Canadian Association for Production and Inventory Control (CAPIC) is a professional group of men and women who practice the art and science of production and inventory management.

CAPIC is Region VIII of APICS, one of the fastest growing professional societies. The Society currently has more than 62,000 members in 248 chapters and 119 student chapters in United States, Mexico, Puerto Rico and Canada. More than 17 international affiliates and licensees complement APICS membership. Its ranks include professionals in positions ranging from material handlers to corporate vice presidents.

CAPIC is organized and operated exclusively for research and educational purposes. Its primary objectives are to develop and promote educational programs and to assist members and non-members in keeping abreast of the latest techniques and systems in the profession of Production and Inventory Management.

The Vancouver CAPIC chapter in association with BCIT provides a series of seven courses. These courses utilize the Applied Manufacturing Education Series (AMES) that address the day-to-day challenges confronting master schedulers, production planners, factory supervisors and other "hands-on" employees involved with the manufacturing and distribution process.

In establishing operations as a recognized profession, APICS formed the curricula and certification council to define the APICS body of knowledge and to develop a voluntary certification program. More than 25,000 people a year test their knowledge in Inventory Management, Production Activity Control, Capacity Management, Materials Requirements Planning, Master Planning and Just-In-Time Production.

BCIT, in cooperation with CAPIC (Canadian Association for Production and Inventory Management), offers a series of courses in the production and inventory management field. This practical "how-to" program was developed specifically to serve both supervisory and non-supervisory P & IM practitioners as well as students preparing themselves for a career in the P & IM field. In keeping with the needs of the population it serves, this program teaches practical topics in depth, and includes case studies and exams which test integration of the concepts to real life situations. Topics will be presented in eight courses.

CPIC 105	Master Planning Certification Review
CPIC 110	Principles of Inventory Control
CPIC 120	Manufacturing Resource Planning 2
CPIC 210	Inventory Management Certification Review
CPIC 310	Materials Requirements Planning
CPIC 410	Capacity Management
CPIC 510	Production Activity Control
CPIC 600	Just-In-Time Production Certification Review

These courses provide the basis for the Business Certificate in Operations Management: Materials Management and in addition, are excellent preparation for the American Production and Inventory Control Society (APICS) certification exams.

Students wishing to take an introductory level course that covers the entire production and inventory management field, should take CPIC 110 Principles of Inventory Control.

Those who take the CAPIC courses at BCIT and successfully pass the final exams can obtain credits in the BCIT Operations Management program and can become Certified by APICS in Production and Inventory management (CPIM).

For further information on CAPIC contact:
Steve Dudra, CAPIC Director of Education
BCIT, Operations Management Program,
3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2
Tel. 434-5734, Local 5746

CANADIAN CREDIT UNION INSTITUTE FELLOWS' PROGRAM (CCUI)

The Canadian Credit Union Institute Fellows' Program was developed under the sponsorship of the Canadian Cooperative Credit Society with the support of its member leagues and centrals. The program is managed and administered by the Cooperative College of Canada.

The need for developing people within the credit union system has been recognized as a high priority. The CCUI program provides an opportunity for credit union personnel to undertake a formal program designed to upgrade their knowledge and skills.

The CCUI program is a post-secondary level course of studies selected to provide students with a broad education in the theories, concepts and practices of all aspects of financial and business management.

Major commitment of time and energy, and a measure of self-discipline, will be required of people who select the CCUI program as their program of professional development.

Further information can be obtained by contacting the CCUI Co-ordinator, Education Department, B.C. Central Credit Union, 1441 Creekside Drive, Vancouver, B.C. V6J 4S7. Tel. 734-2511.

The following courses have been accepted for transfer credit.

CCUI Required Course BCIT Part-time Studies

Accounting	FMGT 101 FMGT 113	Accounting 1 or Intro to Accounting 1
Business Administration	ADMN 110	Management Fundamentals
Economics	ADMN 100 ADMN 200	Microeconomics Macroeconomics
Marketing	MKTG 101	Marketing 1 or
Business Strategy	ADMN 302 ADMN 428	Problem-Solving & Decision-Making Management Simulations 1
Approved Options		
Business Law	ADMN 385	Business Law
Business Finance	FMGT 307 FMGT 404	Finance 1 Finance 2
Management of Accounting	FMGT 109 FMGT 301 FMGT 305	Acctg. for the Manager 1 or Cost & Managerial Acctg. 1 Cost Acctg. Computer Systems

Management Information Systems	OPMT 188	Mgmt Information Systems
Taxation	FMGT 316 FMGT 408	Taxation 1 Taxation 2
Employee Relations	ADMN 332	Labor Relations 1
Organizational Behavior	ADMN 222	Organizational Behavior 1
Personnel Management	ADMN 204	Personnel Management
Supervisory Skills	ADMN 124	Supervisory Skills
Promotion Management	MKTG 321 MKTG 322	Public Relations (half credit) Advertising 1 (half credit)
Business Statistics	OPMT 197	Stats for Business & Industry
Computer Concepts	TBA	
Operations Research	OPMT 296	Mathematics for Management

For further information on the CCUI Program, contact:
Eleanor Drescher, CCUI Co-ordinator, Training & Development Department, B.C. Central Credit Union, 1441 Creekside Drive, Vancouver, B.C. V6J 4S7 Tel. 734-2511

THE CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION OF BRITISH COLUMBIA

The Certified General Accountants Association of British Columbia offers a program of studies leading to the professional designation "Certified General Accountant" (CGA).

The Association recognizes BCIT (full-time and part-time) courses having content substantially similar to courses in the CGA program. Students who obtain a grade of 65% or better at BCIT will be granted credit for such courses towards the completion of the CGA program.

The following courses have been accepted for transfer credit:

Program 80 Courses	Program 90 Courses	BCIT Part-time Studies
	Financial Accounting 1 (FA1)	FMGT 101/201 or FMGT 115/215 or FMGT 116
	Economics 2	ADMN 200
	Managerial Mathematics and Economics 1	ADMN 100 & OPMT 132 or OPMT 197
	Quantitative Methods 2	TBA
	Financial Accounting 2 and 3	FMGT 302/402 or FMGT 320/420 or FMGT 314
	Management Accounting 1	FMGT 301/401 or FMGT 319/419
	Finance 1	FMGT 307/404
Computer Systems 325	Management Information Syst. 1	INTRO TO C.P. & COMP 104 or COMP 120
	Public Speaking	MKTG 323
	Business Writing	COMM 160/175

Students are advised to obtain a copy of the CGA exemption policy, annually, to ensure they complete the correct courses and do not overlook revisions.

Students who wish to present courses other than those listed above should consult the Association. Applications for registration must meet all association requirements to be accepted in the CGA program.

Students attending BCIT full-time or part-time may register with the Association as an "Associate Student" to receive the National CGA Magazine, provincial newsletter and details about professional development seminars.

For further information about exemptions, the Association, or "Associate Student" membership, please contact: The Director of Admissions, The Certified General Accountants Association of B.C., 1555 West 8th Avenue, Vancouver, B.C., V6J 1T5.

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF BRITISH COLUMBIA

The Institute of Chartered Accountants of British Columbia has advised BCIT that it will accept certain courses as meeting its course requirements, providing a student meets its prerequisites and is acceptable to the Institute of Chartered Accountants of B.C.

The following table details suitable courses, subject to change without notice.

ICABC	BCIT Part-time Studies
Introductory Financial Accounting	FMGT 101 & 201 or FMGT 115 & 215 or FMGT 116
Intermediate Financial Accounting	FMGT 302 & 402 or FMGT 314 or FMGT 320 & 420
Introductory Management Accounting	FMGT 301 or FMGT 319
Cost Accounting	FMGT 401 or 419
Business Finance	FMGT 307 & 404
Business Computers	COMP 104 and 104
Management Information Systems	COMP 160 & 260
Commercial Law	ADMN 385
Mathematics	OPMT 296 or MATH 203/204
Probability and Statistics 106	OPMT 197 or MATH
Economics	ADMN 100 & 200
Organizational Behavior/Policy	ADMN 222
Introductory Taxation	FMGT 316 & 408

Students who are interested in the Institute of Chartered Accountants of British Columbia should contact: The Registrar, 1133 Melville Street, Vancouver, B.C. V6E 4E5. Tel. 681-3264.

THE INSTITUTE OF CHARTERED SECRETARIES AND ADMINISTRATORS (ICSA)

The Institute of Chartered Secretaries and Administrators (ICSA) is the leading professional body of administrative executives recognized in the English speaking world, with a global membership of over 50,000.

Members hold positions such as Chief Administrative Officer, Provincial Deputy Minister, Chief Executive Officer or Secretary of corporations/companies and other major public or private bodies.

BCIT is pleased to cooperate with this successful management oriented organization by enrolling students in a program leading to BCIT certification and, subsequently, through completion of further CSA directed studies, to attain a worthwhile professional designation.

There are two levels of membership. Associate and Fellow Members are entitled to describe themselves as Chartered Secretaries and to use the designation ACIS or FCIS. To qualify as a member, it is mandatory to pass prescribed examinations, to have appropriate practical experience and to be acceptable to ICSA.

Note: Although BCIT courses are considered equivalent to ICSA courses of study according to the schedule in this brochure, ICSA exams must be written on all Module A, B, C and D subjects.

Suitable courses for the ICSA Business/ Federal/ Provincial/Municipal Programs are as follows:

Management Concepts (All Programs)

1. Principles of Economics	ADMN 385
3. Principles of Administration	ADMN 110/211
4. Principles of Accounting	FMGT 101/201
5. Communication	COMM 160
6. Statistics	OPMT 197

Business Administration Program

Module A (both subjects to be passed)

A1 Financial Management Accounting	FMGT 301/302
A2 Corporation Law	ADMN 200

Module B (two subjects to be passed)

B1 Law for the Administrator	ADMN 385
B2 Taxation	FMGT 316/408
B3 Business Finance	FMGT 307/404

Module C (two subjects to be passed)

C2 Management of Human Resources	ADMN 222/322
C3 Canadian Economic Problems and Policies	ICSA
14. Computer Systems for Management Information	TBA

Module D (both subjects to be passed)

D1 Meetings - Law and Procedure	ICSA
D2 Corporate Secretarial Practice	ICSA

Federal/Provincial Government Program

Module A (both subjects to be passed)

A1 Financial Management and Accounting	FMGT 302/402
A3 Public Finance	-

Module B (two subjects to be passed)

B1 Law for the Administrator	ADMN 385
B4 Canadian Government	-
B5 Canadian Public Administration	ICSA

Module C (two subjects to be passed)

C2 Management of Human Resources	ADMN 222/322
C3 Economic Policies and Problems	ADMN 200

Module D (both subjects to be passed)

D1 Meetings - Law and Procedure	ICSA
D2 Corporate Secretarial Practice	ICSA

Municipal and Other Local Government Programs

Module A (both subjects to be passed)

- A4 Local Government Finance ICSA
Accounting
A5 Law of Local Government ADMN 208

Module B (two subjects to be passed)

- B4 Canadian Government -
B5 Canadian Public Administration CSA
B6 Law of Local Government 2 ADMN 208

Module C (two subjects to be passed)

- C2 Management of Human Resources ADMN 222/322
C3 Economic Policies and Problems ADMN 200

Module D (both subjects to be passed)

- D3 Municipal Government Meetings ICSA
D4 Municipal Secretarial Practice ICSA

Note for Mature Students with Appropriate Qualifications: ICSA will be offering a "Professional Administrator" designation, subject to individual requirements.

ICSA: these programs are presently only available directly through ICSA National Head Office.

Students who want additional information on the ICSA program should contact: The Institute of Chartered Secretaries and Administrators, Suite #1 - 650 Clyde Avenue, West Vancouver, B.C. V7T 1E2. Tel. 925-1752.

THE MUNICIPAL ADMINISTRATION EDUCATION COUNCIL OF B.C.

The Municipal Administration Education Council is authorized by resolution of the Municipal Officers' Association of British Columbia and its membership to include six representatives from the Municipal Officers' Association, one representative from the Union of British Columbia Municipalities, one representative from the Board of Examiners and one representative from the Ministry of Municipal Affairs.

The members of the Municipal Administration Education Council also form an Advisory Council to the Board of Examiners to advise on the qualifications requisite to the granting of certificates; the sufficiency of courses of instruction provided by professional and other organizations; equivalencies between existing courses of instruction; the adequacy of various seminars, workshops and orientation courses, and the dissemination of public information formulated for the purpose of encouraging suitable persons to train for careers in municipal service.

The Board of Examiners is established under the Municipal Act and its main function is the granting of certificates of proficiency in the areas of administration and finance to persons in municipal employment. Requirements for certification are the attainment of a recognized level of academic qualification together with the appropriate amount of work experience in the local government field.

BCIT is recognized by the Board of Examiners as one of the educational institutions offering courses and certificates which meet the academic qualifications required for certification.

For further information contact Sandra M. Allen, Administration/Education Officer, Municipal Officers' Association of B.C., Suite 100-800 Douglas Street, Victoria, B.C. V8W 2B7 Tel. 383-7032.

AMERICAN SOCIETY FOR QUALITY CONTROL CERTIFICATION PROGRAM (ASQC)

The Certification Program offered by the American Society for Quality Control (ASQC) provides a means of obtaining specialized qualifications for those who work in the field of quality control.

Since there is no equivalent Canadian Society, the ASQC qualifications are continually gaining recognition among Canadian quality program managers, and many people across Canada have written the ASCQ certification examinations since 1970. The program, revised in 1985, now covers the following:

- Quality Engineer Certification
- Quality Engineer-in-Training Certification
- Reliability Engineer Certification
- Quality Technician Certification
- Mechanical Inspector Certification

Courses offered currently at BCIT through the Operations Management Technology are:

- OPMT 103 Quality Control Methods 1
OPMT 106 Manufacturing Quality Assurance 1
OPMT 203 Quality Control Methods 2
OPMT 206 Quality Assurance 2

These courses are endorsed by the local section of the ASQC and will help applicants prepare for the Quality Engineer/Technician/Inspector certification examinations.

For further information contact:

Louise Routledge, Vancouver ASQC Education Chairman, Operations Management Technology, BCIT, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2 Tel. 434-5734, local 5400

THE SOCIETY OF MANAGEMENT ACCOUNTANTS OF BRITISH COLUMBIA (CMA)

The Society of Management Accountants of British Columbia has advised BCIT that it will accept certain BCIT courses as meeting its course requirements, providing a student meets the other prerequisites and requirements and is acceptable to the Society of Management Accountants.

Students interested in the Society's programs should contact the Society at (604) 687-5891, or write to them at 1575 - 650 West Georgia Street, Vancouver, B.C. V6B 4W7.

Exemption Policy for British Columbia Institute Of Technology

In order to be eligible for complete course and exam exemption in any CMA subject listed below, students must have obtained a minimum mark of 65% or equivalent in the required subject(s).

The following courses have been accepted for transfer credit:

CMA Courses	BCIT Part-time Studies
ACCOUNTING TECHNOLOGY PROGRAM	
111 Introductory Accounting	FMGT 101/201 or FMGT 115/215 FMGT 116
122 Commercial Law	ADMN 385
123 Organizational Behavior	ADMN 222 /332
212 Economics	ADMN 100/200

CMA Courses

214 Computerized Information Systems

229 Intermediate Accounting 1

241 Management Accounting 1

324 Taxation

332 Quantitative Methods

339 Intermediate Accounting 2

341 Management Accounting 2

BCIT Part-time Studies

TBA

FMGT 302 or 314 or 320

FMGT 301/401 or FMGT 435 or FMGT 319/419 or FMGT 320 AN COMM 160

FMGT 316/408

OPMT 197

FMGT 402 or FMGT 420 or FMGT 314

FMGT 301/401 or FMGT 435 or FMGT 319/419 or FMGT 320 AND COMM 160

PROFESSIONAL PROGRAM

441 Management Accounting 3 FMGT 301/401/307

442 Financial Management FMGT 307/404

451 Accounting Information COMP160/260 Systems

452 Internal Auditing FMGT 310/406

541 Management Accounting 4 No exemption

543 Advanced Financial Accounting No exemption

553 Management: Processes & Problems No exemption

THE TRUST COMPANIES INSTITUTE

The Institute is concerned with upgrading and updating professional competence in all areas of activities carried on within the trust industry.

Comprehensive descriptions of educational programs leading to accreditation in various specialties within the industry are available in the calendar of the Trust Companies Institute of Canada.

The Institute will recognize Part-time Studies courses offered at BCIT but candidates are encouraged to work with an institute representative to select an appropriate program of courses.

A Business Education Certificate is available through the Trust Companies Institute. Candidates may begin by registering their intent to participate in the program with the Institute. The registration form must be accompanied by a \$25 processing fee.

Candidates who have completed post-secondary education may be eligible for advanced standing in the program.

Candidates may enrol in courses that are recognized by the Institute and offered by an approved community college or university.

Candidates who have completed the program requirements may make a formal application for accreditation. The application form must be accompanied by a \$25 processing fee for registered candidates.

The following courses have been accepted for transfer credit:

Trust Companies**BCIT equivalents****INSTITUTE SUBJECTS – COMPULSORY SUBJECTS**

Principles of Accounting	FMGT 109 FMGT 101
Business Communications	COMM 160 COMM 171 COMM 183
Interpersonal Communication	MKTG 323/423
Business Law	ADMN 385
Principles of Economics	ADMN 100/200

OPTIONAL SUBJECTS

Money and Banking	Not presently available
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CANADIAN INSTITUTE OF MANAGEMENT (CIM) CERTIFICATE PROGRAM IN MANAGEMENT AND ADMINISTRATION

The Canadian Institute of Management is a non-profit association dedicated to professional development and the enhancement of managerial skills in Canada. Effective September 1983, the Vancouver Branch of the Institute accepts the following BCIT courses for credit in the CIM Four Year Certificate Program of Studies.

CIM Courses**BCIT Part-time Studies****YEAR 1**

Management Principles and Practises	ADMN 110/211
Communications	COMM 160

YEAR 2

Canadian Business Law	ADMN 385
Managerial Process and Organizational Behavior	ADMN 222

YEAR 3

Marketing Management Option	ADMN 204/304/ 302/332 MKTG 101,102
Managerial Accounting	FMGT 201/307/314

YEAR 4

Managerial Finance	offered through CIM only
Policy and Administration	offered through CIM only

CANADIAN SUPERVISORY MANAGEMENT (CSM)

Effective January 1989, the following BCIT courses will be accepted for credit in the CSM Certificate Program.

CSM 100 Supervisory Management	ADMN 124
CSM 101 Introduction to Financial Management	FMGT 101 or FMGT 109
CSM 102 Communication Skills for Managers	COMM 175
CSM 103 Industrial Relations and Personnel	ADMN 122 and ADMN 204

For information on the Certificate Program, write to the Canadian Institute of Management, 600-890 West Pender Street, Vancouver, B.C. V6C 1J9
Tel. 669-2977.

CANADIAN ADMINISTRATIVE HOUSEKEEPERS ASSOCIATION (C.A.H.A.)

C.A.H.A. is an accredited Canadian professional association of persons employed in the field of Housekeeping Management. Students who are interested in the C.A.H.A., may contact Lea LBuburuz, the Education Director of C.A.H.A.

Tel. 660-5610

C.A.H.A. will accept BCIT Part-time Studies courses for transfer credit to their educational program. BCIT courses are 36 hours in duration and it is recognized that these equal the 30 study hours requirements of C.A.H.A. The following courses have been accepted.

C.A.H.A. Requirements BCIT Part-time Studies

MANDATORY COURSES

Sociology	ADMN 322 Organizational Behavior 2 or HMG 605 Human Resource Mgmt
Psychology	ADMN 322 Organizational Behavior 1 and HMG 605 Human Resource Mgmt
Economics	ADMN 100 Microeconomics
Labor Relations	ADMN 332 Labor Relations 1 or ADMN 432 Labor Relations 2 or HMG 606 Health Labor Relations 1
Personnel Management	ADMN 204 Personnel Mgmt. or HMG 605 Human Resources Mgmt.
Microbiology/ Sanitation	C.A.H.A. (Correspondence Course)
Interior Planning/ Design	INTD 100 Interior Design Basic
Safety/Accident Prevention	ADMN 128 Occupational Safety and Health
Supervisory Skills	ADMN 124 Supervisory Skills
Organization Planning	ADMN 110 Management 1 or HCSY 610 Health Care Systems

Five electives are required by C.A.H.A. for certification. Choose from the list below:

Training Techniques	ADMN 127 Training Techniques
Business Law	ADMN 385 Business Law
Purchasing	OPMT 191 Purchasing
Accounting	FMGT 109 Accounting for the Manager
Small Business Management	MKTG 324 Small Business Development or HMG 602 Principles of Health Care Management
Pest Control	C.A.H.A.
Laundry/Linen	C.A.I.L.M. (Canadian Laundry Managers Association)
Management Materials	OPMT 292 Facility Layout and Materials

Communications

(Choose one)

COMM 160 Business and Technical Correspondence

COMM 171 Business ReportWriting or
COMM 175 Letters and Memos
COMM 180 Technical Correspondence or
COMM 183 Technical Report Writing

Interview Techniques

ADMN 205 Selection Interviewing

Counselling Skills

ADMN 201 Counselling 1

Computer Fundamentals

TBA

Quality Assurance Programming

Seminars/Courses

Quality Control Methods

OPMT 103 Quality Control Methods 1

Equipment Maintenance Design Approved

C.A.H.A. Seminars / Other Related Employment Course or C.A.H.A.

School of Engineering Technology

FACULTY AND STAFF

D.K.N. Chowdhury, D.I.C., M.A., M.B.A., Ph.D., Dean
 Alexander (Sandy) McGeachan, B.A., M.A., Ed.D., Director
 Ron Isaak, Dipl.T., B.A., A.Sc.T., Assistant Director
 Marv Woolley, Dipl.T., A.Sc.T., Assistant Director
 Mike Boyle, P.Eng., Program Head, Transportation Systems
 Luis O. Curran, B.A., L. Th., Program Head,
 ADP Technology Management
 Stephen Berry, BSc., Instructor, Industry Services
 Karen Cope, B.Ed., Program Advisor
 Bette Bayley, Program Assistant
 Sharon Cameron, Program Assistant
 Karen Fraik, Program Assistant
 Shari Monsma, Program Assistant
 Robertta Pajunen, Program Assistant
 Janice Pontes, Program Assistant
 Chi Wong, Program Assistant

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GENERAL INFORMATION

Class Times

Classes for part-time studies courses are generally scheduled for three hours, one night a week; or on Saturdays.

Class times for the part-time evening technology courses: 18:45 to 21:45 (6:45 to 9:45 p.m.)

ALWAYS CHECK AT TIME OF REGISTRATION FOR CURRENT CLASS SCHEDULES

Correspondence/Directed Study Courses

Many credit courses offered in School of Engineering Technology Part-time Studies are available as correspondence courses.

Some have been developed specifically for the Transportation Systems (Highways) Diploma program requirements. Furthermore, several of these courses are accredited to other Technology programs. For more information and course descriptions, please refer to the Transportation Systems (Highways) Diploma program in this calendar.

For further details of Civil Technology correspondence courses please contact: Shari Monsma Program Assistant Tel. 432-8784

For details of correspondence courses in Math and Physics contact: Academic Studies Tel. 432-8769

Industry Services: Customized Programs, Consulting and Development Services

Ron Isaak, Dipl. Tech., B.A., A.Sc.T., Assistant Director
Industry Services Tel. 432-8607

Industry Services provides another training option for your business organization. The School of Engineering Technology Part-time Studies has skilled professionals available to train your staff here, or on your premises.

We will work with you to develop a training strategy that will fill your requirements. In addition, the resources available at BCIT will provide a comprehensive range of training.

All the courses in this calendar contain material which can be adapted for presentation at the required level. With the rapid implementation of new technologies in our workplace, it is more important than ever that companies use local resources that are easily accessible to train their personnel.

If your company has a training project, or if you wish to draw on the resources of BCIT for support in any new venture, contact Industry Services to find out how we can help you.

Equipment Maintenance Program for Industry Services

A series of three practical workshops for those who are directly responsible for equipment maintenance; in particular, maintenance managers, superintendents, foremen and planners. Enrolment is restricted per workshop to allow participants the opportunity to work alone on a computer terminal. Hardware: IBM PCs or compatibles. Software: COMAC Computerized Preventive Maintenance System.

Eric Morse, Program Head Industry Services
Tel. 432-8638

PROFESSIONAL AGENCIES OF INTEREST TO PART-TIME STUDENTS

APPLIED SCIENCE TECHNOLOGISTS AND TECHNICIANS OF BRITISH COLUMBIA

Most part-time engineering technology courses offered through BCIT Part-time Studies are recognized for credit toward certification with the Association.

ASTTBC is a professional association which registers and certifies technicians and technologists in the fields of bioscience, architecture, engineering, forest resources and surveying. Certification with the Association is primarily dependent on academic qualifications in accordance with national standards and relevant, progressive experience.

There are four levels of membership:

Applied Science Technologist (A.Sc.T.) – Persons who have completed an accredited program of technological study (usually a Diploma of Technology or the academic equivalent), and who have at least two years of contemporary practical experience and are employed in an occupation which reflects the level of their technological training;

Certified Technician (C.Tech.) – Persons who have completed an accredited technician certificate program (usually a Certificate of Technology or academic equivalent), and who have at least two years of contemporary practical experience and are employed in an occupation which reflects the level of their technical training;

Associate Member – Persons who are employed in an applied science occupation and/or who are engaged in programs of study which will eventually satisfy the requirements for Technologist or Technician membership. Persons may have the academic qualifications for "A.Sc.T." or "C.Tech." but lack the experience, or may have extensive experience but lack the academic qualifications;

Student Member – Persons who are registered as full-time students in a technologist or technician program accredited (approved) by the Association. A special application form must be used.

In evaluating applications for membership and certification the ASTTBC Board of Examiners, which is comprised of various senior level professionals from industry and educational institutions, takes into consideration career training other than that received at BCIT, including qualifications from foreign institutes.

The Board of Examiners is responsible for recommending certification levels and provides applicants with the program of studies required to progress to the next certification level, upon request. To ensure full credit toward certification, applications must be submitted to the Association before beginning a program of studies.

The processing of applications generally takes four to six months.

Objectives of ASTTBC

- professional certification and registration;
- professional practice including a code of ethics and disciplinary procedures;
- accreditation of technology programs;
- services for business and industry, government and the general public, particularly in the areas of disciplines represented.

Benefits of Membership

In addition to the professional status and recognition granted by ASTTBC, benefits of membership and services include:

- enhanced career options because of professional recognition;
- professional development through continuing education programs;
- education standards maintained at colleges and institutes through an accreditation program which is national in scope;
- distinctive member certificate;
- employment referral services;
- newsletter and other communications;
- biennial salary survey;
- distinctive stamp or seal for all certified members;
- group life insurance program that cannot be matched.

In accordance with these general objectives, the Association actively represents technicians and technologists in B.C. Its activities include the promotion of technological programs offered by BCIT Part-time Studies and community colleges; the presentation of briefs leading to the development of an accreditation program to aid in the maintenance of the highest educational standards; and, most recently, working toward appropriate recognition in law for its members.

Persons interested in membership in the Association should request an application package from the: Membership Services Coordinator, ASTTBC, Discovery Park, 3700 Gilmore Way, Burnaby, B.C., V5G 4M1, or telephone (604) 433-0548.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF BRITISH COLUMBIA

The Association of Professional Engineers of British Columbia has a formal examination system leading to registration for students who, after careful consideration and investigation, find they cannot attend university. It should be stressed that this program of Association examinations is not an easy way to qualify academically as a professional engineer. The program comprises about 26 examinations, which cover approximately the same material as a four-year engineering course at a university. To complete the whole program a candidate would require years of home study.

The Association does not offer courses to prepare candidates for these examinations. Some courses offered at BCIT provide one method of assisting students to prepare for the examinations. However, the student should note that the diploma courses at BCIT were not designed specifically for this purpose. A student embarking on the Association's examination program should seek advice from the Association of Professional Engineers to ensure that a course taken at BCIT will provide a reasonable amount of assistance in studying for a course in the Association's syllabus. The syllabus contains course outlines so that comparison of content may be made with the content of BCIT courses. For further information contact: The Association of Professional Engineers of British Columbia, 2210 West 12th Avenue, Vancouver, B.C., V6K 2N6, or telephone (604) 736-9808.

Fundamental Examination Tutorials

The School of Engineering Technology Part-time Studies is prepared to offer tutorials for fundamental examination candidates if sufficient demand is shown.

1. Calculus
2. Vector Analysis and Differential Equations
3. Linear Algebra and Numerical Analysis
4. Computer Science
5. Probability and Statistics
6. Physics
7. Chemistry
8. Statics and Dynamics
9. Mechanics of Fluids
10. Thermodynamics
11. Engineering Materials
12. Theory of Circuits and Power Engineering
13. Strength of Materials
14. Organic Chemistry

For further information contact: Program Assistant, Engineering Technology. Tel. 432-8521, or Program Advisor, Engineering. Tel. 432-8467.

THE BUILDING OWNERS AND MANAGERS ASSOCIATION

BOMA, B.C., the Building Owners and Managers Association of British Columbia, is one of more than 100 chapters of BOMA International which operate in the major cities in North America. One of their most important functions in support of the office and commercial buildings industry, is the provision of professional education programs for employees in, or considering a career in, building management or maintenance.

Three educational streams are available through BOMA's sister organization, BOMI, the Building Owners and Managers Institute, all with internationally recognized designations.

These are:

SMA – the Systems Maintenance Administrator program, which also offers an intermediate designation of SMT (technician) after completion of 5 of the 8 courses. The courses are Basic Mathematics and Heating Systems; Refrigeration Systems and Accessories; Air Handling, Water Treatment and Plumbing Systems; Electrical Systems and Illumination; Control Systems; Building Design and Maintenance; Energy Management; Supervision.

RPA – the Real Property Administrator program which includes the following courses: The Design, Operation and Maintenance of Building Systems (Part 1); The Design, Operation and Maintenance of Building Systems (Part 2); Managerial Accounting and Financial Concepts; Insurance and Risk Management; Law for Property Managers; Real Estate Investment and Finance; Administration of Real Property.

FMA – the Facilities Management Administrator program which includes the following courses: The Design, Operation and Maintenance of Building Systems (Part 1); the Design, Operation and Maintenance of Building Systems (Part 2); Facilities Management and the Work Environment; Managing Facilities Technology; Facilities Planning and Project Management; Managing Facilities as Assets; Managing Real Estate and General Services Activities.

SMT/A and RPA course enrollment and registration forms are available for classroom format instruction through BOMA B.C. at Ste. 218, 744 West Hastings Street, Vancouver, B.C., V6C 1A5 and further information is available by calling 684-3916.

All programs are also available by correspondence through the BOMI Canada office. Tel. (416) 443-8790.

ACADEMIC STUDIES

Dave Chowdhury, B.Sc.(Hons.), D.I.C., M.A., M.B.A.,
Ph.D., Dean,
Kent Yakel, B.Sc.(Hons.), M.Sc., Associate Dean
Alexander McGeachan, Ph.D., Director, Engineering
Technology Part-time Studies.

Pre-entry Courses

Engineering Technology Entry Program

Distance Education

Chemistry

Communication/Business Communication

Mathematics

Physics

PRE-ENTRY COURSES

For students lacking the necessary entrance requirements for BCIT Technology Programs, or for those needing a current review, non-credit pre-entry courses are offered throughout the year on a part-time basis (day or evening).

Check the latest Part-time Studies Flyer for dates, times, fees, etc., or phone 434-3304 for course information.

CHEM 001	Meets Chemistry 11 entrance requirement for BCIT programs.
COMM 001, COMM 002	Preparatory courses in basic writing and learning skills needed for BCIT full-time programs.
COMM 003	Meets English 12 entrance requirement for BCIT programs.
COMM 004	Meets English 12 entrance requirement for BCIT programs for students whose first language is not English.
MATH 001, MATH 002	Meets Math 12 entrance requirement for BCIT programs.
PHYS 009	Meets Physics 11 entrance requirement for BCIT programs.

ENGINEERING TECHNOLOGY ENTRY PROGRAM

This 15-week day school program provides academic upgrading to students wishing to enroll in an Engineering Technology program at BCIT. The ETE program provides courses in chemistry, communication, mathematics and physics which meet the School of Engineering Technology prerequisite in these areas. The program also includes an introductory course in computer applications. This program is one term (15 weeks) in duration. The program will be offered three times per year with intakes in September, January and May. Students enrolled in the ETE program could be provisionally accepted (at time of enrollment) into an Engineering Technology program in the subsequent term, subject to satisfactory completion of the ETE program. Prerequisite: English 11 and Mathematics 11 or Program Head approval.

Courses	Clrm Hrs/wk
CHEM 010 Introductory Applied Chemistry	6.0
COMM 010 Introductory Communication and Learning Skills	6.0
COMP 001 Computer Literacy	3.0
MATH 005 Introductory Technical Mathematics	7.0
PHYS 010 Introductory applied Physics	7.0

Students will normally take either chemistry or physics, depending on which subject is not a prerequisite for the Engineering Technology program for which they have applied for provisional acceptance. For further information on the Engineering Technology Entry Program, Please call Student Services at (604)434-3304, or toll-free at 1-800-242-0676.

DISTANCE EDUCATION

Some part-time mathematics and physics courses are offered as correspondence (distance education) courses. This serves students who may need a course for upgrading, general information or as an equivalency, and who find it inconvenient or impossible to take a regularly scheduled course or, possibly, the course is not offered when it is needed.

The advantage of distance education courses is they can be started any time throughout the year, and completed from any location off-campus.

Check the latest Part-time Studies Flyer for fees and course descriptions, or phone 434-0022 for information.

Distance Education (Correspondence) Courses

MATH 002	Meets Math 12 entrance requirement for BCIT programs.
MATH 122	Equivalent to MATH 102 and ASTT accredited if taken with MATH 124.
MATH 123	Equivalent to MATH 101 and ASTT accredited.
MATH 124	Equivalent to MATH 102 and ASTT accredited if taken with MATH 122.
MATH 221	Equivalent to MATH 203 and ASTT accredited if taken with MATH 222.
MATH 222	Equivalent to MATH 203 and ASTT accredited if taken with MATH 221.
MATH 227	Calculus: Part 3
PHYS 13	Equivalent to PHYS 131/132 theory only.
PHYS 236	Equivalent to PHYS 231/232 theory only.

COURSE DESCRIPTIONS

CHEMISTRY

CHEM 001 Pre-entry Chemistry 1 (84 hours) – An upgrading course for those whose background in chemistry is weak, and a refresher course for those who have not studied chemistry for several years. Meets the Chemistry 11 entrance requirement for BCIT programs. **non credit**

CHEM 317 Gas and Liquid Chromatography (36 hours) – The uses of gas chromatography (GC) and high performance liquid chromatography (HPLC) in solving organic analysis problems relating to the energy, chemical, food and forest industries, clinical and environmental laboratories. Covers separation theory, instrument operation, troubleshooting, detectors, quality and quantity analysis applications and sample preparation. Laboratory experiments demonstrate the principles covered in the lectures. **3 credits**

COMMUNICATION/BUSINESS COMMUNICATION

If you require the equivalent to first year, full-time Business Communication you must take COMM 160, 175 and 171 in that order. If you require the equivalent to first year, full-time Technical Communication, you must take COMM 160, 175 and 183 in that order. If you require the equivalent to second year, full-time Technical Communication, you must take COMM 201 and 202 in that order.

COMM 001 Effective Writing (24 hours) – Prepares students for heavy writing requirements in full-time programs at BCIT. Especially useful for students who need to develop their basic skills in business and technical writing. Concentrates on paragraph development, organization and effective sentences in letter and memo writing. **non credit**

COMM 002 Independent Learning Skills (24 hours) – Learn how to read efficiently, cope with assignments, use computer-managed learning packages, study independently, take exams successfully, manage your time and get the most from new instruction techniques. Includes methods for reading textbooks and learning from objectives. **non credit**

COMM 003 Comprehensive Reading, Writing and Learning Skills (80 hours) – This course is designed for students whose first language is English, and who have not completed Grade 12 High School English. It emphasizes the reading, writing and study skills needed for BCIT full-time programs. The course includes efficient reading, library research skills, reading comprehension, grammar, writing fundamentals and basic short report writing. A grade of 65% or higher in this course meets the prerequisite (a "P" in English 12 or equivalent) for many technologies. A grade of 70% equals a C in English 12. A grade of 75% or better meets the prerequisite for selected technologies (a C+ standing in English 12). Prerequisite: Applicants will write an English Proficiency Test to determine their eligibility for enrollment. (Students for whom English is a second language should enrol in COMM 004). **non credit**

COMM 004 Technical English for Second Language Students (80 hours) – If your first language is not English, this course is for you. It emphasizes the reading, writing and study skills needed for BCIT full-time programs. The course includes efficient reading, library research skills, reading comprehension, grammar, writing fundamentals and basic short report writing. A grade of 65% in this course meets the prerequisite (a "P" in English 12 or equivalent) for many technologies. A grade of 70% equals a C in English 12. A grade of 75% or better meets the prerequisite (a C+ in standing English 12) for selected technologies. Prerequisite: Applicants will write an English Proficiency Test to determine their eligibility for enrollment. **non credit**

COMM 160 Introduction to Business and Technical Communication (36 hours) – Practical techniques for planning, organizing, selecting and presenting information in a business or industry environment. Students apply these skills to communication common in most office jobs - routine memos, instructions, procedures, summaries, oral presentations. Practical "case" assignments are used. Ideal course for those with little experience in business or technical communication. **3 credits**

COMM 171 Business Reports (36 hours) – For those in the business environment who must learn how to write problem-solving reports and proposals. The course emphasizes the persuasive skills needed to sell ideas, methods and products. Specific applications include comparison and recommendation reports, proposals, feasibility studies, executive summaries, formal report format, presentations and effective use of graphics. **3 credits**

COMM 175 Business and Technical Correspondence (36 hours) – Emphasizes communication fundamentals and writing strategies for solving correspondence problems such as business letters, and short memo reports. **3 credits**

COMM 183 Technical Reports (36 hours) – For writers from a technical/industrial background who need help in writing reports on solutions to engineering problems. Specific applications include comparison and feasibility reports, technical proposals, executive summaries, graphics and formal report format. Presentations are included. **3 credits**

COMM 189 Writing Effective Letters (18 hours) – The principles of letter style and organization and how they apply to sales, collection, inquiry, claim adjustment and application letters. Participants are encouraged to work on letters from their workplace. **1.5 credits**

COMM 190 Writing for Results (18 hours) – Learn simple techniques to make your business writing skills clearer, better organized and more effective in getting the job done. Memos, letters, reports and other major forms of written communication are covered. Students are requested to bring samples of their written communications from the workplace to the first class. **1.5 credits**

COMM 192 Short Reports (18 hours) – Selecting and organizing information, using effective formats and layouts, analyzing audience needs, reporting factual information and making recommendations. **1.5 credits**

COMM 196 Writing Manuals for the Computer Industry (18 hours) – For writers of user manuals. Planning, researching, organizing, formatting and writing a manual; testing and packaging the finished product; translating technical material for the non-technical reader to understand. **1.5 credits**

COMM 197 Telephone Techniques (6 hours) – This one-day course is for those new to business telephone techniques. Through classroom discussion, pre-recorded sample calls and role playing, participants will learn how to answer and transfer incoming calls efficiently and plan and make outgoing calls effectively. It is offered at the Downtown and Burnaby campuses. **3 credits**

COMM 198 Managing Large Writing Projects (18 hours) – This 18-hour course is for managers who supervise and edit other people's writing. It covers techniques for plotting a critical path, building a project team, specifying requirements, designing report segments, making revisions and packaging the finished product. It also covers the interpersonal skills needed to manage the project. This course is offered at the request of individual companies. **3 credits**

COMM 201 Advanced Business and Technical Communication 1 (36 hours) – This course emphasizes the research, organizing, writing and packaging techniques necessary to produce effective lengthy documents. Also covered are interview and briefing techniques and holding effective meetings. A pre-enrolment interview may be required, and some course requirements may be fulfilled by on-the-job projects with the approval of the instructor. This course is equivalent to Term 3 of full-time Technical Communication. **3 credits**

COMM 202 Advanced Business and Technical Communication 2 (36 hours) – This course builds on the skills developed in COMM 201. It emphasizes the preparation of effective manuals and persuasive written and oral proposals. It also covers public relations techniques and dealing with hostile audiences. A pre-enrolment interview may be required. Some course requirements may be fulfilled by on-the-job projects with the approval of the instructor. This course is equivalent to Term 4 of full-time Technical Communication. **3 credits**

COMM 900 English Fundamentals (36 hours) – A refresher course focusing on writing clearer sentences and paragraphs. Includes sentence structure, word choice, common grammatical problems, techniques for listing, paragraph structure and simple presentation strategies. Gain confidence in your ability to focus on ideas, and to use the conventions and mechanics of the language. If English is your second language, COMM 004 is recommended instead. **non credit**

COMM 902 Teamwork in the Office (8 hours) – Learn strategies for promoting cooperative, productive team relationships in a corporate setting. Managers learn how to define roles, rules and rewards, and create an open communication system within and between departments. **non credit**

COMM 903 Proposals: Writing, Selling and Following Through (18 hours) – The language, organization, presentation and packaging of effective sales and technical proposals. Participants are encouraged to write proposals based on their work. Follow-up is included. **non credit**

COMM 908 Making Meetings Work (8 hours) – Make business meetings more productive. Learn how to prepare agendas, structure and control discussions, make decisions and write minutes. **non credit**

COMM 910 Telephone Techniques (6 hours) – Learn how to make a positive first impression with customers, and to handle and record calls efficiently. Through classroom discussions, pre-recorded sample calls and role playing, participants learn effective business telephone techniques. **non credit**

COMM 911 Managing Team Writing (18 hours) – For managers who supervise and edit group writing projects. Learn techniques for plotting a critical path, building a project team, specifying requirements, designing report segments, making revisions and packaging the finished product. A review of the interpersonal skills needed to manage a project is included. **non credit**

MATHEMATICS

MATH 001 Technical Mathematics: Introduction (90 hours) – An upgrading/refresher course for students who have not completed high school mathematics, or who completed it more than three years ago, or whose Math background is otherwise weak. The course meets the Math 12 entrance requirement for BCIT programs. Students intending to enter a technology which requires a Math 12 grade of C+ or better must achieve a final mark of 65% or higher in MATH 001. Prerequisite: C or better in Math 11, or equivalent. **non credit**

MATH 002 Technical Mathematics: Introduction – Flexible entry correspondence course that satisfies the Math 12 entrance requirement for BCIT. Students intending to enter a BCIT technology which requires a Math 12 grade of C+ or better, must achieve a final mark of 65% or higher in Math 002. Students who have difficulty with mathematics or those who have been away from school more than three years are advised to take the classroom course (see P/T offering – Math 001). Prerequisite: A pass in Math 11 or an approved equivalent mathematics course. **non credit**

MATH 004 Refresher Mathematics (30 hours) – A review of mathematical techniques essential for success with basic technical Math and calculus courses in BCIT technology programs. Topics include common algebraic methods for solving equations, simplifying expressions, manipulating formulas, etc.; basic trigonometry; graphing properties of common geometric figures; techniques for solving problems. Emphasis is placed on developing practical skills and

systematic approaches to solving problems and verifying solutions. A course for students who have met the mathematics prerequisite, but who have not used basic Math techniques for several years. Prerequisite: Math 12 or equivalent. **non credit**

MATH 101 Technical Mathematics 1: Trigonometry (36 hours) – A course for engineering technology students in the application and theory of trigonometric functions including right angle trigonometry, radian measure, vector and triangle problems, trigonometric identities and graphing, polar coordinates, compound and double angle formulas, trigonometric equations and inverse functions. Prerequisite: Recent Math 12 or MATH 001 (or equivalent) with C+ or better. **3 credits**

MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry (36 hours) – The theory and application of common and natural logarithms, and an introduction to analytic geometry. Emphasis on the plotting, interpretation and uses of logarithmic/semilogarithmic graphs; geometric and practical properties of conic sections; polar/rectangular transformations. Quadratic surfaces are briefly discussed. Prerequisite: Recent Math 12 or MATH 001 (or equivalent). **3 credits**

MATH 114 Mathematics for Electronics: Part A (63 hours) – The first of two parts which includes: common and natural logarithms, logarithmic/semilogarithmic graphs, decibels, exponential growth and decay, systems of linear equations, determinants, application to electrical networks, trigonometric functions, identities, solution of triangles, graphing and addition of sinusoidal functions, complex numbers, rectangular/polar transformations, phasor representation of sinusoidal waveforms, application to electrical technology, the derivative, differentiation rules, applied maxima/minima. MATH 114 and MATH 115 replace MATH 143. Prerequisite: Recent Math 12 or 65% or higher in MATH 001 or equivalent. **4 credits**

MATH 115 Mathematics for Electronics: Part B (63 hours) – The second of two parts. See MATH 114 for details. MATH 114 and MATH 115 replace MATH 143. Prerequisite: MATH 114 or equivalent. **4 credits**

MATH 116 Calculus for Electronics: Part A (54 hours) – The first of two parts which includes: implicit differentiation; related rates and approximations of differentials used in electronics technology; anti-differentiation; the indefinite/definite integral including evaluation of areas, average 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 spectrums. MATH 116 and 117 replace MATH 243. Prerequisite: MATH 115, MATH 143 or equivalent. **3.5 credits**

MATH 117 Calculus for Electronics: Part B (54 hours) – The second of two parts. See MATH 116 for details. MATH 116 and 117 replace MATH 243. Prerequisite: MATH 116 or equivalent. **3.5 credits**

MATH 122 Logarithms – Equivalent to the “logarithms” portion of MATH 102, this course is set up as a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. It covers the theory and applications of common and natural logarithms, plotting logarithmic/semilogarithmic graphs and their interpretation. ASTT accredited if taken with Math 124. Prerequisite: Recent Math 12 or MATH 001 or equivalent. **1.5 credits**

MATH 123 Trigonometry – Equivalent to MATH 101, except it is a distance education (correspondence) course. Students may enrol any time throughout the year and take-up to one year to complete the course. Includes the theory and application of trigonometric functions; right angle trigonometry; vectors; trigonometric graphs, identities and equations; compound and double angle formulas; inverse functions. ASTT accredited. Prerequisite: Recent Math 12 or MATH 001 or equivalent with C+ or better. **3 credits**

MATH 124 Analytic Geometry – Equivalent to the “analytic geometry” portion of MATH 102, except it is a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. Geometric and practical properties of conic sections, including polar coordinates and transformations. ASTT accredited if taken with MATH 122. Prerequisite: Recent Math 12 or MATH 001 or equivalent with C+ or better **1.5 credits**

MATH 125 BASIC 1: Introduction to Microcomputers IBM PCs (36 hours) – Designed for engineering technology students with no previous BASIC programming or micro-computer experience. Topics include computer terminology, hardware, disk operating system, commands, BASIC language concepts (input/output, BASIC arithmetic and functions, relational operators, branching statements, subroutines and graphics statements). **3 credits**

MATH 203 Technical Mathematics 3: Calculus (72 hours) – An introductory course in calculus and its technical applications involving the differentiation and integration of algebraic, trigonometric, logarithmic and exponential functions. The course emphasizes the application of calculus in solving engineering technology problems. Prerequisite: MATH 101 and MATH 102 or equivalent. **6 credits**

MATH 204 Technical Mathematics 4: Calculus (72 hours) – A continuation of MATH 203. Topics include further work on integration, partial differentiation, an overview of Maclaurin, Taylor and Fourier series, and the solution of differential equations with special consideration given to the use of Laplace transforms. Prerequisite: MATH 203. **6 credits**

MATH 221 Calculus: Part 1 – Equivalent to the first part of MATH 203, except it is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Includes differential calculus with instantaneous rates of change, Delta-process, the derivative, implicit differentiation, curve sketching, differentiation rules for algebraic functions, applied maxima/minima. Prerequisite: MATH 122, 123 and 124, or equivalents. **3 credits**

MATH 222 Calculus: Part 2 – Equivalent to the second part of MATH 203, except it is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Introduces integral calculus, including the indefinite and definite (with application to areas, volumes and centroids), trapezoidal rule and antidifferentiation. Prerequisite: MATH 221 or equivalent. **3 credits**

MATH 227 Calculus: Part 3 – This is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Differentiation and integration of trigonometric, logarithmic and exponential functions. Prerequisite: MATH 222 or equivalent. **3 credits**

MATH 320 Matrix Algebra (36 hours) – Topics include matrix operations, solving systems of linear equations, translations and rotations, eigen values and eigen vectors. Students are expected to have had some computer programming experience. Prerequisite: MATH 001 or equivalent. **3 credits**

MATH 343 Transform Calculus for Electronics – First and second order differential equations. The laplace transform as an integral function. Transform pairs for functions and operations, inverse transforms from tables, techniques of partial fraction expansion for inverse transformation. Poles, zeroes, s-plot, s-domain circuit diagram and applications. Transients in multimesh circuits, transfer functions and frequency response to sinusoidal inputs. Fourier series, trigonometric fourier coefficients and frequency spectrum. Prerequisite: MATH 243 or MATH 116/117. **3 credits**

MATH 349 Numerical Methods for Mechanical – The application of numerical methods to engineering problems is introduced. Using the BASIC language, the algorithms are programmed and used in complex problem-solving. Matrix methods and their application to computer graphics, linear programming and other applied mathematics problems are presented. Prerequisite: MATH 204 or 249 or equivalent. **4 credits**

MATH 449 Statistics and Quality Control for Mechanical – The application of basic statistical principles and techniques to industrial quality control is emphasized in this course. Topics include descriptive statistics (Pareto and CE analysis), the Hypergeometric, Poisson, Binomial and Normal Probability Models, an introduction to hypothesis testing, tolerances and fits, sampling distribution, basic capability analysis, design of acceptance sampling plans, operating characteristic curves, use of Mil-Std 105D, risks in sampling, use and interpretation of control charting for x-bar and R or S, and statistical process control (SPC). Provides a sound foundation for students hoping to challenge the American Society for Quality Control's Certified Quality Technician and Engineer Examinations. Prerequisite: MATH 349 or 203. **5.5 credits**

MATH 460 Mathematics for CAD/CAM – Geometric modeling including cubic splines, bezier curves and surface patches. Matrix approach to transformations. Raster algorithms and techniques including curve generation, halftoning and other special effects. Kinematics and simulation. Solid modeling. Overview of finite element method. Selected algorithms from cartography. Interactive computer graphics concerns. Prerequisite: MATH 349. **5.5 credits**

MATH 962 Introductory SPC for the Plastics Industry (7 hours) – This is a one-day seminar in statistical process control. It provides an intuitive and simple mathematical look at SPC terminology and techniques. Topics include histograms; sampling techniques; capability indices; pareto analysis; cause and effect diagrams; construction and analysis of X-bar and R charts, with relevant industry applications. A statistical calculator is required. Course can be modified to industry demand. For more information contact Louise Routledge at 434-5734, local 5400. **non credit**

PHYSICS

PHYS 004 Refresher Physics (30 hours) – Provides a review of the basic Physics 11 concepts which are important for success in most first-year physics courses required in BCIT technology programs. Topics include kinematics, dynamics, mechanical energy, electricity and optics. There will be some lab exercises, and problem-solving skills will be emphasized. The course is recommended for those who took Physics 11 more than one year ago, who have not applied the concepts and need to review. Prerequisite: Physics 11 or equivalent. **non credit**

PHYS 009 Pre-entry Physics (93 hours) – This course meets the Physics 11 entrance requirement for BCIT programs. It offers an introduction to physics, the basic principles and common applications. Approximately two-thirds of the course deals with mechanics, the remainder with heat and electricity (electrostatics and DC circuits). Problem-solving techniques are emphasized. Prerequisite: You are advised to have completed any necessary mathematics upgrading courses before taking PHYS 009. **non credit**

PHYS 106 Physics for Electronics Technology (84 hours) – A general level course about physical quantities-their properties, relationships and connecting principles. Translational and rotational motion are studied (i.e. force, mechanical energy, power), as well as basic electrostatics (charge and field), atomic physics and the band theory of solids and its application to semi-conductor devices. The labs emphasize measurement, data analysis and experimental techniques as they relate to the lecture material. Prerequisite: Math 12. **7 credits**

PHYS 131 Physics 1: Part 1 (36 hours) – Topics include kinematics, statics, linear and rotational dynamics. Problem-solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: MATH 001 or equivalent. Physics 11 is also recommended. **3 credits**

PHYS 132 Physics 1: Part 2 (36 hours) – Topics include properties of matter, heat and thermodynamics. Problem-solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: PHYS 131 or equivalent. **3 credits**

PHYS 136 Physics 1 (Correspondence) – Equivalent to PHYS 131/132 theory only. Since this is a distance education (correspondence) course, students may enrol any time throughout the year and take up to one year to complete the course. The principles of physics as they apply to technology are covered including measurement and data analysis, mechanics, elasticity and strength of materials, fluid mechanics and thermal energy. Prerequisite: Math 12. Must seek approval to register in course. **3 credits**

PHYS 206 Physics for Electronics Technology (72 hours) – Continuation of PHYS 106. Magnetism, induced electromotive force, thermal energy, vibrations and waves with particular reference to sound waves, electromagnetic waves, physical optics and nuclear physics. The labs emphasize measurement, data analysis and experimental techniques as they relate to the lecture concepts. Technological applications are presented throughout the course. Prerequisite: PHYS 106 or equivalent. **4.5 credits**

PHYS 231 Physics 2: Part 1 (36 hours) – Formerly PHYS 133. First part of sound, light and optics, basic electricity and magnetism, basic semi-conductor theory, atomic and nuclear phenomena. Prerequisite: PHYS 132 or equivalent. **3 credits**

PHYS 232 Physics 2: Part 2 (36 hours) – Formerly PHYS 134, this is a continuation of PHYS 231. Prerequisite: PHYS 231 (formerly PHYS 133) or equivalent. **3 credits**

PHYS 236 Physics 2 (Correspondence) – The sequel to PHYS 136. Topics include wave motion; sound and light sources; propagation and reflection of light; refraction and dispersion; interface and diffraction; illumination and color; electrostatics; direct and alternating current; magnetism; atomic and nuclear physics. Prerequisite: PHYS 136 or equivalent. Must seek approval to register in course. **4.5 credits**

PHYS 465 Electro-optics (42 hours) – Both introduction and applications are covered in the areas of radiometry, geometrical and physical optics, solid state properties of matter, sources, lasers, detectors, solar cells, modulators and fiber optics. Prerequisite: Grade 11 Mathematics and Physics. A BCIT Electronics Technology Diploma or equivalent is recommended. **3 credits**

CIVIL TECHNOLOGIES

D. C. Deans, B.A., Associate Dean, Tel. 432-8355

Building Technology

Civil and Structural Technology

Geographic Information Systems

Surveying and Mapping Technology

Transportation Systems (Highways) Technology

Building Technology

Anna Maharajh, Dipl.T., A.Sc.T., M.C.I.Q.S., Program Coordinator Tel. 432-8586

Program Advisor, Tel. 432-8467

Programs leading to the award of the Certificate of Technology or Intermediate Certificate in Building Technology, consist of Building Technology courses plus mandatory core courses and other technology courses to the required total credits. Individual programs can be designed to accommodate the part-time learner's career goals. All programs must be submitted to the program advisor for approval by the Technology Department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY: DESIGN OPTION

	Credit
BLDG 151	Drafting and Design 1: Introduction..... 6.0
BLDG 152	Construction 1..... 6.0
BLDG 251	Drafting and Design 2: Architectural Presentation.....6.0
BLDG 252	Construction 2.....9.0
BLDG 253	B.C. Building Code: Housing3.0
CIVL 101	Statics.....6.0
COMM 160	Introduction to Business and Technical Communication.....3.0
MATH 101	Technical Mathematics 1: Trigonometry .3.0
MATH 102	Technical Mathematics 2: Logarithms and Analytic Geometry3.0

CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY: DESIGN OPTION

Prerequisite: Completion of Intermediate Certificate of Technology, Design Option or equivalent.

	Credit
BLDG 154 Construction Industry Procedures: Introduction	3.0
BLDG 155 Construction Contracts 1	3.0
BLDG 253 B.C. Building Code: Housing or	
BLDG 351 Drafting and Design 3: Architectural design	6.0
BLDG 353 B.C. Building Code: General	3.0
BLDG 256 Construction Estimating 1	3.0
BLDG 355 Construction Specifications	4.5
BLDG 356 Construction Estimating 2	3.0
CIVL 250 Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
COMM 175 Business and Technical Correspondence	3.0

Electives (with prior approval)

BLDG 159 Architectural and Industrial Illustration.....	3.0
BLDG 181 Fire Protection Engineering.....	3.0
COMM 183 Technical Reports	3.0
OPMT 187 Project Planning and Scheduling	3.0
SURV 108 Engineering Survey.....	7.0

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY: PROJECT MANAGEMENT OPTION

BLDG 113 Building Materials and Methods.....	3.0
BLDG 114 Construction Site Processes and Scheduling	3.0
BLDG 151 Drafting and Design 1: Introduction to Architectural Drafting and Design	6.0
BLDG 152 Construction 1	6.0
BLDG 252 Construction 2	9.0
BLDG 253 B.C. Building Code: Housing	3.0
BLDG 256 Construction Estimating 1	3.0
BLDG 258 Computer Applications in Building Technology 1	3.0
COMM 160 Introduction to Business and Technical Communication	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry.....	3.0

CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY: PROJECT MANAGEMENT OPTION

Prerequisite: Completion of Intermediate Certificate of Technology, Project Management Option or equivalent.

BLDG 254 Project Management: Introduction to Building Development	3.0
BLDG 352 Construction 3	3.0
BLDG 353 B.C. Building Code: General	3.0
BLDG 354 Construction Law in Project Management	3.0
BLDG 356 Construction Estimating 2	3.0
BLDG 452 Construction 4	4.5
BLDG 454 Project Management: Construction Management	3.0
BLDG 455 Project Management: Building Systems	3.0
BLDG 456 Construction Estimating 3	3.0
COMM 175 Business and Technical Correspondence	3.0

Civil and Structural Technology

Marsh Heinekey, B.Tech., Dipl.T., Dipl.Adult Ed., A.Sc.T., Program Coordinator, Tel. 432-8765

Karen Cope, Program Advisor, Tel. 432-8467

Civil and Structural part-time studies courses are designed to accommodate a variety of career-oriented goals for part-time learners. The Certificate of Technology is designed to satisfy the academic requirements for a certified technician with Applied Science Technologists and Technicians of B.C. (ASTTBC). A student can elect to complete a Diploma of Technology on a part-time basis. The flexibility of the program will allow the student to complete first-year day school equivalency and enter directly into second-year day school. In addition, Civil and Structural offers Intermediate Certificates as well as Post-Diploma courses. All programs consist of technology courses and mandatory core subjects. Experienced students can apply for experiential learning credit for some courses. All programs must be submitted to a program advisor for approval by the Civil and Structural Department. It would be to your advantage to register for the program of your choice, using our career counselling expertise.

New Program

Civil and Structural Part-Time Studies are introducing courses in the area of Public Works Operations. Currently two courses are offered: CIVL 120 Introduction to Public Works Operations and CIVL 121 Waterworks 1.

CERTIFICATE OF TECHNOLOGY IN CIVIL AND STRUCTURAL TECHNOLOGY

The Certificate of Technology is designed to provide students and employers a flexible offering of academic courses to advance careers in the field of Civil and Structural Technology, while at the same time meeting the academic requirements for registration as a Certified Technician with the Applied Science Technologists and Technicians of B.C. An Intermediate Certificate of Technology will be granted after completion of 45 approved credits. The Certificate of Technology must contain a minimum of 75 credits. A program of study can be tailored to a student's needs by using the following guidelines.

A. Certificate of Technology Guideline

The emphasis will be placed on the Certificate of Technology (COT). The Intermediate Certificate of Technology (ICOT) will be incorporated into the COT for approval. A student will still receive the ICOT after completion of 45 credits. The COT credits will be designed based on the following formula.

Course Criteria	Percent of Program	Min. Credit
Core Fundamentals courses (Math, Communications etc.)	12%	9.0
Civil Fundamentals courses (Eg.Statics, Hydrology, Drafting)	38%	28.0
Civil Secondary courses (Hydraulics, Stress Analysis)	25%	19.0
Specialty courses, Civil, Survey Building, (special electives)	25%	19.0

B. In addition, BCIT's policy on courses taken from other institutions will apply. Experiential or unassigned credit may be accepted with approved documentation.

C. All programs must be approved in advance of a Certificate application.

D. Approved programs will be valid for a five year period.

E. Refer to typical COT with substitution list.

CERTIFICATE OF TECHNOLOGY IN CIVIL AND STRUCTURAL TECHNOLOGY

Upon completion of 45 credits you will be eligible for the **Intermediate Certificate of Technology**

	Credit
*CIVL 101 Statics	6.0
CIVL 102 Public Works Inspection	4.0
CIVL 104 Construction Materials Testing Fundamentals	2.5
CIVL 108 Graphical Communication 1	2.5
CIVL 109 Concrete Technology	3.0
CIVL 110 Asphalt Technology	3.0
*CIVL 159 Hydrology 1	2.0
*CIVL 175 Introduction to Highways	3.0
CIVL 208 Graphical Communication 2	2.5
*COMM 160 Introduction to Business and Technical Communication	3.0
*MATH 101 Technical Mathematics 1: Trigonometry	3.0
*MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
*SURV 108 Engineering Survey	7.0
	45.0

Upon completion of a further 30 credits as listed below you will be eligible for the **Certificate of Technology**

CIVL 169 Soil Mechanics 1	3.0
*CIVL 173 Estimates and Contracts for Heavy Construction 1	3.0
CIVL 180 Introduction to Urban Traffic Engineering	3.0
*CIVL 250 Stress Analysis 1	3.0
*CIVL 259 Hydrology 2	2.0
*CIVL 273 Hydraulics 1	3.0
CIVL 274 Estimates and Contracts for Heavy Construction 2	3.0
CIVL 384 Civil Engineering Computer Applications	3.0
CIVL 393 AutoCAD (CADD) Applications for Civil Technology	3.0
*COMM 183 Technical Reports	3.0
	30.0

NOTE: * Mandatory subjects. **Intermediate Certificate of Technology** after 45 credits. **Certificate of Technology** after 75 credits.

Electives

AICO 213 AutoCAD 1	3.0
AICO 214 AutoCAD 2	2.5
AICO 218 AutoCAD A.E.C.	3.0
AICO 712 CAD Customization Using AutoLISP	2.5
CIVL 108 Graphical Communication 1	2.5
CIVL 201 Construction Documents and Cost Control	3.0
CIVL 208 Graphical Communication 2	2.5
CIVL 278 Municipal Services 1	3.0
CIVL 314 Urban Street Design	3.0
CIVL 315 Subdivision Planning	3.0
CIVL 350 Stress Analysis 2	3.0
CIVL 378 Municipal Services 2	3.0
CIVL 400 Structural Design 1	6.0
CIVL 483 AutoCAD 2 for Civil Engineering	3.0
COMP 107 Understanding PC MS DOS	1.5
SURV 100 Survey Fundamentals for Inspectors	1.5
SURV 112 Survey Computations 1	7.0
SURV 208 Engineering Survey 2	7.0
SURV 312 Survey Computations 2	3.0
SURV 325 AutoCAD Applications for Surveying and Mapping	3.0

CIVIL AND STRUCTURAL PART-TIME STUDIES: 1ST YEAR EQUIVALENCY

	Credit
CIVL 101 Statics	6.0
CIVL 108 Graphical Communication 1	2.5
CIVL 109 Concrete Technology	3.0
CIVL 159 Hydrology 1	2.0
CIVL 175 Introduction to Highways	3.0
CIVL 208 Graphical Communication 2	2.5
CIVL 250 Stress Analysis 1	3.0
CIVL 259 Hydrology 2	2.0
CIVL 273 Hydraulics 1	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
CIVL 373 Hydraulics 2	3.0
CIVL 384 Civil Engineering Computer Applications	3.0
CIVL 400 Structural Design 1	6.0
COMM 160 Business and Technical Correspondence	3.0
COMM 175 Technical Communication	3.0
COMM 183 Technical Reports	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MATH 203 Technical Mathematics 3: Calculus	6.0
PHYS 131/132 Physics 1: Part 1 and 2	6.0
PHYS 231/232 Physics 2: Part 1 and 2	6.0
SURV 108 Engineering Survey	7.0

DIPLOMA OF TECHNOLOGY

Prerequisite: Year 1 equivalency

BLDG 354 Construction Law in Project Management	3.0
BLDG 454 Project Management: Construction Management	3.0
CIVL 110 Asphalt Technology	3.0
CIVL 169 Soil Mechanics 1	3.0
CIVL 201 Construction Documents and Cost Control	3.0
CIVL 270 Soil Mechanics 2	3.0
CIVL 275 Highway Design 2	3.0
CIVL 278 Municipal Services 1	3.0
CIVL 282 Land Use Planning	3.0
CIVL 314 Urban Street Design	3.0
CIVL 315 Subdivision Planning	3.0
CIVL 378 Municipal Services 2	3.0
CIVL 386 Computer Highway Design	3.0
CIVL 393 AutoCAD (CADD) Applications for Civil Technology	3.0
CIVL 431 Soil Mechanics 3	3.0
CIVL 450 Structural Design 2	6.0
CIVL 473 Hydraulics 3	3.0
MATH 204 Technical Mathematics 4: Calculus	6.0
OPMT 187 Project Planning and Scheduling	3.0
SURV 208 Engineering Survey 2	7.0

POST-DIPLOMA COURSES

Post-diploma or graduate courses are designed for technologists or engineers with industrial experience who wish to upgrade, update or expand their career opportunities.

CIVL 501 Reinforced Masonry Design	3.0
CIVL 502 Advanced Concrete Technology	3.0
CIVL 503 Transportation Planning	3.0
CIVL 509 Geotechnical Design Rock Stability	3.0
CIVL 510 Transportation Planning 1: Network Planning Principles	2.0
CIVL 511 Transportation Planning 2: Travel Demand Forecasting	2.0

Geographic Information Systems

Ross Miller, Dipl.Tech.,B.A., Program Head
Tel. 432-8737

J. Candy, H.N.C.,Dipl.Tech.,B.Sc., Coordinator
Tel. 432-8378

Geographic Information Systems (GIS) technology is rapidly transforming the way in which we manage and use geographic data, and is increasingly 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 9-month program format, through part-time studies, or a combination of these.

Program Format

The curriculum balances theory and practice and covers GIS principles, training in GIS software, technical issues in GIS, remote sensing, digital mapping, computer programming and management issues in GIS. Each student also undertakes the design and implementation of a major independent GIS project.

Entrance requirements

Diploma of Technology or University or College Degree in a related field or departmental approval.

Program of Studies

General course requirement for graduation from the program is a minimum of 50 credits but may vary depending on academic background. Courses are selected from the following categories.

Management – 8 credits

Technical – 27 credits

Project – 15 credits

ADVANCED DIPLOMA IN GEOGRAPHIC INFORMATION SYSTEMS

Foundation Technology courses (9 credits minimum)

Required Courses	Credit
GIST 700 Fundamentals of GIS	3.0

One of

GIST 725 PAMAP GIS Level 1	3.0
GIST 726 TERRASOFT GIS Level 1	3.0
GIST 728 ARC/INFO GIS Level 1	3.0

One of

GIST 825 PAMAP GIS Level 2	3.0
GIST 826 TERRASOFT GIS Level 2	3.0
GIST 828 ARC/INFO GIS Level 2	3.0

ADVANCED TECHNOLOGY COURSES (18 CREDITS MINIMUM)

Required Courses	Credit
AICO 522 Introduction to C Programming.....	3.0
GIST 733 Relational Database Systems	3.0
GIST 800 Technical Issues in GIS.....	3.0
GIST 801 Selected Topics in GIS	3.0

Electives

AICO 523 Data Structures in C	3.0
GIST 708 Fundamentals of Digital Mapping	3.0
GIST 718 Remote Sensing	3.0
GIST 721 Applied Mathematics 1	3.0
GIST 730 Technical Topics in Computer Systems ..	3.0
GIST 732 Fundamentals of Computer Graphics	3.0
GIST 821 Applied Mathematics 2	3.0
GIST 832 File and Data Structures	3.0
GIST 833 Object Oriented Programming with C++ ..	3.0
GIST 834 Data Communications and Networking.....	3.0

MANAGEMENT COURSES (8 CREDITS MINIMUM)

AICO 707 Graphic System Management	3.0
AICO 807 Graphic Information Management	3.0
GIST 810 Management Issues in GIS	3.0
GIST 811 Management of Technological Change.....	3.0
GIST 812 GIS Seminar for Natural Resource Management	1.0
GIST 813 GIS Seminar for Local Government.....	1.0

PROJECT (15 CREDITS)

GIST 720 Project Planning	3.0
GIST 820 Project	12.0

Surveying and Mapping Technology

Nick Wong, Program Coordinator

Tel. 434-5734, local 5282

Karen Cope, Program Advisor

Tel. 432-8467

The programs leading to the award of the Certificate of Technology, or Intermediate Certificate, in Surveying and Mapping will consist of survey courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program advisor for approval by the Technology Department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN SURVEYING AND MAPPING

	Credit
COMM 160 Business and Technical Communication.....	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MECH 140 Drafting Fundamentals	3.0
PHYS 131 Physics 1 Part 1	3.0
PHYS 132 Physics 1 Part 2	3.0
SURV 108 Engineering Survey.....	7.0
SURV 112 Surveying Computations 1	7.0
SURV 119 Programmable Calculators: Sharp's	2.0
Electives from list below	11.0

CERTIFICATE OF TECHNOLOGY IN SURVEYING AND MAPPING

Prerequisite: Intermediate Certificate of Technology in Surveying and Mapping.

	Credit
COMM 183 Technical Reports	3.0
MECH 216 Drafting: Civil/Survey	3.0
SURV 208 Engineering Survey 2	7.0
SURV 312 Surveying Computations 2	3.0
Electives	14.0

Electives for above programs

AICO 213 AutoCAD 1	3.0
COMM 175 Business and Technical Correspondence	3.0
MATH 125 BASIC 1: An Introduction to Microcomputers IBM PCs	3.0
MATH 203+ Technical Mathematics 3: Calculus	6.0
MATH 204+ Technical Mathematics 4: Calculus	6.0
PHOT 217+ Photogrammetry 1	7.0
PHYS 231 Physics 2 Part 1	3.0
PHYS 232 Physics 2 Part 2	3.0
SURV 105 Construction Surveying Techniques	3.0
SURV 118 Programming the HP48s: Engineering Applications	2.0
SURV 190 Survey CAD: Rapid Transit	2.0
SURV 325 AutoCAD Applications for Surveying and Mapping	3.0
SURV 326 Surveying Applications with Microstation	2.0

NOTE: Courses marked + may be replaced by electives from list below.

YEAR 1 EQUIVALENCY

Completion of all the above courses are necessary for Year 1 full-time equivalency.

Advanced, Optional and Elective Courses

PHOT 102 Photo Interpretation and Remote Sensing	7.0
SURV 115 Introduction to Global Positioning Systems (GPS) Survey	1.5
SURV 200 Surveying with Total Stations	3.5
SURV 310 Highway Design and Layout for Surveyors	3.0
SURV 362 Geodetic Surveying 1	3.0
SURV 363 Adjustment of Survey Measurements	3.0
SURV 463 Mathematical Cartography	4.0
SURV 465 Survey CAD 2	4.0

Transportation Systems (Highways) Technology

Mike Boyle, M.I.C.E., C.Eng., P.Eng., Acting Program Head
Tel. (604) 432-8279

Shari Monsma, Program Assistant
Tel. (604) 432-8784

The Transportation Systems (Highways) Technology program provides opportunities in Civil Highways Technology for distance education learners through home study credit courses. Three program levels are offered and the course selection for each program must be approved in advance.

The Intermediate Certificate of Technology is awarded on completion of 35 credits, the Certificate of Technology on completion of 75 credits and the Diploma of Technology on completion of 150 credits. General program requirements are shown and the individual study program for each level must be approved before a certificate or diploma is awarded.

Students are not required to be registered in a program to take advantage of the courses offered. It is advisable to complete similar subject area courses in sequence, however, registration in individual courses is open. Entry to the program(s) and individual course registration is based on a student's self-assessed capability, need and prerequisite knowledge.

The Transportation Systems Certificate of Technology program has been accredited at the Technician level by the Canadian Technology Accreditation Board (CTAB) of the Canadian Council of Technicians and Technologists (CCTT).

The Diploma of Technology program has been accredited at the Technologists level by CTAB.

For an information package, course outlines, or registration details, write to: Transportation Systems Technology, BCIT, 3700 Willingdon Avenue, Burnaby, British Columbia, Canada, V5G 3H2 or FAX your request to BCIT TRANSYS-TEMS (604) 434-6243.

Program Approval

While flexibility is possible, all programs of study must be approved prior to application for a certificate or diploma. If you have any questions regarding program approval, please contact Mike Boyle, Program Head, (604) 432-8607.

Program Requirements

The general requirements for each program are listed below. You are advised to study the individual course descriptions on pages to select the courses that you wish to complete in each study area.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

Subject Area	Course Series	Min. Credit Required
Fundamental Studies		
Technical Communication	TSYH 101 - TSYH 104	4.0
Engineering Science	TSYH 150 - TSYH 153	2.0
Graphical Communication	TSYH 160 - TSYH 170	3.0
Computer Studies	TSYH 180 - TSYH 186	3.0
Applied Technology Studies		
Hydrology	TSYH 140 - TSYH 143	3.0
Soils Technology	TSYH 201 - TSYH 209	2.0
Surveying	TSYH 301 - TSYH 304	5.0
Construction Materials	TSYH 220 - TSYH 243	3.0
Elective Studies		10.0
Program Total		35.0

CERTIFICATE OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

Subject Area	Course Series	Credit Required
Fundamental Studies		
Technical Communication	TSYH 101 – TSYH 104	4.0
Mathematics	TSYH 120 or TSYH 129	*
Engineering Science	TSYH 150 – TSYH 153	5.0
Graphical Communication	TSYH 160 – TSYH 170	8.0
Computer Studies	TSYH 180 – TSYH 186	4.0

Applied Technology Studies

Hydrology	TSYH 140 – TSYH 143	3.0
Soils Technology	TSYH 201 – TSYH 209	5.0
Construction Materials	TSYH 220 – TSYH 243	8.0
Engineering Surveying	TSYH 301 – TSYH 335	10.0
Estimating and Contracts	TSYH 450 – TSYH 461	8.0
Highway and Pavement Construction	TSYH 401 – TSYH 441	8.0
Highway Design	TSYH 501 – TSYH 510	2.0
Subdivision Planning/Design	TSYH 530 – TSYH 537	2.0
Electives or unassigned studies (maximum)		8.0
Program Total		75.0

* Although specified mathematics course credits are not mandatory, students are encouraged to take a math course as part of their Certificate program. Applied math skills are essential to program completion.

DIPLOMA OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

Subject Area	Course Series	Credit Required
Fundamental Studies		
Technical Communication	TSYH 104 & TSYH 199	14.0
Mathematics	TSYH 120 – TSYH 136	14.0
Engineering Science	TSYH 150 – TSYH 153	6.0
Graphical Communication	TSYH 160 – TSYH 170	3.0
Computer Studies	TSYH 180 – TSYH 186	3.0

Applied Technology Studies

Hydrology and Hydraulics	TSYH 140 – TSYH 147	9.0
Soils Technology	TSYH 201 – TSYH 209	6.0
Construction Materials	TSYH 220 – TSYH 243	6.0
Engineering Surveying	TSYH 301 – TSYH 335	6.0
Estimating and Contracts	TSYH 450 – TSYH 461	6.0

Advanced Design/Management Studies

Highway Construction and Pavement Design	TSYH 401 – TSYH 441	12.0
Geotechnical Design	TSYH 210 – TSYH 216	12.0
Highway Design and Traffic	TSYH 501 – TSYH 510	13.0
Subdivision Planning/Design	TSYH 530 – TSYH 537	12.0
Economics and Management	TSYH 720 – TSYH 721*	16.0
Electives or unassigned studies (Maximum)		12.0
Program Total		150.0

* B.C. Open College credit (OLA) is transferable to this program. Please contact Transportation Systems Department for details.

COMPUTER SYSTEMS TECHNOLOGIES

Ken Takagaki, Ph.D., B.A.(Hons), C.M.A., C.D.P.,
Associate Dean
Tel. (604) 432-8584

Advanced Diploma in Software Development

Sandy McGechaen, B.A., M.A., Ed.D.,
Director, Part-time Studies
Tel. (604) 432-8459

Michael Lo, B.Sc.(Hons.), M.Sc., Program Head,
Advanced Diploma Program
Tel. (604) 432-8851

The Objective

The Computer Systems Technology is pleased to announce a unique practitioner-oriented Advanced Diploma Program (ADP) in Software Development. This program is designed for:

- * graduates of two-year diploma programs in Computer Systems,
- * computer professionals wishing to acquire recognized formal qualifications, or
- * people who hold degrees in other related disciplines.

This program may be taken on a full-time, part-time or course-by-course basis to cater to working professionals. Most ADP courses are offered in late afternoons, evenings or on weekends.

The ADP program is directed towards people who are employed in the computer industry and wish to further advance their knowledge in a specialty area. The ADP program is endorsed by many employers who see the benefits of a practitioner-oriented advanced-level program. Through the major capstone projects (practicum), ADP candidates are encouraged to explore innovative ideas and solutions for industry applications. This form of technology transfer is one of the major goals of the ADP program and is intended to support BCIT's mandate as the centre of advanced technology in B.C.

The Structure

The Advanced Diploma Program in Software Development consists of five components as follows:

1. Foundation

This component aims at ensuring that candidates acquire a solid foundation in the following major concepts of computing:

- a) Language/communications skills
- b) Mathematics/statistics/quantitative methods
- c) Business methods
- d) Programming
- e) Systems
- f) Computer project experience.

2. Core Courses

Core Courses include:

- a) COMP 700 Technical Issues in Software Development
- b) COMP 702 Applied Research Methods in Computer Systems
- c) COMP 800 Management Issues in Software Development

3. Specialization

For the time being, an ADP student can choose to specialize in one of the following:

Applied Artificial Intelligence
Computer Graphics
Data Communication
Database Technology
Software Technology Management

Other specialties may be added and/or existing ones modified in response to student/market demand and/or faculty availability.

4. Practicum

Each candidate must complete two substantial practicum projects (or one large, combined project) in a "real-life" situation. Applied Research topics in a leading-edge technology area may also be considered.

5. Practical Experience

Before an ADP candidate is awarded the Advanced Diploma in Software Development, he/she must accumulate at least two years of relevant work experience. The type and level of experience must be approved by the Program Head (or designate).

Program Approval

Each student in the Advanced Diploma Program must go through an interview and have his/her proposed program of studies approved by the Program Head (or designate).

Degree-Bridging Initiative

BCIT is pursuing extending the ADP into a degree-bridging program leading to a degree with minimum additional work. This initiative is currently in the final phases of the approval process. However, eventual approval of such an initiative cannot be guaranteed. Prospective candidates should not rely on this possibility as the reason for undertaking the ADP program.

For More Information

While the information contained herein is meant to be as up-to-date as possible, it should be noted that the ADP program is constantly being revised and updated to reflect the ever-changing computer technology. For the most current brochure on the ADP program, please contact:

The Director,
Part-time Studies
School of Engineering Technology
BCIT 3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2
Tel. (604) 432-8459
Fax. (604) 432-9572

Computer Systems Technology

R. B. Long, C.G.A., Manager, Information Technology Programs (P.T.S.) Tel. (604) 432-8470

Chris Lloyd, Dipl.T., Program Advisor Part-time Studies, Student Services, Tel. (604) 432-8829

Computers have made it possible to store, manipulate, retrieve and analyze vast quantities of data and information at high speed, so they are widely used in data processing, business activities and as a management tool. Mainframe computers, minicomputers and personal computers are now commonly used in the business world. The Programmer/Analyst is a skilled person who will define the problem to be solved, design the solution, and give the computer a detailed set of instructions (called a program) to follow to solve the problem. It is the human element which determines the degree of success in any computer application.

Most courses will require texts or supplies which should be purchased during the first session of the course. Course fees do not normally include texts or supplies.

CERTIFICATE PROGRAMS

The Computer Systems Technology is pleased to announce the implementation of new and more clearly defined Certificate programs as described below, effective 1 July 1991. Students currently on pre-approved Computer Systems Certificate programs will continue to have their programs honoured.

ASSOCIATE CERTIFICATE IN OFFICE COMPUTER SKILLS

This Associate Certificate is offered to the first-time computer user who needs to be able to use computers in order to be promoted, or to keep a current position. The aim is to provide the student with confidence and transform a novice into a competent user capable of using popular productivity tools in an office environment. With the exception of COMP 109 which is 6 weeks long, all courses are of 4 weeks duration. New courses may be added and existing courses may be modified or deleted in accordance with the market trend in the industry.

Program Requirements

15 courses chosen from the Mandatory and Elective lists below must be successfully completed within 5 years. The courses chosen from the list of Electives must be approved by the Manager, Information Technology Programs (P.T.S.).

Where the student has never used a computer, COMP 901 COMPUTING FOR THE TIMID should be completed first.

Mandatory Courses		Credit
COMP 109	Exploring DOS.....	1.5
COMP 117	WordPerfect 5 Level 1	1.0
COMP 138	Ventura Level 1	1.5
COMP 147	Lotus 1-2-3 Level 1	1.0
COMP 157	dBASE IV Level 1	1.0
COMP 175	Accpac General Ledger	1.5

Electives

COMP 118	WordPerfect 5 Level 2	1.0
COMP 119	WordPerfect 5 Level 3	1.0
COMP 139	Ventura Level 2	1.5
COMP 148	Lotus 1-2-3 Level 2	1.0
COMP 149	Lotus 1-2-3 Level 3	1.0
COMP 158	dBASE IV Level 2	1.0
COMP 159	dBASE IV Level 3	1.0
COMP 186	Accpac Accounts Receivable & Payable	1.5

BASIC COURSE CLUSTER

Before taking courses in any of the following Associate Certificate Programs or the Certificate of Technology Program, the student should take the following courses or have equivalent experience in each course. Where the student has never before used a computer, COMP 901 COMPUTING FOR THE TIMID should be completed first.

Mandatory Courses	Credit
COMP 107 Understanding PC/MS DOS	1.5
COMP 114 Word Processing Concepts	1.0
COMP 115 Spreadsheet Concepts	1.0
COMP 116 Microcomputer Database Concepts	1.0

ASSOCIATE CERTIFICATE IN INTRODUCTORY PROGRAMMING

This program is designed for people working in or seeking employment in the Data Processing Industry. Holders of this certificate will qualify for work as junior programmers.

The program consists of 7 courses (a minimum of 21 credits) of which 5 may be chosen from the Electives: Computer list below. Where the student has not achieved an Associate Certificate in Office Computer Skills, an application course may be substituted for one elective programming course. It is permissible to take both COMP 130 and COMP 144. The program must be submitted to the program advisor for approval by the Computer Systems Technology.

Prerequisite: Basic Course Cluster or Associate Certificate in Office Computer Skills, or equivalent experience.

Mandatory Courses	Credit
COMP 126 Programming Concepts and Methods	3.0
COMP 130 Assembler Programming Language Level 1 or	
COMP 144 Assembler Microcomputer Programming Language: IBM PC Level 1	3.0

Electives: Computer

COMP 132 FORTRAN IV Programming Language Level 1	3.0
COMP 135 RPG Programming Language Level 1	3.0
COMP 137 C Programming Language Level 1	3.0
COMP 144 Assembler Microcomputer Programming Language: IBM PC Level 1	3.0
COMP 145 BASIC Programming Language (IBM PC) Level 1	3.0
COMP 232 FORTRAN IV Programming Language Level 2	3.0
COMP 233 COBOL Programming Language Level 1	3.0
COMP 234 PL/1 Programming Language Level 1	3.0
COMP 236 PASCAL Programming Language	3.0
COMP 333 COBOL Programming Language Level 2	3.0
COMP 334 PL/1 Programming Language Level 2	3.0

ASSOCIATE CERTIFICATE IN INTRODUCTORY COMPUTER INFORMATION SYSTEMS

This program is designed for people who are working in or seeking employment in the Data Processing Industry in the Systems Analyst or General Business area. Students with programming or managerial experience in a business environment should consider taking COMP 261/361 Computer Systems Development instead of COMP 160/260 Computer Systems Introduction.

The program consists of 7 courses (a minimum of 21 credits) of which 3 must be non-computer courses which may be

selected from the Electives: Business (non-computer) list below. The program must be submitted to the program advisor for approval by the Computer Systems Technology.

Prerequisite: Basic Course Cluster or Associate Certificate in Office Computer Skills, or equivalent experience, plus COMP 126.

Mandatory Courses	Credit
COMP 160 Computer Systems Introduction 1 and	3.0
COMP 260 Computer Systems Introduction 2 or	3.0
COMP 261 Computer Systems Development 1 and	3.0
COMP 361 Computer Systems Development 2	3.0
FMGT 101 Accounting 1	4.0
FMGT 201 Accounting 2	5.5

Electives: Business (non-computer)

Electives should be chosen to complement career goals. The following electives are suggested as a guide for a standard path of studies.

ADMN 100 Microeconomics	3.0
ADMN 110 Management 1	3.0
ADMN 200 Macroeconomics	4.0
ADMN 306 Economic Issues	3.0
ADMN 211 Management 2	2.0
COMM 160 Business and Technical Communication	3.0
COMM 171 Business Reports	3.0
COMM 175 Business and Technical Correspondence	3.0
COMM 196 Writing Manuals for the Computer Industry	1.5
FMGT 301 Cost and Managerial Accounting 1	4.0
FMGT 401 Cost and Managerial Accounting 2	5.5
MKTG 102 Essentials of Marketing	3.0
MKTG 323 Effective Public Speaking 1	3.0
OPMT 102 Basic Mathematics of Finance	3.0
OPMT 188 Management Information Systems	3.0
OPMT 197 Statistics for Business and Industry	4.5

Courses from the School of Engineering Technology may be selected instead, with approval of the program advisor. In selecting electives, students are advised to read this calendar to determine the courses they feel would be appropriate for their certificate programs.

CERTIFICATE OF TECHNOLOGY

This certificate may be granted upon completion of the following courses, plus 5 courses which may be chosen from the list of electives below. Some substitutions may be allowed depending on the intent of the student for this Certificate. The program must be submitted to the program advisor for approval by the Computer Systems Technology.

	Credit
ADMN 306 Economic Issues or	
ADMN 406 Economic Issues for Financial Planners	3.0
COMM 160 Introduction to Business and Technical Communication	3.0
COMM 171 Business Reports	3.0
COMM 175 Business and Technical Correspondence	3.0
COMM 196 Writing Manuals for the Computer Industry	1.5
COMP 107 Understanding PC/MS DOS	1.5
COMP 114 Word Processing Concepts	1.0
COMP 115 Spreadsheet Concepts	1.0
COMP 116 Microcomputer Database Concepts	1.0
COMP 126 Programming Concepts and Methodology	3.0

	Credit
COMP 137 C Programming Language Level 1	3.0
COMP 144 Assembler Microcomputer Programming Language: IBM PC Level 1	3.0
COMP 160 Computer Systems Introduction Level 1 ..	3.0
COMP 233 COBOL Programming Language Level 1 ..	3.0
COMP 236 PASCAL Programming Language	3.0
COMP 242 Microcomputers: Exploring Technical Aspects	3.0
COMP 237 C Programming Language Level 2	3.0
COMP 261 Computer Systems Development Level 1 ..	3.0
COMP 333 COBOL Programming Language Level 2 ..	3.0
COMP 361 Computer Systems Development Level 2 ..	3.0
FMGT 101 Accounting 1	4.0
FMGT 201 Accounting 2	5.5
MKTG 102 Introduction to Marketing	3.0
OPMT 102 Basic Mathematics of Finance	3.0
OPMT 197 Statistics for Business and Industry	4.5

Electives: Computer

COMP 135 RPG II Programming Language Level 1 ..	3.0
COMP 162 Microcomputers Using dBASE Level 1 ..	3.0
COMP 247 LISP Programming Language	3.0
COMP 248 PROLOG Programming Language	3.0
COMP 249 POWERHOUSE Programming Language Level 1	3.0
COMP 346 FOCUS	3.0
COMP 349 POWERHOUSE Programming Language Level 2	3.0
COMP 385 Applied Artificial Intelligence: Design of Expert Systems	3.0
COMP 440 CICS	3.0

Prerequisite Exemptions

Students wishing to apply for an exemption from a required prerequisite must submit official documentation to the program advisor, at least six weeks prior to registration. Documentation should include official transcripts and course outlines or a letter from your employer outlining present job duties and responsibilities.

ELECTRONICS TECHNOLOGY

M. Jervis, B.Sc., Associate Dean
Tel. 432-8251

E. G. Hancock, Dipl.T., B.Eng., P.Eng.,
Program Coordinator, Tel. 432-8253

Karen Cope, Program Advisor
Tel. 432-8467

Microcomputers, electrical power transmission and distribution, industrial automation and control, telecommunications and microchips form the base of modern high technology. These disciplines and the related systems and equipment are essential to the factory, the industrial process, rapid transit systems, the office, the small business, the hospital and the home.

There is a need for persons trained in the principles and applications of electronics to take their places in the technical team. The positions held by these persons are found in design, development, production, installation, sales and maintenance. The positions may be as design assistants with engineering consulting firms such as H. A. Simons and Fransen Engineering; distribution designers or protection and control technologists with utilities such as BC Hydro; electronics technologists and designers with high technology companies such as Nexus Engineering, MDA and MPR Teltech; electronics communication specialists with government agencies such as the RCMP, BC Telephone and the Department of Communications; sales and field engi-

neering representatives for companies such as ASEA, General Electric or Westinghouse; or as part of the teaching team in educational institutions. The technologist graduate of the Electronics program is an essential member of many high technology teams.

The Electronics Technology program is accredited by the Association of Applied Sciences Technologists and Technicians of British Columbia (ASTTBC).

Electronics Technology Evening Classes

Note: The following approved program courses are normally available during evening sessions. Popular evening courses are offered annually, while higher level courses where demand is lower are normally offered at least once every 2 to 3 years.

Many other Electronics Technology courses are available on a part-time day basis. Most Electronics Technology day courses start twice a year, September and again in February.

Most courses listed below are identical to day school courses. Transfer between part-time and full-time studies is thus very easy.

Courses	Credit
ELEX 001 Electrical/Electronics Careers	0.0
ELEX 100 Circuit Analysis 1 (see also ELEX 920)	7.0
ELEX 101 Electronic Manufacturing Processes	5.5
ELEX 102 Digital Techniques 1 (See also ELEX 930)	5.5
ELEX 112 Digital Techniques 1 Upgrade	3.0
ELEX 163 Printed Circuit Board Design	2.5
ELEX 200 Circuit Analysis 2	5.5
ELEX 201 PASCAL	4.5
ELEX 202 Digital Techniques 2	7.0
ELEX 203 Electronic Circuits 1	8.0
ELEX 208 Circuit Analysis AC/DC	12.5
ELEX 302 Microprocessor Systems 1	7.0
ELEX 303 Electronic Circuits 2 (Control)	7.0
ELEX 305 Electrical Equipment	6.0
ELEX 307 Pulse Techniques	5.5
ELEX 311 Applications Software	6.0
ELEX 325 Electrical Equipment	3.0
ELEX 331 Telecommunication Circuits and Systems 1	7.0
ELEX 333 Electronic Circuits 2 (Telecom)	5.5
ELEX 406 Data Communication	7.0
ELEX 412 Microprocessor Systems 2	3.5
ELEX 920 Circuit Analysis 1 Introduction	0.0
ELEX 930 Digital Techniques 1 Introduction	0.0

See following pages for post-diploma and specialty courses.

**** See seasonal flyers for other courses not listed here.

**** Specialty courses made to order on request.

Certificate Programs

The Intermediate Certificate and Certificate of Technology are available to those part-time evening students who maintain a 60% average and earn at least 50% of their required course credits in a pre-approved program of part-time evening studies offered by BCIT Electronics Technology.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN ELECTRONICS TECHNOLOGY

Persons on previously approved programs whose courses are not on the course listing below should apply for a program modification. An Intermediate Certificate of Technology program will typically require between 45 and 49 credits depending on individual circumstances. On a case-by-case basis the department may make some adjustment to total credits required.

	Credit
COMM 160	Introduction to Business and Technical Communication3.0
*ELEX 100	Circuit Analysis 17.0
ELEX 101	Electronic Manufacturing Processes5.5
ELEX 102	Digital Techniques 15.5
*ELEX 200	Circuit Analysis 25.5
ELEX 203	Electronic Circuits 18.0
MATH 114/115	Mathematics for Electronics Parts A & B8.0
PHYS 106	Physics for Electronics Technology7.0

*ELEX 208 is an accelerated combined (ELEX 100 and 200) course for those with previous electrical training. This course proceeds at a very rapid pace. Successful students usually have a strong mathematics background. After approximately four weeks, a written examination will determine those who will continue in ELEX 208 and those who will be advised to transfer to ELEX 100.

ELEX 208 is normally taken concurrently with MATH 114 and MATH 115. Please read course descriptions for further information.

CERTIFICATE OF TECHNOLOGY IN ELECTRONICS TECHNOLOGY

Persons on previously approved programs whose courses are not on the course listing below should apply for a program modification. A Certificate of Technology program will typically require 41 to 43 additional credits for a total of 86 to 92 credits. On a case-by-case basis the department may make some adjustment to total credits required.

	Credit
ELEX 201	PASCAL4.5
ELEX 202	Digital Techniques 27.0
*ELEX 303 *	Electronic Circuits 2 (Control)7.0
*ELEX 305	Electrical Equipment6.0
ELEX 307	Pulse Techniques5.5
MATH 116/117	Calculus for Electronics Parts A & B7.0
PHYS 206	Physics for Electronics Technology4.5

* When ELEX 303 is not offered in the evening schedule, it may be possible to take ELEX 333 instead.

* When ELEX 305 is not offered in the evening schedule, it may be possible to take ELEX 331 as an alternative.

POST-DIPLOMA COURSES FOR INDUSTRY

ELEX 512	Introduction to Single Chip Microcomputers 68HC112.5
ELEX 513	Single Chip Microcomputers 2 68HC112.5
ELEX 514	Real Time Programming Multitasking for Microcontrollers: Part 12.0
ELEX 515	Real Time Programming Multitasking for Microcontrollers: Part 22.0
ELEX 538	Introduction to RF Circuit Design for Engineers and Technologists3.0
ELEX 588	Switching Power Supply: Introduction ... 2.0

*** Others to be announced in Fall, Winter and Spring Flyers

SPECIALTY COURSES FOR INDUSTRY

ELEX 900	Microcomputer Experimentation on IBM PC
ELEX 905	PLC Introduction for Electronics Technology
ELEX 915	PLCs Level 2
ELEX 940	Process Control Systems 1
ELEX 941	Process Control Systems 2
ELEX 945	Process Transducers 1
ELEX 946	Process Transducers 2
ELEX 948	Distributed Computer and Control Systems Introduction for Instrumentation

MECHANICAL DESIGN AND MANUFACTURING

Trevor Williams, P.Eng. Associate Dean
Tel. 432-8542

Mechanical Advanced Diplomas
Mechanical
Mechanical Systems
Plastics
Robotics and Automation

Mechanical Advanced Diplomas

Trevor Williams, P.Eng. Associate Dean
Tel. 432-8542
Program Advisor, Bette Bayley
Tel. 432-8521

These programs will interest practising technologists or engineers who are seeking to advance their technical competencies.

Prerequisites

A Diploma of Technology in a relevant engineering discipline (Mechanical, Civil Technology, Building, Mining, Geology etc.) or an Engineering degree.

Applicants should have good communication and engineering skills, ability to reason in a logical manner and good disposition towards team work.

Candidates may enroll in either part-time or full-time studies and select credits to fulfill the requirements for an Advanced Diploma from either full-time courses, part-time courses or ITTN modules. The program of courses must be approved on an individual basis by the Mechanical Design and Manufacturing department. The general requirements for an Advanced Diploma are a minimum of 50 credits drawn from various components.

Components	Credit
Management Subjects	8.0
Core Technology Topics	12.0
Advanced Technology Subjects	15.0
Graduation Project	15.0

The graduation project must be approved by the Mechanical Design and Manufacturing department who will assign a faculty supervisor for the project prior to its commencement. Credits obtained from similar courses that may have been taken as part of an undergraduate program are not transferable. The courses offered are based upon demand and are as follows:

MANAGEMENT COURSES

	Credit
AICO 502 System Analysis	3.0
AICO 512 Manufacturing Management	4.0
AICO 707 Graphic System Management	2.0
AICO 807 Graphic Information Management	3.0

CORE TECHNOLOGY COURSES

AICO 213	AutoCAD 1	3.0
AICO 214	AutoCAD 2	2.5
AICO 218	AutoCAD A.E.C. (Architectural)	3.0
AICO 220	SmartCAM	3.0
AICO 225	AutoCAD 3	1.5
AICO 503	Intergraph	4.0
AICO 504	Programming in "C"	6.0

	Credit
AICO 506 Linear Algebra with Computer Applications	4.0
AICO 510 3D Graphics and Design	8.0
AICO 522 Introduction to "C" Programming 3.....	0
AICO 523 Data Structures in "C"	2.0
AICO 531 UNIX Shell Script Programming	2.0
AICO 535 UNIX System Management	3.0
AICO 605 Issues in Networking.....	4.0
AICO 701 File Handling and Database	8.0
AICO 715 Computervision	2.5
MATH 460 Math for Computer Graphics	5.5

Students select their major courses in the appropriate area of advanced topics as well as completing their industrial projects in that area. Advanced topics currently available include the following:

ADVANCED COURSES

CAD PROGRAMMING

AICO 501 Graphics Programming	6.0
AICO 530 Introduction to UNIX	2.0
AICO 708 Advanced CAD Graphics	5.5
AICO 712 CAD Customization Using AutoLISP	2.5
AICO 718 CAD Customization Using Microstation	2.5
AICO 814 Advanced AutoLISP	2.5

ADVANCED MANUFACTURING

AICO 508 CNC Programming	9.0
AICO 616 Computer Integrated Manufacturing.....	4.0
AICO 712 CAD Customization Using AutoLISP	2.5
AICO 713 Quality Control	2.0
AICO 815 Robot Applications.....	5.5
AICO 818 CNC Setup and Operations	2.5
AICO 819 Advanced CAM Applications	2.5

MACHINE VISION

AICO 6XX Graphics Programming in "C"	3.0
AICO 751 Image Acquisition.....	2.5
AICO 752 Introduction to Digital Image Processing	2.5
AICO 753 Practical Considerations for Machine Vision.....	2.0
AICO 754 Applications in Machine Vision	2.5
AICO 755 Microprocessor Programming	2.5
AICO 756 Microcomputer Interfacing	2.5
COMP 357 LIST and Expert Systems.....	6.0

GRADUATION PROJECT

AICO 809 Advanced Diploma Project	15.0
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Other courses to be announced.

Mechanical Technology

Eric A. Morse, P.Eng., Coordinator
Tel. 432-8638

Program Advisor
Tel. 432-8467

The mechanical technologist may be involved in the design, construction and installation of machines and mechanical devices, or in the production side of manufacturing. It is a field of tremendous scope in that specialists must be able to analyze problems, propose efficient technical solutions, implement these solutions and evaluate the results.

Job Opportunities

Graduates can choose from a diversity of work situations. Consulting engineering offices employ mechanical tech-

nologists as design draftsmen for machinery, steelwork, piping, power plants and installation. Others may choose to take up positions in plant engineering offices, production departments or estimating departments. Additional opportunities exist in testing, inspection, installation, service and technical sales. Supervisory posts may be assumed after appropriate job experience.

The Mechanical Technology program is accredited by the Applied Science Technologists and Technicians of BC.

Prerequisites

Math 12 and Physics 11 are course requirements for this program. 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. Note: Students who commenced their program in the full-time studies program are required to complete those courses within that program of study. Exceptions will be considered by the Associate Dean and Registrar prior to registration.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN MECHANICAL TECHNOLOGY

	Credit
CHSC 156 Metallurgy 1.....	6.0
COMM 175 Business and Technical Correspondence	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry.....	3.0
MATH 125 BASIC 1: An Introduction to IBM PCs.....	3.0
MECH 104 Statics	4.0
MECH 106 Manufacturing Processes 1	4.0
MECH 140 Drafting Fundamentals	3.0
MECH 200 Mechanical Drafting 2.....	4.0
MECH 206 Mechanics of Materials.....	5.5
MECH 208 Dynamics	5.5
MECH 240 Manufacturing Processes 2	5.5

CERTIFICATE OF TECHNOLOGY IN MECHANICAL TECHNOLOGY

Prerequisite: Intermediate Certificate of Technology in Mechanical Technology

COMM 183 Technical Reports	3.0
MATH 203 Technical Mathematics 3: Calculus	6.0
MECH 107 Introduction to Thermal Processes	3.0
MECH 460 Engineering Economy	2.0
PHYS 231/232 Physics 2: Part 1 and 2.....	6.0
Electives	10.0

DIPLOMA OF TECHNOLOGY IN MECHANICAL TECHNOLOGY

Mandatory courses

COMM 160 Introduction to Business and Technical Communication	3.0
ELEX 305 Electrical Equipment.....	6.0
MATH 204 Technical Mathematics 4: Calculus.....	6.0
MATH 349 * Numerical Methods for Mechanica	4.0
MECH 301 Machine Design 1	4.0
MECH 302 Thermal Engineering 1	4.0
MECH 303 Fluid Mechanics	4.0
MECH 304 Manufacturing Processes 3	4.0
MECH 320 Fluid Power 1.....	3.0
MECH 401 Machine Design 2	6.5
MECH 420 Fluid Power 2	4.0
MECH 466 Fluid Systems.....	2.5
Electives	24.5

Optional/Elective Courses

	Credit
AICO 213 AutoCAD 1	3.0
AICO 214 AutoCAD 2	2.5
CDCM 215 Micro Station Intergraph 1	3.0
CDCM 216 Micro Station Intergraph 2	3.0
MATH 125 BASIC 1: An Introduction to IBM PCs.....	3.0
MATH 449* Statistics/Quality Control for Mechanical	5.5
MECH 404 Thermal Engineering 2	5.5
MECH 413 Tool Design	4.0
MECH 420 Fluid Power 2.....	4.0
MECH 432 Automatic Sprinkler System Design 1	3.0
MECH 436 Automatic Sprinkler System Design 2	3.0
MECH 444 Metrology.....	5.5
MECH 445 Computer Numerical Control Laboratory	4.5
MECH 466 Fluid Systems.....	2.5
MSYS 103 Plumbing	4.0
MSYS 220 Heating and Ventilating: Residential	3.0
MSYS 320 Heating and Ventilating 2.....	3.0
MSYS 403 System Noise Control.....	3.0
MSYS 420 Air Conditioning Design	3.5
MSYS 430 Air Conditioning Controls and Systems.....	5.0
OPMT 103 Quality Control Methods 1	3.0
OPMT 182 Operations Management	6.0
OPMT 203 Quality Control Methods 2	3.0
OPMT 411** Production Engineering Management.....	5.5

* Available through part-time day study only. For information contact David Sabo, Program Head, 432-8698.

** Available through part-time day study only. For information contact Glen Murray, Program Head, 434-5734 local 5232.

Mechanical Systems Technology

R.G. Graham, B.Sc., M.A.S.H.R.A.E., P. Eng.,

Program Head

Tel. 432-8329

Program Advisor

Tel. 432-8467

The graduate of this program will be able to pursue a career in the field of Mechanical Systems for residential, commercial, institutional and industrial buildings. Graduates will be prepared for the design and installation of water supply, drainage, fire protection, refrigeration, heating, ventilating and air conditioning.

Job Opportunities

Mechanical engineers, working in liaison with architects, structural engineers and electrical engineers, oversee design work on systems for most large buildings. As support staff, trained mechanical systems technologists are required who can function with minimum supervision as designers, specification writers, field inspectors and drafting personnel. Mechanical contractors bid competitively for mechanical systems work and require trained systems technologists as estimators and project management assistants.

Systems in newly completed and existing buildings have been receiving more attention in recent years. Services in this area include system management programs to optimize energy efficiency; testing and balancing of new systems; and physical changes to existing systems to realize greater fuel economy.

The Program

Course material encompasses water supply, drainage, fire protection, refrigeration, heating, ventilating and air conditioning, backed by support courses which include fluid engineering, thermodynamics, engineering economy and computer science. In recent years, the pursuit of greater

energy efficiency and safety in buildings has placed new demands on the systems base from which the graduate can participate effectively in achieving these objectives.

It is anticipated that this program will be accredited by the Applied Science Technologists and Technicians of British Columbia.

Prerequisites

Math 12 and Physics 11 are course requirements for this program. Applicants should have a solid academic background and good communication skills, be able to apply ideas to practical situations and to work effectively with people in a team situation. Supervisory posts may be assumed after appropriate job experience. Note: Students who commenced their program in the full-time studies program are required to complete those courses within that program of study. Exceptions will be considered by the Associate Dean and Registrar prior to registration.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN MECHANICAL SYSTEMS

	Credit
CDCM 101 Computer Science 1 or	
MATH 125 BASIC 1 Intro to Microcomputers/	
IBM PC	3.0
COMM 175 Business and Technical	
Correspondence	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms	
and Analytic Geometry	3.0
MECH 140 Drafting Fundamentals	3.0
MECH 104 Statics.....	4.0
MECH 107 Introduction to Thermal Processes	3.0
MECH 208 Dynamics	5.5
MECH 303 Fluid Mechanics	4.0
MSYS 103 Plumbing.....	4.0
MSYS 200 Systems Drafting 2	4.0
MSYS 220 Heating and Ventilating 1: Residential.....	3.0

CERTIFICATE OF TECHNOLOGY IN MECHANICAL SYSTEMS

Prerequisite: Intermediate Certificate of Technology in Mechanical Systems.

COMM 183 Technical Reports	3.0
MECH 466 Fluid Systems.....	2.5
MSYS 221 Heating and Ventilating 1: Commercial	3.0
MSYS 320 Heating and Ventilating 2	3.0
MSYS 403 System Noise Control.....	3.0
MSYS 420 Air Conditioning Design	3.5
MSYS 430 Air Conditioning Controls and Systems.....	5.0
Electives.....	4.5

DIPLOMA OF TECHNOLOGY IN MECHANICAL SYSTEMS

Prerequisite: Certificate of Technology in Mechanical Systems

BLDG 152 Construction 1	6.0
MATH 203 Technical Mathematics 3: Calculus.....	6.0
MECH 206 Mechanics of Materials.....	5.5
MECH 302 Thermal Engineering 1	4.0
MECH 460 Engineering Economy.....	2.0
Electives.....	47.5

Optional/Elective Courses

AICO 213 AutoCAD 1	3.0
AICO 214 AutoCAD 2	2.5

CDCM 215	Micro Station Intergraph 1	3.0
CDCM 216	Micro Station Intergraph 2	3.0
MATH 349 *	Numerical Methods for Mechanical	4.0
MATH 449 *	Statistics/Quality Control for Mechanical	5.5
MECH 106	Manufacturing Processes 1	4.0
MECH 320	Fluid Power 1	3.0
MECH 404	Thermal Engineering 2	5.5
MECH 420	Fluid Power 2	4.0
MECH 432	Automatic Sprinkler System Design 1	3.0
MECH 436	Automatic Sprinkler System Design 2	3.0
OPMT 187	Project Planning and Scheduling	3.0
PHYS 231/232	Physics 2 Part 1 and 2	6.0

* Available through part-time day study only. For information contact David Sabo, Program Head, 432-8698.

Plastics Technology

D.F. Wilson, B.Sc., M.Sc., Ph.D., Program Head
Tel. 432-8350
J.E. Pretzlaff, Dipl.T.
Tel. 432-8366

The program is designed to provide practical and theoretical training in production processes used in the manufacture of plastic products for a variety of applications: packaging, recreational, construction, electronics, communications, and transportation, to name but a few.

For more information on Plastics Technology please refer to the full-time calendar or call our staff to discuss the possibility of offering courses through part-time studies or as Industry Services courses.

Robotics and Automation Technology

D. Lewis, P.Eng., Program Head
Tel. 432-8925
Karen Cope, Program Advisor
Tel. 432-8467

The Robotics and Automation Technology provides students with the knowledge and skills necessary for employment in the area of Computer Aided Manufacturing utilizing computer controlled machinery, robotics and flexible automation.

The graduate will be skilled in the specification, evaluation, selection and layout of automated equipment; tooling - gripper and fixture design, the design and application of modern computer controls to existing equipment, interfacing and communication between automated machinery within an integrated environment; programming of computer controlled systems using both high-level language and low-level assembly language code, and electrical/electronic and mechanical troubleshooting, and maintenance of these systems.

Employment may be found at the technical or managerial level in component and system design and specification, technical sales, installation and commissioning of equipment, maintenance, research and testing.

The program of study leading to the award of the Certificate of Technology, or the Intermediate Certificate in Electro-Mechanical Technology, and the Diploma in Robotics and Automation Technology will consist of electronic, mechanical and specialized robotics and automation courses as well as mandatory core courses and other technology courses to the required total credits. Students who already hold Certificates or Diplomas in Electronics Technology or Mechanical Technology may be able to enter directly into the Diploma program after taking the necessary prerequisite

courses. All programs must be submitted to the program advisor for approval by the Technology department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN ELECTRO-MECHANICS

	Credit
ELEX 100 *	Circuit Analysis 1 (DC Circuits)7.0
ELEX 102	Digital Techniques 15.5
ELEX 200 *	Circuit Analysis 2 (AC Circuits)5.5
ELEX 203	Electronic Circuits 18.0
MATH 114/115	Mathematics for Electronics Parts A and B.....8.0
MECH 106	Manufacturing Processes 14.0
MECH 240	Manufacturing Processes 25.5
MECH 320	Fluid Power 13.0
PHYS 106	Physics for Electronics Technology7.0
TCOM 114	Technical Writing for Electronics3.5

*ELEX 208 is an accelerated combined course (ELEX 100 and 200) for those with previous training. This course proceeds at a very rapid pace. Successful students usually have a strong mathematics background. After approximately four weeks a written examination will determine those who will be permitted to continue with ELEX 208, and those who will be required to transfer to ELEX 100. This course must be taken concurrently with MATH 114 and MATH 115. Please read course descriptions for further information.

CERTIFICATE OF TECHNOLOGY IN ELECTRO-MECHANICS

	Credit
ELEX 201	PASCAL4.5
ELEX 202	Digital Techniques 27.0
**ELEX 341	Data Acquisition and Signal Conditioning7.0
MATH 116/117	Calculus for Electronics Parts A and B ...7.0
MECH 420	Fluid Power 24.0
PHYS 206	Physics for Electronics Technology4.5
**ROBT 301	Robot Applications8.0
**ROBT 302	Automation Equipment5.5

DIPLOMA OF TECHNOLOGY IN ROBOTICS AND AUTOMATION

**ELEX 460	Feedback Systems.....8.0
**MATH 343	Transform Calculus for Electronics3.0
**OPMT 183	Industrial Engineering for Robotics4.0
**ROBT 303	Microprocessors: Programming and Interfacing.....7.0
**ROBT 401	Robot Sensors5.5
**ROBT 403	Project4.5
**ROBT 404	Computer Integrated Manufacturing.....5.5
TCOM 214	Technical Writing for Electronics.....3.5

** NOTE: Indicates those courses which are normally available only during day school hours.

PROCESS TECHNOLOGIES

Tom Neilson, B.A.Sc., P.Eng., Associate Dean

Chemical Sciences Technology

- Nondestructive Testing

- Metallurgy

- Paint Technician

Mining

Petroleum

Pulp and Paper Summer Institute

Wood Products Manufacturing

Chemical Sciences Technology

Bob Pike, Program Coordinator

Tel. 432-8946

Program Advisor

Tel. 432-8467

Intermediate Certificate Programs in:

- Nondestructive Testing

- Metallurgy

- Paint Technician

The programs leading to the award of the Intermediate Certificate of Technology in the above areas of Chemical Sciences Technology will consist of Chemical Sciences courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program advisor for approval by the Technology Department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING

The BCIT Program leading to an Intermediate Certificate of Technology in Nondestructive Testing is aimed at satisfying industry requirements for Certified Nondestructive Testing Technicians. Prospective students should note that this program is offered through Part-time Studies in the regular night school format and also in a concentrated 18-week form in which the student attends full-time day classes. The latter program commences each September.

Both the daytime and nighttime programs include courses in all standard NDT methods together with support courses in Metallurgy, Mathematics and Quality Assurance. The NDT courses are designed to satisfy the academic requirements for Certification of NDT operators as developed by the Canadian Government Standard's Board (CGSB). However, before obtaining CGSB certification in any NDT method, a student must also obtain some practical work experience and pass a government examination.

Job Opportunities

Graduates are expected to work as NDT technicians with specialty NDT companies and with a wide variety of manufacturing, aeronautical, chemical process and equipment maintenance firms.

Prerequisites

Applicants for the 18-week daytime program leading to the Intermediate Certificate in Nondestructive Testing must have High School graduation with Math 11 plus Trades Training or experience. Suitable Trades include Welding, Pipefitting, Ironworking, Boilermaking, Aeronautical Trades, Millwright, Machinist, previous NDT.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING (18-WEEK, FULL-TIME DAY FORMAT)

A. 15 weeks – September to December

Credit

CHSC 156	Metallurgy	6.0
CHSC 169	NDT Radiography Level 1	3.0
CHSC 170	NDT Ultrasonics Level 1	3.0
CHSC 172	NDT Magnetic Particle and Liquid Penetrant	3.0
CHSC 270	NDT Ultrasonics Level 2	3.0
COMM 101	Communication Nondestructive Testing	3.0
MATH 130	Technical Mathematics 1 for NDT	5.0
OPMT 136	Quality Assurance for NDT	6.0

B. 3 weeks – January

CHSC 138	NDT Practicum	1.0
CHSC 171	Eddy Current	3.0
CHSC 269	NDT Radiography Level 2	3.0

For further information phone Bob Pike Tel. 432-8946 or Wayne Irvine Tel. 432-8326.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING (NIGHT SCHOOL FORMAT)

Mandatory Courses

CHSC 156	Metallurgy	6.0
CHSC 169	NDT Radiography Level 1	3.0
CHSC 170	NDT Ultrasonics Level 1	3.0
CHSC 171	NDT Eddy Current	3.0
CHSC 172	NDT Magnetic Particle and Liquid Penetrant	3.0
CHSC 173	NDT Strain Gauge and Acoustic Emission	3.0
CIVL 250	Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350	Stress Analysis 2 (Strength of Materials)	3.0
COMM 160	Introduction to Business and Technical Communication	3.0
MATH 101	Technical Mathematics 1: Trigonometry	3.0
MECH 304	Manufacturing Processes 3	4.0

PLUS at least FOUR NDT courses selected from list below:

Optional, Elective and Advanced Courses

CHSC 269	NDT Radiography Level 2	3.0
CHSC 270	NDT Ultrasonics Level 2	4.5
CHSC 301 *	Physical Metallurgy	3.0
CHSC 404 *	Physical Metallurgy	8.0
COMM 175	Business and Technical Correspondence	3.0
COMM 183	Technical Reports	3.0
MECH 140	Drafting Fundamentals	3.0
OPMT 103	Quality Control Methods 1	3.0
OPMT 203	Quality Control Methods 2	3.0

* These courses are available through part-time day study only.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN METALLURGY

This program is designed for students working in metal processing plants (foundries, metal forming plants, heat treating operations) or as metal testing technicians. For optional/elective courses the student could substitute some of the courses from the Intermediate Certificate of Technology in Nondestructive Testing.

Mandatory Courses		Credit
CHSC 156	Metallurgy	6.0
CHSC 301 *	Physical Metallurgy	3.0
COMM 175	Business and Technical Correspondence or	
COMM 183	Technical Reports	3.0
MATH 101	Technical Mathematics 1: Trigonometry	3.0
MATH 102	Technical Mathematics 2: Logarithms and	
	Analytic Geometry	3.0
PHYS 131	Physics 1 Part 1	3.0
PHYS 132	Physics 1 Part 2	3.0

Optional/Elective Courses

CHSC 314	Mineral Processing	3.5
CHSC 404 *	Physical Metallurgy	8.0
CHSC 414	Mineral Processing	4.5
CIVL 101	Statics	6.0
CIVL 250	Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350	Stress Analysis 2 (Strength of Materials)	3.0
COMM 160	Introduction to Business and Technical Communication	3.0
MECH 140	Drafting Fundamentals	3.0

* These courses are available through part-time day study only.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN PAINT TECHNOLOGY

Mandatory Courses

CHEM 101 *	Applied Chemical Principles 1	6.0
CHEM 201 *	Applied Chemical Principles 2	8.0
CHEM 317	Gas and Liquid Chromatography	3.0
CHSC 163	Paint Technology	4.5
CHSC 164	Paint Technology: Latex Paints	1.5
CHSC 165	Paint Technology: Modern Coating Resins	1.5
COMM 175	Business and Technical Correspondence	3.0
COMM 183	Technical Reports	3.0
MATH 101	Technical Mathematics 1: Trigonometry	3.0
MATH 102	Technical Mathematics 2: Logarithms and Analytic Geometry	3.0

Elective Courses

CHEM 204 **	Chemical Laboratory Techniques	4.0
CHEM 309 **	Organic Chemistry	6.0
CHEM 314 **	Analytical Chemistry 1	6.0
CHEM 409 **	Organic Chemistry for Chemical Sciences 2	8.0
CHEM 414 **	Analytical Chemistry 2	8.0
CHSC 246 *	Industrial Chemical Processes	4.5

* These courses are available through part-time day study only.

** These courses are available through part-time day study only. For information contact Cam Barnettson, Program Head Tel. 432-8260.

Mining Technology

J.F. Fairley, B.A.Sc., P.Eng. Program Coordinator
Tel. 432-8323

Program Advisor, Tel. 432-8467

MINE 154	The Mining Industry	3.0
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Please see Course Description section.

Petroleum

R.G. Kinney, Dipl.T., A.Sc.T., Program Coordinator
Tel. 432-8308
Program Advisor
Tel. 432-8467

Credit

PETR 151	Fundamentals of Reservoir Fluids	3.0
PETR 152	Petroleum Production and Transmission	6.0
PETR 154	Gas Distribution and Utilization	6.0

Please see Course Description section.

Natural Gas and Petroleum Summer Institute

Robin Kinney, Technical Program Coordinator and
Co-Chairman, Tel. 432-8308

Don Campbell, Technical Program Co-Chairman

This is a 3-day technical conference designed to enhance the overall knowledge of men and women involved with British Columbia's downstream Natural Gas and Petroleum industries.

Selected speakers will discuss topics related to the changing roles, the changing technologies and the changing opportunities confronting the industry.

The conference is divided into two Sections.

Natural Gas and Oil Handling will highlight market changes and innovative technology in British Columbia's natural gas transmission and natural gas distribution sectors, and Oil Handling will highlight market changes and innovative technology in British Columbia's oil pipelining and oil handling sectors.

BCIT will issue certificates of attendance to those who complete the full program.

Pulp and Paper Technology Summer Institute

Gordon Harris, Technical Program Coordinator and
Co-chairman Tel. 435-1908

Stephen Berghold, Technical Program Co-Chairman
Tel. 432-8550

The annual Pulp and Paper Technology Summer Institute, a well-established technology program in the field of pulp and paper manufacture, has been presented yearly at various locations in British Columbia since 1979. It is always offered in the second week of June.

The program presents an overview of the pulp and paper industry together with current innovations in technology. It is presented by speakers recruited from pulp and paper and related industries. The discussions are directed primarily to the principles and methods of manufacture. However, emphasis is placed on product quality within various unit processes, and their potential effect on end-use application.

A certificate is issued to students who successfully complete the program.

Wood Products Manufacturing

Eric Worthy, Dipl.T., A.Sc.T., Program Coordinator
Tel. 432-8885

Program Advisor, Tel. 432-8467

Credit

WOOD 110	Wood Products Manufacturing	7.5
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Please see Course Descriptions section.

Wood Products Technology Institute

Herb Kettner, Technical Program Coordinator
Tel. 988-7723

The annual BCIT Wood Products Technology Institute is a 5-day conference designed to improve the knowledge of people involved with the lumber and panelboard industries. The program includes speakers from industry who will discuss topics related to the manufacture and distribution of wood products and the application of management skills.

Emphasis is given to the principles and economics of manufacturing sawn lumber and structural wood composites, raw material value, storage and process technology, primary and secondary lumber manufacturing processes including kiln drying and finishing technology. Other features of the technical program include: applied technology in cutting, machining and process control, specialty remanufacture and custom processing, technology and science of wood treatment, managing recovery to increase profitability, plant safety and industrial hygiene technology, environmental protection technology.

A certificate is issued to students who successfully complete the program.

RENEWABLE RESOURCES TECHNOLOGIES

M. R. Angelo, B.S.F., M.F., Associate Dean

Biological Sciences Technology

- Food Technology

- Biotechnology

Fish Harvesting and Processing

Forestry Courses

Landscape Technology

Biological Sciences Technology

Richard N. Hitchman, B.S.A., P.Ag., Program Coordinator

Tel. 432-8269

Program Advisor

Tel. 432-8467

Credit

BISC 903	Canned Foods: Thermal Processing and Container Evaluation	0.0
BISC 904	Sanitation for Food Plants	0.0

Please see Course Descriptions section.

Fish Harvesting and Processing

Denise Nordin, B.Sc. (Hons.), Program Coordinator

Tel. 432-8948

Program Advisor

Tel. 432-8467

FISH 900	Seafood Processing and Quality	0.0
FISH 910	Seafood Retailing and Distribution	0.0
FISH 930	Seafood Handling for the Food Service Industry	0.0

Please see Course Description section

Forestry

Norm Shaw, Dipl.T., A.Sc.T. Tel. 432-8804

Program Advisor, Tel. 432-8467

Credit

FSTR 158	Metric Log Scaling	7.0
FSTR 430	Logging Residue and Waste Survey Certification	2.0
FSTR 921	B.C. Log Scale fbm Course	0.0
FSTR 922	Log Scaling Refresher Course	0.0

Please see Course Descriptions section.

Landscape Technology

S.M. Murray, B.S.A., M.Sc., P.Ag. Program Coordinator

Tel. 432-8785

Program Advisor

Tel. 432-8467

The program leading to the award of the Intermediate Certificate of Technology in Landscape Technology consists of landscape courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program consultant for approval by the Technology Department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN LANDSCAPE

Credit

COMM 160	Introduction to Business and Technical Communication	3.0
LAND 100	Soil Improvement	3.0
LAND 101	Structural Material	3.0
LAND 103	Grading and Drainage Plan Production	3.0
LAND 104	Horticulture	4.5
LAND 105	Plant Introduction	3.0
LAND 106	Pesticides for Retailers and Landscape Applicators	1.5
LAND 201	Landscape Structural	3.0
LAND 202	Plant Material Study	3.0
LAND 203	Residential Landscape Design	4.5
MATH 101	Technical Mathematics 1: Trigonometr	3.0
MECH 140	Drafting Fundamentals	3.0
	Approved Elective	7.5

Elective Courses

ADMN 124	Supervisory Skills	3.0
LAND 204	Parks and Recreation	4.5
LAND 205	Management for Landscape	3.0
LAND 207	Landscape Irrigation	3.0
LAND 208	Sports Turfgrass Management	3.0
LAND 209	Cost Estimation	3.0
MATH 125	BASIC 1: Introduction to Microcomputers IBM PC	3.0
MECH 214	Drafting: Structural	3.0

Course Descriptions & Credits

ADMINISTRATIVE MANAGEMENT

ADMN 124 Supervisory Skills – Designed for new supervisors or aspirants for leadership responsibilities in large or small companies, institutions, government departments, municipalities, or associations. Students increase their confidence and abilities as leaders and establish a foundation for further training in supervision and management. Persons taking the first step into supervision study delegation, grievances, work planning and roles and relationships within an organization. **3 credits**

APPLIED INDUSTRIAL COMPUTING

AICO 213 AutoCAD 1 – Microcomputer-based CAD using the latest release of AutoCAD software. The course includes an introduction to CAD machine components, architecture, logon procedure and displays. An introduction to AutoCAD functions includes: windows, views, measuring, element placement, dimensioning and advanced geometric construction. Prerequisite: Basic engineering graphics. **3 credits**

AICO 214 AutoCAD 2 – A continuation of AutoCAD 1. Topics are annotations, screen menu creation, plotting and digitizing. Class assignments may be tailored to suit the discipline areas of each student. Prerequisite: AICO 213 or equivalent. **2.5 credits**

AICO 218 AutoCAD A.E.C. (Architectural) – Emphasizes the production of 2D/3D production drawings for the architectural environment. Using AutoCAD AEC software, the student will progress from basic drawings to the generation of more advanced projects using customized AEC templates. Prerequisite: AICO 213. **3 credits**

AICO 220 SmartCAM – Automatic tool path takeoff from a CAD model. Exposure to production model CNC milling machines and lathes. Software tools will be SmartCAM and may also include AutoCAD and Computervision in the production of the CAD model. **3 credits**

AICO 225 AutoCAD 3 – An introduction to the 3D capabilities of AutoCAD. This course will cover the fundamentals of 3D construction, surface generation and shading using AutoSHADE. Prerequisite: AICO 214. **1.5 credits**

AICO 501 Graphics Programming – Emphasis will be on the solution of engineering problems and theory of CAD systems using structured programming techniques. At the completion of the course, the student will understand how a simple CAD system is implemented. Prerequisite: CDCM 101, 201 or equivalent. **6 credits**

AICO 502 Systems Analysis – Introduction to standard problem analysis tools: flow charting, Nassi-Schneidermann, decision tables, systems analysis tools, flow graphs, structure charts, and data flow analysis, scheduling and CP methodology. **3 credits**

AICO 503 Intergraph – This concentrated CAD course gives the student extensive hands-on practice on leading edge CAD equipment. Students will be given exposure to both 2D and 3D graphics. **4 credits**

AICO 504 Programming in "C" – Introduction to "C". Emphasis will be on the solution of problems solvable in a microcomputer environment; software package design and implementation, and programming techniques. Problems will be selected from polygon processing algorithms. Prerequisite: CDCM 101 or equivalent. **6 credits**

AICO 506 Linear Algebra with Computer Applications – Stress on techniques required for modeling and simulation. Transformations and projections. Practical applications implemented on computers. Discrete and stochastic models. Modeling packaged software versus modeling programs. Projects will be completed in higher level languages and/or a variety of simulation packages. **4 credits**

AICO 508 CNC Programming – Introduces the student to current CNC and Robot languages such as APT and VAL. Investigates the integrated manufacturing centre. Special emphasis on exposure to CNC machines, model milling machines and lathes, drill presses, and 2.5 axis milling machines. **9 credits**

AICO 510 Graphics and Design – This concentrated CAD course provides the student with extensive hands-on practice on leading edge, micro-based CAD equipment. Both the AutoCAD system and Computervision's MicroCAD packages will be used. 2D drafting, 3D wire frame models, and surface modelling. **8 credits**

AICO 512 Manufacturing Management – At the completion of this course, students will be familiar with techniques, models, procedures and philosophies for managing a manufacturing process. **4 credits**

AICO 522 Introduction to "C" Programming – Emphasis on structured programming techniques in either a UNIX or DOS environment. ANSI Standard "C". **3 credits**

AICO 523 Data Structures in "C" – A continuation of AICO 522. Stress on data structures, type definitions and fields. Problems drawn from GIS. Prerequisite: AICO 522. **2 credits**

AICO 530 Introduction to UNIX – Topics include elementary UNIX commands, files and directory structures, the VI editor, piping, and shell script programming with Bourne or C shells. Students will use UNIX SYSTEM V or Sun OS, a hybrid SYSTEM V/BSD UNIX. Prerequisite: Computer experience required. Previous operating system experience a definite asset. **2 credits**

AICO 531 UNIX Shell Script Programming – A continuation of AICO 530. Topics include shell script programming using the Bourne, Korn and C shell. Prerequisite: AICO 530. **2 credits**

AICO 535 UNIX System Management – Reviews UNIX operating system commands and provides an introduction to system management. Topics include account management, system backup, startup and shutdown procedures, system accounting and security. Taught on Sun OS, a hybrid system V/BSD UNIX. Prerequisite: AICO 530 or equivalent industry experience. **3 credits**

AICO 605 Issues in Networking – Communication between computers. Networking theory and practice. Distributed processing with special emphasis on microcomputers. Software management of LAN systems. Theory of ETHERNET and ISO standards. **4 credits**

AICO 616 Computer Integrated Manufacturing – This is the capstone course of the advanced manufacturing management program. The CIM course has been designed to integrate and expand on topics covered in the other courses in the program. **4 credits**

AICO 701 File Handling and Database – Sequential, direct and keyed indexed file handling. Introduction to database systems: hierarchical, network and relational. Stress on micro-based systems and engineering applications. Inventory control, BOM, etc. Discussion of DB and its impact in an integrated DP environment. Prerequisite: AICO 501 or AICO 522 and 523. **8 credits**

AICO 707 Graphic System Management – 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. **2 credits**

AICO 708 Advanced CAD Graphics – Computer generation of 3D models using wireframe, surface and solids, modelling software. The creation and generation of shaded models and animation for engineering application. Prerequisite: AICO 225 and CDCM 311 or equivalent. **5.5 credits**

AICO 712 CAD Customization Using AutoLISP – An introduction to AutoLISP programming. In addition to the concepts of AutoLISP programming the student will be required to develop applications in parameterizing drawings, user defined commands and interfaces with the drawing file database. Prerequisite: AICO 213 and 214 or equivalent. **2.5 credits**

AICO 713 Quality Control – Provides the student with a concentrated applications-focused overview of the fundamentals of statistical process control. **2 credits**

AICO 715 Computervision – Microcomputer based CAD using Computervisions Personal Designer. The course provides a detailed study of the design and engineering functions as well as menus and screen ICONS that are available in Personal Designer. **2.5 credits**

AICO 718 CAD Customization Using Microstation – An introduction to user command programming. In addition to the concepts of user command programming, the student will be required to develop applications in parameteric design and interface with the drawing file database. Prerequisite: CDCM 311 or CDCM 215 and 216. **2.5 credits**

AICO 751 Image Acquisition – The purpose of this course is to provide an introduction to the use of Machine Vision systems using state-of-the art techniques and equipment. Emphasis is on the use of the hardware required for capturing, transmitting and storing images. **2.5 credits**

AICO 752 Introduction to Digital Image Processing – The second phase of the process of utilizing Machine Vision is to employ computational techniques to process, modify and analyze the image data. This course deals with the techniques used in the analysis of stored images. **2.5 credits**

AICO 753 Practical Considerations for Machine Vision – Machine Vision is used for many practical applications in industrial environments. This course considers factors which influence the quality of the image and methods which can be used to enhance necessary features. **2.5 credits**

AICO 754 Applications in Machine Vision – Applications for visual sensing are found in a variety of areas including manufacturing, product inspection, robot guidance, medicine and security. In this course a variety of application are investigated. **2.5 credits**

AICO 755 Microprocessor Programming – Explores the programming model of the 8088/8086 family of microprocessors and teaches the student how to write, execute and debug assembly language programs. The compact 386 personal computer and a data acquisition card will be used for programming and introductory interfacing. Prerequisite: Departmental approval. **2.5 credits**

AICO 756 Microcomputer Interfacing – TBA **2.5 credits**

AICO 807 Graphic Information Management – This course provides a detailed discussion of the engineering database and includes graphic standards (IGES, DXF) and graphics translations. It also includes strategies for the integration of non-graphic and graphic information. Prerequisite: AICO 707. **3 credits**

AICO 809 Advanced Diploma Projects – To meet the graduation requirements of the ADP program, a student must complete an industrial project approved and supervised by the department. The student must have completed 25 credits of the ADP program prior to commencing the project and complete the project within two years of commencement. Prerequisite: Completion of 25 credits of the ADP program. **15 credits**

AICO 814 Advanced AutoLISP – An advanced course in AutoLISP programming. Topics will include database manipulation, DXF and DXB file creation and an introduction to C interfaces with AutoCAD. Prerequisite: AICO 312 or AICO 712 or equivalent. **2.5 credits**

AICO 815 Robot Applications – Theory and practice in automated manipulators and servers. Multi-axis arms, painters, welding units, pick and place devices. Programming methodologies. Prerequisite: AICO 508 or equivalent. **5.5 credits**

AICO 818 CNC Setup and Operations – This course provides the student with a practical background in the setup and operation of production scale CNC equipment. The student is required to perform process planning, tool selection and set forth jig and fixture requirements for a variety of CNC machine tools. A detailed discussion of work and machine coordinate selection as well as length and diameter condensations is included. Prerequisite: AICO 508 or equivalent. **2.5 credits**

AICO 819 Advanced CAM Applications – This course acquaints the student with advanced multi-axis machining including 3D surface applications. A number of CAM software packages including SmartCAM and 3D are utilized. **2.5 credits**

BUILDING

BLDG 113 Building Materials and Methods – Physical and chemical properties of common construction materials. Construction methods and building procedures. **3 credits**

BLDG 114 Construction Site Processes and Scheduling – Job site management. Planning, implementation and control of site construction processes. Scheduling and supervision of construction activities. Prerequisite: COMP 107 and 115 or equivalent. **3 credits**

BLDG 151 Drafting and Design 1: Introduction to Architectural Drafting and Design – Basic architectural drafting techniques and skills. Graphical communication required for the preparation of building development permit drawings. Analytical study of historical characteristics, structural features and styles of buildings that contributed to current building methods, techniques and materials. **6 credits**

BLDG 152 Construction 1 – Introduces the basic principles of building construction. Develops skills to produce a basic set of construction working drawings. Topics include site layout, foundation details, western wood frame detailing, preparation of a partial set of working drawings for a single family residence. A list of necessary drafting equipment will be issued on the first evening. Prerequisite: BLDG 253. **6 credits**

BLDG 154 Construction Industry Procedures: Introduction – Topics include the basis of building development; design, bidding and contracting procedures; types of construction contracts; principles of measurement and pricing; specification of construction work; the basis of construction costs and construction methodology **3 credits**

BLDG 155 Construction Contracts 1 – 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. **3 credits**

BLDG 159 Architectural and Industrial Illustration – Provides grounding in architectural and industrial illustration and the scope, styles and techniques of contemporary presentation. Introduces illustration, elements of rendering form and space, entourage techniques, perspective, photographic techniques, black/white, color and mixed media. **3 credits**

BLDG 181 Fire Protection Engineering – This course reviews requirements and other considerations which must be taken into account when designing fire protection systems for buildings. It is a practical (hands-on) approach to fire protection engineering and will not deal with interpretations of the National Building Code or other related jurisdictional documents. **3 credits**

BLDG 251 Drafting and Design 2: Architectural Presentation – A continuation of BLDG 151. Topics include descriptive geometry and its use in design presentation, description of building elements through isometric and axonometric projection, one and two point perspectives; application of regulations and other restrictions in design drafting and presentation; design and drafting services, drawing applications. Prerequisite: BLDG 151 or departmental approval. **6 credits**

BLDG 252 Construction 2 – A continuation of BLDG 152. Topics include western frame and modified post and beam construction; details for fireplaces, stairs, doors and windows; further development of working drawings to include the foregoing elements. Prerequisite: BLDG 152 or departmental approval. **9 credits**

BLDG 253 B.C. Building Code: Housing – Gives students a working knowledge of Part 9 of the 1987 B.C. Building Code for housing. Prepares students to check plans, inspect buildings and deal with questions relating to Part 9 of the B.C. Building Code. Covers acceptable materials, systems, and methods used in housing construction. **3 credits**

BLDG 254 Project Management: Introduction to Building Development – Introduces students to the considerations of the process for the development of raw land from the recognition of the need for a building/facility to feasibility studies, financing, budget control and design evolution. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 256 Construction Estimating 1 – Introduces general theories of measurement and pricing of construction work. Specific study of particular methods of measurement and pricing techniques; application to elementary examples of work; introduction to bidding procedures and documentation; cost data sources; preparation for CIQS exam 103. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 258 Computer Applications in Building Technology 1 – Introduction to computer basics with focus on the fundamentals of spreadsheet design and applications in construction estimating, cost control and accounting. Final project customized to the individual needs of the participant. Course especially useful to small contractors, estimators and individuals concerned with construction costs. Hands on course on IBM computers using Lotus 1-2-3. Prerequisite: an understanding of building construction estimating and costing. **3 credits**

BLDG 351 Drafting and Design 3: Fundamentals of Architectural Design – Studies specific aspects of design principles – simple design problems resolution, client statement of needs, basic design vocabulary and delegation of directions from a superior to a junior. Topics include site determinants; program planning; living, dining, sleeping, dressing, kitchen and utility facilities; planning; multiple dwellings; student residences and other residential topics. Prerequisite: BLDG 251. **6 credits**

BLDG 352 Construction 3 – A continuation of BLDG 252. Principles of fire-resistive construction. Fundamentals of building science relative to weathering, deterioration and heat transfer. Industrial post and beam systems. Masonry, steel and concrete structures. Drawing applications. Prerequisite: BLDG 252 or departmental approval. **3 credits**

BLDG 353 B.C. Building Code: General – A study of the current B.C. Building Code (exclusive of housing, Part 9). The purpose, scope and content is examined through a brief history of the Code and a general review of its structure and contents, principles and concepts. Part 3 is considered in detail. This course will be of use to architects, draftsmen, interior designers, building inspectors, fire department inspectors, contractors, project managers, construction superintendents, mortgage authorities, and those in similar areas of the construction industry who are designing, approving, or carrying out projects. This course is a credit course for Interior Designers of B.C. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 354 Construction Law in Project Management – Designed to provide construction professionals (architects, engineers, project managers, superintendents and estimators) with an understanding of the basic principles of law as it applies to building construction projects. Includes contract formation and interpretation; negligence law; bonding and insurance; labor law and industrial relations; builders' liens; delay and acceleration claims; and sale of goods legislation. Prerequisite: Knowledge of construction industry procedures. **3 credits**

BLDG 355 Construction Specifications – Language as a means of communication; style in specifications. Organization and presentation of information in construction contract documentation. Filing and retrieval of information using masterformat. Preparation and reproduction procedures for production of project manuals. Study of construction materials and methods. Specification office organization. Prerequisite: Some knowledge of building construction. **4.5 credits**

BLDG 356 Construction Estimating 2 – A continuation of BLDG 256. More detailed study and application of measurement and pricing of work for specific trades, with emphasis on wood framing, concrete work and masonry construction. Detailed examination of CIQS methods for measurement of construction work. Tendering procedures and budget estimating. Preparation for CIQS exam 203. Prerequisite: BLDG 256 or departmental approval. **3 credits**

BLDG 452 Construction 4 – A continuation of BLDG 352. Curtain walls, panel walls and partitions. Exterior and interior finishes, drawing applications. Preliminary freehand sketching of details. Prerequisite: BLDG 352 or departmental approval. **4.5 credits**

BLDG 454 Project Management: Construction Management – Students prepare for the administrative and operations management demands of a construction company. Topics include forms of ownership, head office practices and contracts, cash flow, subcontract coordination, field supervision, cost control, equipment management, purchasing controls, warehousing and labor relations. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 455 Project Management: Building Systems – Management of mechanical and electrical systems during construction and installation. Prerequisite: BLDG 454. **3 credits**

BLDG 456 Construction Estimating 3 – A continuation of BLDG 356. Measurement and unit pricing of specific construction details. 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 depositories, bid procedures in general. Preparation for CIQS exam 303. Prerequisite: BLDG 356 or departmental approval. **3 credits**

CAD/CAM

CDCM 215 Micro Station Intergraph 1 – Rudiments of Computer Aided Drafting. Machine log-on procedures, simple 2-D drawings. Stress on orthographic projections, dimensioning, annotations and standard assemblies. Prerequisite: MECH 140 or other appropriate graphics experience. **3 credits**

CDCM 216 Micro Station Intergraph 2 – A continuation of Intergraph 1. Customizing a CAD system using cell libraries and tablet menus. Prerequisite: CDCM 215. **3 credits**

CHEMICAL SCIENCES

CHSC 156 Metallurgy – Includes casting and forming of metals, heat treatment, physical testing, nondestructive testing and metallurgy of welding. Laboratory work involving metallography, heat treatment and corrosion, constitutes approximately half of the course. **6 credits**

CHSC 163 Paint Technology – An introductory course for those actively engaged in paint and coatings manufacture (both technical and production sides), raw material suppliers, architects, professional decorators and paint salesmen. Students study the raw materials used in the coating industry, methods of coatings manufacture, application and formulating techniques. **4.5 credits**

CHSC 164 Paint Technology: Latex Paints – Complements CHSC 163. Students study latex paints including aspects of polymer emulsion manufacture and the formulation and manufacture of latex paints. Prerequisite: CHSC 163. **1.5 credits**

CHSC 165 Paint Technology: Modern Coating Resins – Complements CHSC 163. Students study the production and end use of contemporary surface coating resins. Prerequisite: CHSC 163. **1.5 credits**

CHSC 166 Glassblowing – Recommended for persons working in a chemical laboratory setting to develop skills in the natural gas and oxygen flame working of glass tubing and rods. Topics include identification of glasses; preparation and cutting of glass; procedure for working with tubing; pulling points, seals, straight tubes, round and flat bottom tubes; sealing, bands, blowing bulbs, ring seals; side arms, small condensers, flask joints, columns and coil wings. Students learn to perform minor repairs to laboratory glassware. **3 credits**

CHSC 169 NDT Radiography Level 1 – Covers the general principles of radiography: nature of penetrating radiation and its interaction with radiation and matter; radiation sources; detection and measurement of radiation; radiation safety and darkroom procedures. Students learn the proper selection of a radiation source for a given application, film type, screens, etc., and should be able to perform radiographic examinations according to prescribed techniques. The course meets the requirements for classroom training as stipulated in CGSB Standard 48-GP-4M, condition (b). **3 credits**

CHSC 170 NDT Ultrasonics Level 1 – Combines theory with practice, using a variety of ultrasonic testing equipment and test samples to cover generation of ultrasound. Instrumentation, frequency, velocity, wavelength, attenuation, calibration, reference standards, longitudinal, transverse and surface waves, reflection, Snell's Law, sensitivity and resolution. Meets the requirements of CGSB Standard 48-GP-7M, condition (b) for classroom training. **3 credits**

CHSC 171 NDT Eddy Current – Covers basic concepts of induced current, characteristics of induced eddy current, factors affecting conductivity, permeability and hysteresis, coil characteristics, impedance method-balanced bridge, signal to noise ratio, readout mechanisms, phase analysis, modulation analysis, methods and applications of eddy current testing, relationship of indications to discontinuities, advantages and limitations of the method probe arrangement, design and manufacture. Meets classroom training requirements as stipulated in CGSB Standard 48-GP-13M for levels 1 & 2. **3.0 credits**

CHSC 172 NDT Magnetic Particle and Liquid Penetrant – Covers theory of magnetism and magnetic properties of materials; comparison with other NDT methods; current characteristics; direct and indirect induction; residual and continuous methods; black light – principles and requirements; dry vs. wet method; indicating the mediums; material controls and calibration; discontinuities – their causes and detectability; demagnetization; inspection, interpretation and evaluation of indications. Meets CGSB Standard 48-GP-8M and 9M condition (b) levels 1 and 2. **3 credits**

CHSC 173 NDT Strain Gauge and Acoustic Emission – Includes reviews of the theory and applications of electrical resistance strain gauges and acoustic emission techniques. **3 credits**

CHSC 246 Industrial Chemical Processes – 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 including chemical pulping and water treatment. Lab sessions involve the testing and control procedures utilized in industrial applications. **4.5 credits**

CHSC 260 Mineral Analysis – Deals specifically with chemical methods of ore analysis. Presents basics of analytical chemistry ore assaying and an opportunity to develop laboratory skills. The course covers the general methods of ore analysis, principles and practice of fire assaying for gold and silver, and gravimetric and volumetric analysis. **12 credits**

CHSC 267 Air Pollution: Chemistry and Sampling Techniques – Examines the chemistry of the major air pollutants and their interactions in the atmosphere – the oxides of sulphur and nitrogen, carbon monoxide, carbon dioxide, hydrocarbons, particulates (including heavy metals), chlorocarbons and fluorocarbons; the effects of air pollutants on human health and on the environment; the collection and analysis of air pollutant samples by various methods – infrared, gas chromatography and atomic absorption. **3 credits**

CHSC 268 Water Pollution: Chemistry and Sampling Techniques – Discusses the processes that take place in water systems when pollutants are present, and the various techniques used for detection and control of these pollutants. The course examines the chemistry and microbiology of the major water pollutants; the major sources of pollutants, their interactions in the environment and methods of control/treatment; laboratory analysis of water samples. **4.5 credits**

CHSC 269 NDT Radiography Level 2 – Meets the requirements of CGSB Standard 48-GP-4M, condition (b) for classroom training. The course includes a review of radiation theory, physical principles, radiation sources, detection and safety. Topics include the radiographic process, miscellaneous applications, test result interpretation, material considerations, codes standards, specifications and procedures. Prerequisite: CHSC 169 or be a certified level 1 radiographer. **3 credits**

CHSC 270 NDT Ultrasonics Level 2 – Meets the requirements of CGSB Standard 48-GP-7M, condition (b) for classroom training. The course includes a review of the theory of ultrasonic testing and its practical applications. Emphasis will be on the operation of special equipment, applications requiring specific testing procedures and the consideration of variables affecting test results. Prerequisite: CHSC 170 or be a certified level 1 operator. **4.5 credits**

CHSC 274 Pulp and Paper Manufacture – Presents a detailed background to the pulp and paper industry of British Columbia for those presently employed in manufacturing, service functions and allied industries. The course discusses the processes employed and the mechanical equipment utilized in the manufacture of pulp and paper. It examines wood structure and chemistry, water treatment, mechanical and chemical pulp manufacture, pulp bleaching, kraft recovery systems, chemical preparation and handling, pollution abatement, paper and paperboard manufacture, future developments. **7.5 credits**

CHSC 301 Physical Metallurgy – Physical testing of metal; tensile, hardness and impact testing. Crystal structure of metals, cold working and annealing. Iron and steelmaking processes. Phase diagrams. Basic stress analysis. **3 credits**

CHSC 306 Precious Metal Analysis – This course develops the precious metal analyst's expertise and aptitude relating to his/her role in the mining and metallurgical industry; sampling and sample preparation procedures; chemical analysis of a wide variety of materials in the exploration, mining, metallurgical and fabrication industries. Topics include the structure of the industry, characteristics of various types of laboratory sampling and sample preparation procedures, methods of precious metal analysis including silver, gold, platinum, etc. **3.5 credits**

CHSC 314 Mineral Processing – Deals specifically with mineral processing as applied to the B.C. mining industry. Covers the essential operations of applied mineral processing: crushing, grinding, screening, gravity separation, cyclone classification; flotation, sedimentation, thickening, filtration. Emphasizes numerical solution of operating and design problems. Course includes laboratory work. **3.5 credits**

CHSC 404 Physical Metallurgy – A continuation of CHSC 304. Strain measurements, strain gauge and photoelastic methods. Steel structures and heat treatments. Metallography of ferrous materials. Structure and properties of cast iron. Solidification of metals, casting methods. Metal forming methods. Defects in metals. Failure mechanisms and investigation methods. Welding methods and metallurgy. Prerequisite: CHSC 301. **8 credits**

CHSC 414 Mineral Processing – A continuation of CHSC 314. Prerequisite: CHSC 314. **4.5 credits**

CHSC 900 Introduction to Nondestructive Testing (NDT) (18 hours) – A survey of the field of nondestructive testing. Introduces students to the different types of NDT radiography, ultrasonics, magnetic particle and liquid penetrant. Certification criteria, employment opportunities and training requirements for those seeking careers in NDT are discussed. Prerequisite: Grade 12 math and science. **non credit**

CHEMISTRY

CHEM 101 Applied Chemical Principles 1 – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Topics include: stoichiometry, nomenclature, chemical equilibrium, acid-base titrations, pH buffer solutions, solubility product, atomic structure and bonding. The application of chemical principles to industrial processes is emphasized. The lab work includes gravimetric and volumetric analysis as well as qualitative analysis. Prerequisite: Chemistry 11 or CHEM 001. **6 credits**

CHEM 201 Applied Chemical Principles 2 – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. A continuation of CHEM 101. Topics include: oxidation-reduction titrations; electrochemical cells, electrolysis, electroplating, properties of solids, liquids and gases, colligative properties and the chemistry of select metallic and non-metallic elements. The industrial application of chemical principles is emphasized. This course also contains a unit on laboratory safety which covers the toxicity, storage and disposal of chemicals. The lab work includes qualitative and quantitative analysis. Prerequisite: CHEM 101 or equivalent. **8 credits**

CHEM 204 Chemical Laboratory Techniques – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Emphasizes 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; use of the muffle furnace and Parr Bomb; 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 and use of the centrifuge. In addition, various solvent extraction, distillation and similar methods will be studied. The course starts with an introduction to sampling procedures. Prerequisite: CHEM 101. **4 credits**

CHEM 309 Organic Chemistry – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Organic compounds are classified according to functional groups. Naming using IUPAC, common names and trade names of many industrial chemicals. Factors affecting boiling point and solubility, theory of extraction. Preparation and reactions of alkanes, alkenes, aromatics, and alcohol. Petroleum refining, addition polymerisation, synthetic rubber. Theory of infra-red spectroscopy, interpretation of spectra. Prerequisite: CHEM 201, CHSC 246 or departmental approval. **6 credits**

CHEM 314 Analytical Chemistry 1 – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. The course covers the theory and practice of conventional methods of inorganic analysis and includes methods of sample decomposition, sampling, treatment of analytical data, precipitation and complex formation titration, solvent extraction and ion exchange methods, and fire assaying. Laboratory exercises include the ore analysis for iron, chromium, tin, copper, arsenic, zinc, sulphur and silica, as well as fire assaying for gold and silver. Prerequisite: CHEM 201 or departmental approval. **6 credits**

CHEM 317 Gas and Liquid Chromatography – The uses of gas chromatography (GC) and high performance liquid chromatography (HPLC) in solving organic analysis problems relating to the energy, chemical, food and forest industries; clinical and environmental laboratories. Covers separation theory, instrument operation, troubleshooting, detectors, quality and quantity analysis applications and sample preparation. Laboratory experiments demonstrate the principles covered in the lectures. **3 credits**

CHEM 409 Organic Chemistry for Chemical Sciences 2 – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Covers properties, preparations and reactions of all major classes of organic compounds - aliphatic and aromatic hydrocarbons, halides, alcohols, ethers, carboxylic acids and their derivatives, aldehydes, ketones, amines, amino acids, carbohydrates, heterocyclics, dyes and polymers. Lab work emphasizes organic techniques, qualitative chemical analysis and instrumental methods, infra-red, ultraviolet and gas chromatography. Prerequisite: CHEM 309. **8 credits**

CHEM 414 Analytical Chemistry 2 – This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Introduces the basic principles of analytical instruments and their application to a variety of analyses. Major topics include analytical absorption methods (visible, ultraviolet, infra-red and atomic absorption), emission methods (flame, spectrographic, ICP), x-ray fluorescence and diffraction methods, chromatographic methods (gas and HPLC), electrochemical methods (pH, specific ion, polarography) and trace analysis (electrothermal atomization, hydride generation, etc.). Prerequisite: CHEM 314. **8 credits**

CIVIL AND STRUCTURAL

CIVL 100 Introduction to Lotus 1-2-3 Engineering Application – A short course on the use of Lotus 1-2-3 to solve engineering problems. Each student will have the use of a computer and will be able to successfully use Lotus software at the completion of the course. **1 credit**

CIVL 101 Statics – Vectors, force systems, graphical analysis, resultants, components, moments, equilibrium laws, force polygons, funicular polygons, frames and trusses, stress diagrams, Bowes' notation, flexible tension members, load shear and bending moment curves. Closely supervised problem sessions are used to provide the student with practice in common analytical and graphical solutions to problems of static load on statically determinate structures. Prerequisite: MATH 101 recommended. **6 credits**

CIVL 102 Public Works Inspection – Specially designed by the public works inspection committee (a joint committee of the industry and BCIT) to provide training for those in public works inspection. The course is a highly practical one with instructors drawn from public works inspectors currently active in this area. It includes field sessions to complement classroom activities. Enrolment is limited, so if you are interested you are advised to act now, or to contact our program advisor for further information. **4 credits**

CIVL 104 Construction Materials Testing Fundamentals – Provides students with the opportunity to become proficient in lab procedures for construction materials and prepares students for other courses requiring knowledge of testing procedures. CIVL 104 is a prerequisite for CIVL 109, 110 and 169. **2.5 credits**

CIVL 108 Graphical Communication 1 – Graphical communication requires the ability to sketch and a knowledge of civil engineering terminology. The ability to produce freehand sketches is developed without the use of conventional drafting equipment. A brief review of formal drafting equipment and techniques establishes the necessary discipline required for sketching and its interpretation by a draftsman. Sketching ability is developed both in the classroom and in the field and simulates field conditions as often as possible. Terminology is introduced with each lecture and covers site work, excavations, profiles, cut and fill sections, topographical features, open channel flow, drainage facilities, survey layout and calculations. **2.5 credits**

CIVL 109 Concrete Technology – Gives students the knowledge required to select suitable materials for making quality concrete; design a concrete mix for strength, workability and economy; sample and conduct quality control tests on concrete and aggregates; understand the theory and practices used in concrete manufacturing and construction. Topics include cements, water/cement ratio, admixtures, concrete properties manufacturing, transportation, placing, finishing, curing, CSA code A23.1 and 2 Inspection Techniques. Prerequisite: CIVL 104 or departmental approval. **3 credits**

CIVL 110 Asphalt Technology – Upon completion students will know how to select suitable materials for asphaltic concrete design using the Marshall method. Topics include plant and paving quality control, asphaltic cement testing, calculation for asphaltic design. Prerequisite: CIVL 104 or departmental approval. **3 credits**

CIVL 120 Introduction to Public Works Operations – This introductory course is intended to identify and explain many of the activities related to the construction, operation and maintenance of municipal roads and utilities. Its primary focus will be to take an elementary overview of operations related to roadworks, sewers and water mains. The completion of any activity related to public works construction requires a combination of different skills. Upon completion of this course students should be eligible to continue with a more in-depth training program in either one or all of the sewers, water mains or roadworks training courses. **1 credit**

CIVL 121 Waterworks 1 – The construction, operation and maintenance of a municipal water distribution system requires an understanding of both the technical and practical aspects of the system. This is the first of a series of three courses that will cover storage facilities, safety, water quality and practical aspects related to the repair and maintenance of a water distribution system. Emphasis on local practice (involving a mandatory field trip) and practical demonstrations will complement the course textbook, the "Sacramento" training manual. Lectures, audiovisual presentations and some hands-on experience will be used to demonstrate various aspects of the subject material. **1 credit**

CIVL 159 Hydrology 1 – Focuses on the fundamental concepts of the hydrologic cycle, measurement of precipitation, streamflow measurement and calculation. The determination of drainage basins and catchment areas, and analysis of basin characteristics for determination of run-off coefficients, will provide the student with a basis for further studies in run-off calculation and the evaluation of hydrologic data. **2 credits**

CIVL 169 Soil Mechanics 1 – Teaches the basic principles of soil mechanics and soil testing. Topics are mass/volume relationships, soil testing, soil classification, compaction, geology, sub-surface investigation, permeability and pressure diagrams, effective stress. Prerequisite: CIVL 104 or departmental approval. **3 credits**

CIVL 173 Estimates and Contracts for Heavy Construction 1 – Presents the basic concepts and techniques for the preparation of estimates and tenders for the construction of civil engineering projects by contract. The course consists of lectures and the preparation of estimates for basic operations and components of a typical job. Topics include an introduction to the heavy construction industry, contracts and specifications, preparation of estimates and estimates resources; estimates for various projects; overhead costs; estimate adjustments; cost accounting and job cost control. **3 credits**

CIVL 175 Introduction to Highways – Introduces the fundamentals of highway design and the basic concepts of highway engineering, including some geometric design theory. Topics include road classification, cross-section elements, horizontal and vertical alignment, capacity, level of service and the effect of vertical grades on traffic. This course leads to further studies in either highways or urban street design. Prerequisite: MECH 140 or basic drafting ability or departmental approval. **3 credits**

CIVL 180 Introduction to Urban Traffic Engineering – Introduces basic traffic engineering concepts. In general, traffic engineering entails the study of the movement and storage of vehicles on road systems. The topics are of particular interest to persons involved in municipal and highway engineering and/or land development. The course comprises lectures and assignments. Topics include driver, vehicle and traffic stream characteristics, highway and intersection capacity, intersection and parking layout, data collection techniques and traffic control. **3 credits**

CIVL 201 Construction Documents and Cost Control – Examines the three major types of construction contracts, their specific applications, the contractual relationship between the parties involved in a construction project and methods of recording and controlling construction costs in the planning and construction phases. A set of contract documents will be examined and critical areas highlighted through the use of construction scenarios. The student will gain an appreciation of the necessity for a thorough, understandable set of documents, and for the owner's representative/contractor to understand those documents. **3 credits**

CIVL 208 Graphical Communication 2 – Builds on the material in CIVL 108 and continues with architectural and structural drawings and details in timber, steel, concrete and masonry. Freehand sketching and industry graphic standards are the methods used to introduce students to graphical communication. Emphasizes traditional drafting skills rather than freehand sketching. Prerequisite: CIVL 108. **2.5 credits**

CIVL 250 Stress Analysis 1 – Examines simple stresses, stress/strain relationships and elasticity, material properties, temperature stress, Poisson's ratio, safety factors, compound bars and columns, simple bolted and welded connections, and flexural stress. Testing techniques in the lab are introduced, along with strain gauges, extensometers and data evaluation. Prerequisite: CIVL 101. **3 credits**

CIVL 259 Hydrology 2 – Commences with the statistical basis for frequency and probability calculation and then introduces the analysis of existing data for the purpose of determining peak and flood flows. Future flood flow forecasting and design to accommodate specified flood and peak flows are discussed. Streamflow analysis including development of unit hydrograph; flood flow analysis based on streamflow history; the determination of snowmelt factors based on streamflow and temperature records are introduced. The general principles of hydrology and the specifics of the rational method are applied to the evaluation of small watersheds in determining design peak discharge flows based on established criteria. Prerequisite: CIVL 159. **2 credits**

CIVL 270 Soil Mechanics 2 – Basic soil mechanics theory is completed through lectures and laboratory work. This theory is then applied to geo-technical design problems. Topics covered are consolidation, shear strength, shallow and deep foundations and retaining walls. Prerequisite: CIVL 169. **3 credits**

CIVL 273 Hydraulics 1 – The first half of the course covers hydrostatics, including forces on plane and curved surfaces, and buoyancy. The second half introduces pipe flow and covers Bernoulli's equation and pipe friction. Prerequisite: CIVL 101, or 259. **3 credits**

CIVL 274 Estimates and Contracts for Heavy Construction 2 – Allows students to gain further experience in the preparation of estimates, and to consider problems which arise in the administration of contracts for heavy construction jobs. The course consists of lectures and the preparation of an estimate for a highway construction job and, possibly, a small bridge using SI standards. Topics include labor agreements, equipment ownership/rental and operating costs, materials, subcontracts, use of cost reports in preparing estimates, financial and legal aspects, and the administration of contracts. Prerequisite: CIVL 173 or departmental approval. **3 credits**

CIVL 275 Highway Design 2 – Provides the working knowledge to design highways in accordance with RTAC standards. The course consists of lectures and a design project. Topics include detailed considerations of route selection, vertical and horizontal alignment, cross-sections, earthwork, mass haul diagrams, and includes basic computer applications in the adjustment of design for earthwork balances. Prerequisite: CIVL 175. **3 credits**

CIVL 278 Municipal Services 1 – Illustrates the detail design process and the preparation of plan and profile drawings for municipal storm drainage projects. After an introduction to municipal drainage systems, hydrology and master drainage plans, the student will review basic sewer structures and appurtenances common to most drainage systems. Preparation of detailed catchment area plans and design tabulations will enable the student to finalize a plan and profile drawing for a portion of the overall design. Knowledge of hydraulics and hydrology will be required to comprehend the design concepts. Prerequisite: CIVL 273, 315 or departmental approval. **3 credits**

CIVL 282 Land Use Planning – This course provides a working knowledge of the terms, definitions, criteria, and process of urban land development. The required servicing for development, patterns of development, the process for approval of development, financial considerations and roles of agencies and parties in the development process are also presented. Topics include: natural state land use assessment, planning elements, community zoning and site plans, neighbourhoods, lot and dwelling types, traffic considerations, road classifications, road patterns and names, lot layout design, cul-de-sacs, walkways and emergency routes. **3 credits**

CIVL 314 Urban Street Design – Through a review of the urban street classification system, students will determine the basic requirements for a road right-of-way and its relationship to other utilities. In preparing the design of a major road, it will be necessary to understand both vertical and horizontal design elements and the use of cross-sections to correlate design controls. The concepts of road drainage, intersection design, sidewalks, channelisation and drawing preparation will be discussed. A review of the design process, extent of field information, legal surveys and the preparation of as-constructed drawings will conclude the course. Prerequisite: CIVL 175, 208. **3 credits**

CIVL 315 Subdivision Planning – Provides an understanding of the planning concepts and restraints 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. Consideration will be given to engineering requirements and the concerns of external approving agencies. In preparing an actual subdivision plan, students will be evaluated based on the city, developer and engineers' view points, complete with a preliminary cost analysis. Prerequisite: CIVL 175, 208. **3 credits**

CIVL 350 Stress Analysis 2 – Topics include: shear stresses in beams, deflection and rotation, restrained and continuous beams, eccentric loading and combined stresses, Mohr's circle analysis and column theory. Testing in the materials lab illustrates theoretical principles. Prerequisite: CIVL 250. **3 credits**

CIVL 373 Hydraulics 2 – A continuation of CIVL 273 which completes the topic of pipe flow. The course begins with simple networks and progresses through pump selection, flow measurement and waterhammer to complex networks and the application of Hardy Cross method and computer programs. Prerequisite: CIVL 273. **3 credits**

CIVL 378 Municipal Services 2 – This course completes the analysis of municipal servicing systems. The design of sanitary sewer collection and water distribution systems is discussed in detail. Principles of gravity flow are applied for the design of gravity sanitary sewer systems. Detail calculations and plan and profile drawings are prepared to illustrate the final design. Following an overview of municipal water distribution systems, students will apply concepts of pressurized flow in the design of these systems. Details of materials and appurtenances are also discussed. Prerequisite: CIVL 273, 278. **3 credits**

CIVL 384 Civil Engineering Computer Applications – An introduction to computer applications in civil technology. Course covers introductory BASIC; development of flowcharts and programs for highway alignments, vertical and horizontal parabolas and Euler spirals; earthworks, use of spreadsheets, word processing, data bases; using PC type computers and existing software to solve engineering problems. **3 credits**

CIVL 386 Computer Highway Design – Hands-on use of PC-AT type computers in a project framework designing a highway from contours to Bill of Quantities. Design is to preliminary stage. RTAC standards are employed. Prerequisite: CIVL 275. **3 credits**

CIVL 393 AutoCAD (CADD) Applications for Civil Engineering – Computer-aided design course for practicing civil technologists and engineers. Course is project oriented and is designed to show power of computer-aided design in structural layout, municipal design and data digitizing of contours topography. Sufficient CADD commands for Civil engineering drawings are explored and examined. Prerequisite: Civil engineering background, AICO 213 or departmental approval. **3 credits**

CIVL 400 Structural Design 1 – Having previously studied forces and material properties, students learn to apply these to the analysis of real structures. They also study the effects of wind, snow and earthquake loads as determined by national standards. Design and analysis of steel and timber beams, columns, trusses and their connections are used as examples. Prerequisite: CIVL 350. **6 credits**

CIVL 431 Soil Mechanics 3 – Soil mechanics theory is used in geotechnical analysis and design. Topics include excavations and retaining structures, seepage analysis and flow nets, and slope stability. Prerequisite: CIVL 270. **3 credits**

CIVL 450 Structural Design 2 – For students taking Civil options. Through analysis and design projects, students are introduced to reinforced concrete as a structural material. The effects of contiguity with structures are discussed and connection details for structural components in basic building materials are developed. Prerequisite: CIVL 400. **6 credits**

CIVL 473 Hydraulics 3 – Begins with normal flow and progresses through critical flow and control sections (weirs and the hydraulic jump) to gradually varied flow and natural channels. Includes the effects of channel constrictions and changes in streambed, as well as culvert design. Prerequisite: CIVL 373. **3 credits**

CIVL 483 AutoCAD 2 for Civil Engineering – Students will learn how to use LISP programming language and AutoCADD menu customizing to produce their own applications in civil and structural engineering. Prerequisite: CIVL 393 or departmental approval. **3 credits**

CIVL 501 Reinforced Masonry Design – A course on the structural design, specification and inspection of reinforced load bearing masonry. The design of reinforced concrete block and hollow clay brick for axial, bending and shear forces to comply with CSA standards S304M84. Design of slender walls. Properties of local masonry materials including grouts and mortar; construction methods, inspection and testing of masonry; bricklaying workshop. Prerequisite: CIVL 450. **3 credits**

CIVL 502 Advanced Concrete Technology – Presents concrete theory to technicians and technologists familiar with concrete technology. Students learn to use statistical analysis to calculate strength trends; identify various behavioral characteristics of cement; analyze new trends in admixtures; design concrete mixes; use various nondestructive methods to determine concrete quality. New technology and the Canadian Standards are discussed. Class size limited to 20 students. Prerequisite: CIVL 109 or departmental approval. **3 credits**

CIVL 503 Transportation Planning – Reviews the field of transportation engineering. Various transportation modes are investigated and related to the overall transportation network. Environmental, economic and political aspects of transportation systems are considered through discussion and films. Students prepare a report suitable for presentation to a planning department on some aspect of transportation. Prerequisite: CIVL 175, 180. **3 credits**

CIVL 509 Geotechnical Design Rock Stability – Introduces the basic mechanics of rock slope failures and principles needed to analyze planar failures, methods of rock slope stabilization, rockfall protection and detection. Required calculation and design application. Prerequisite: CIVL 431 or departmental approval. **3 credits**

CIVL 510 Transportation Planning 1: Network Planning Principles – Examines the relationship between land use development and urban transportation networks including capacities and operating characteristics of various transportation modes. The principles of network planning and the preparation of municipal and neighbourhood road plans. Prerequisite: CIVL 180. **2 credits**

CIVL 511 Transportation Planning 2: Travel Demand Forecasting – Identifies, describes and applies the various procedures and techniques commonly used to estimate travel demands on urban roads and public transit facilities arising from land development; the construction, operation and management of urban transportation facilities; demographic changes and socio-economic factors. Prerequisite: CIVL 510. **2 credits**

COMMUNICATION/BUSINESS COMMUNICATION

If you require the equivalent to first year, full-time Business Communication you must take COMM 160, 175 and 171 in that order. If you require the equivalent to first year, full-time Technical Communication, you must take COMM 160, 175 and 183 in that order. If you require the equivalent to second year, full-time Technical Communication, you must take COMM 201 and 202 in that order.

COMM 001 Effective Writing (24 hours) – Prepares students for heavy writing requirements in full-time programs at BCIT. Especially useful for students who need to develop their basic skills in business and technical writing. Concentrates on paragraph development, organization and effective sentences in letter and memo writing. **non credit**

COMM 002 Independent Learning Skills (24 hours) – Learn how to read efficiently, cope with assignments, use computer-managed learning packages, study independently, take exams successfully, manage your time and get the most from new instruction techniques. Includes methods for reading textbooks and learning from objectives. **non credit**

COMM 003 Comprehensive Reading, Writing and Learning Skills (80 hours) – This course is designed for students whose first language is English, and who have not completed Grade 12 High School English. It emphasizes the reading, writing and study skills needed for BCIT full-time programs. The course includes efficient reading, library research skills, reading comprehension, grammar, writing fundamentals and basic short report writing. A grade of 65% or higher in this course meets the prerequisite (a "P" in English 12 or equivalent) for many technologies. A grade of 70% equals a C in English 12. A grade of 75% or better meets the prerequisite for selected technologies (a C+ standing in English 12). Prerequisite: Applicants will write an English Proficiency Test to determine their eligibility for enrollment. (Students for whom English is a second language should enrol in COMM 004). **non credit**

COMM 004 Technical English for Second Language Students (80 hours) – If your first language is not English, this course is for you. It emphasizes the reading, writing and study skills needed for BCIT full-time programs. The course includes efficient reading, library research skills, reading comprehension, grammar, writing fundamentals and basic short report writing. A grade of 65% in this course meets the prerequisite (a "P" in English 12 or equivalent) for many technologies. A grade of 70% equals a C in English 12. A grade of 75% or better meets the prerequisite (a C+ in standing English 12) for selected technologies. Prerequisite: Applicants will write an English Proficiency Test to determine their eligibility for enrollment. **non credit**

COMM 160 Introduction to Business and Technical Communication (36 hours) – Practical techniques for planning, organizing, selecting and presenting information in a business or industry environment. Students apply these skills to communication common in most office jobs - routine memos, instructions, procedures, summaries, oral presentations. Practical "case" assignments are used. Ideal course for those with little experience in business or technical communication. **3 credits**

COMM 171 Business Reports (36 hours) – For those in the business environment who must learn how to write problem-solving reports and proposals. The course emphasizes the persuasive skills needed to sell ideas, methods and products. Specific applications include comparison and recommendation reports, proposals, feasibility studies, executive summaries, formal report format, presentations and effective use of graphics. **3 credits**

COMM 175 Business and Technical Correspondence (36 hours) – Emphasizes communication fundamentals and writing strategies for solving correspondence problems such as business letters, and short memo reports. **3 credits**

COMM 183 Technical Reports (36 hours) – For writers from a technical/industrial background who need help in writing reports on solutions to engineering problems. Specific applications include comparison and feasibility reports, technical proposals, executive summaries, graphics and formal report format. Presentations are included. **3 credits**

COMM 189 Writing Effective Letters (18 hours) – The principles of letter style and organization and how they apply to sales, collection, inquiry, claim adjustment and application letters. Participants are encouraged to work on letters from their workplace. **1.5 credits**

COMM 190 Writing for Results (18 hours) – Learn simple techniques to make your business writing skills clearer, better organized and more effective in getting the job done. Memos, letters, reports and other major forms of written communication are covered. Students are requested to bring samples of their written communications from the workplace to the first class. **1.5 credits**

COMM 192 Short Reports (18 hours) – Selecting and organizing information, using effective formats and layouts, analyzing audience needs, reporting factual information and making recommendations. **1.5 credits**

COMM 196 Writing Manuals for the Computer Industry (18 hours) – For writers of user manuals. Planning, researching, organizing, formatting and writing a manual; testing and packaging the finished product; translating technical material for the non-technical reader to understand. **1.5 credits**

COMM 197 Telephone Techniques (6 hours) – This one-day course is for those new to business telephone techniques. Through classroom discussion, pre-recorded sample calls and role playing, participants will learn how to answer and transfer incoming calls efficiently and plan and make outgoing calls effectively. It is offered at the Downtown and Burnaby campuses. **3 credits**

COMM 198 Managing Large Writing Projects (18 hours) – This 18-hour course is for managers who supervise and edit other people's writing. It covers techniques for plotting a critical path, building a project team, specifying requirements, designing report segments, making revisions and packaging the finished product. It also covers the interpersonal skills needed to manage the project. This course is offered at the request of individual companies. **3 credits**

COMM 201 Advanced Business and Technical Communication 1 (36 hours) – This course emphasizes the research, organizing, writing and packaging techniques necessary to produce effective lengthy documents. Also covered are interview and briefing techniques and holding effective meetings. A pre-enrolment interview may be required, and some course requirements may be fulfilled by on-the-job projects with the approval of the instructor. This course is equivalent to Term 3 of full-time Technical Communication. **3 credits**

COMM 202 Advanced Business and Technical Communication 2 (36 hours) – This course builds on the skills developed in COMM 201. It emphasizes the preparation of effective manuals and persuasive written and oral proposals. It also covers public relations techniques and dealing with hostile audiences. A pre-enrolment interview may be required. Some course requirements may be fulfilled by on-the-job projects with the approval of the instructor. This course is equivalent to Term 4 of full-time Technical Communication. **3 credits**

COMM 900 English Fundamentals (36 hours) – A refresher course focusing on writing clearer sentences and paragraphs. Includes sentence structure, word choice, common grammatical problems, techniques for listing, paragraph structure and simple presentation strategies. Gain confidence in your ability to focus on ideas, and to use the conventions and mechanics of the language. If English is your second language, COMM 004 is recommended instead. **non credit**

COMM 902 Teamwork in the Office (8 hours) – Learn strategies for promoting cooperative, productive team relationships in a corporate setting. Managers learn how to define roles, rules and rewards, and create an open communication system within and between departments. **non credit**

COMM 903 Proposals: Writing, Selling and Following Through (18 hours) – The language, organization, presentation and packaging of effective sales and technical proposals. Participants are encouraged to write proposals based on their work. Follow-up is included. **non credit**

COMM 908 Making Meetings Work (8 hours) – Make business meetings more productive. Learn how to prepare agendas, structure and control discussions, make decisions and write minutes. **non credit**

COMM 910 Telephone Techniques (6 hours) – Learn how to make a positive first impression with customers, and to handle and record calls efficiently. Through classroom discussions, pre-recorded sample calls and role playing, participants learn effective business telephone techniques. **non credit**

COMM 911 Managing Team Writing (18 hours) – For managers who supervise and edit group writing projects. Learn techniques for plotting a critical path, building a project team, specifying requirements, designing report segments, making revisions and packaging the finished product. A review of the interpersonal skills needed to manage a project is included. **non credit**

TECHNICAL COMMUNICATION

TCOM 114 Technical Writing for Electronics – This course is no longer offered through Part-Time Studies. Students requiring TCOM 114 as partial completion of the Intermediate Certificate of Technology program in Electronics should take COMM 160.

TCOM 214 Technical Writing for Electronics (51 hours) – This course is no longer offered through Part-Time Studies. Students requiring TCOM 214 as partial completion of a Certificate of Technology or other program in Electronics should take COMM 175 and COMM 183.

Students who require the equivalent to first year, full-time Technical Communication, must complete COMM 160, 175 and 183, in that order.

COMPUTER SYSTEMS

COMP 104 Computers in Business – For those with a basic understanding of programming and computer systems who are not directly involved in data processing but require familiarity with current terminology and concepts used in the computer industry. Students learn to communicate effectively with data processing personnel and to recognize the potential use of computers in a business environment. Topics include data entry and output options; batch, on-line and distributed processing; telecommunications; recognizing the differences between micros, minis and mainframe computers; project management techniques; methodology for evaluating software application packages and the hardware related to implementing a package within a company. Prerequisite: COMP 126. **3 credits**

COMP 107 Understanding PC/MS DOS – Gives the beginning student an in-depth knowledge of the PC/MS Disk Operating System (DOS). This course covers all the essential commands contained in the DOS, including formatting and copying disks. The course provides an understanding of how to use PC/MS DOS files, essentials of Hard Disk management, and Batch File creation. Prerequisite: COMP 901 or equivalent. **1.5 credits**

COMP 109 Exploring DOS – Gives the beginning student an in-depth knowledge of the PC/MS Disk Operating System (DOS). This course covers all the essential commands contained in DOS including formatting and copying disks. The course provides an understanding of how to use PC/MS DOS files, essentials of Hard Disk management, and Batch File creation. Prerequisite: COMP 901 or equivalent. **1.5 credits**

COMP 114 Word Processing Concepts – Introduces the beginning student to word processing by giving hands-on experience on a microcomputer combined with lectures, using a popular word processing package. Topics include text entry, saving and retrieving files, editing, spell check and printing. Prerequisite: COMP 107/109 or equivalent. **1 credit**

COMP 115 Spreadsheet Concepts – Introduces the beginning student to spreadsheets by giving hands-on experience on a microcomputer combined with lectures, using a popular spreadsheet package. Topics include data entry, saving and retrieving files, formulas, editing, formatting and graphs. Prerequisite: COMP 107/109 or equivalent. **1 credit**

COMP 116 Microcomputer Database Concepts – Introduces the beginning student to databases by giving hands-on experience on a microcomputer combined with lectures, using a popular database package. Topics include data entry; saving and retrieving files; adding, updating and deleting records; printing. Prerequisite: COMP 107/109 or equivalent. **1 credit**

COMP 117 WordPerfect 5 Level 1 – Introduces WordPerfect 5.1 and it's uses for various word processing applications. Topics include creating, modifying and printing a document. Various editing features such as inserting, replacing, formatting and justifying text are covered. Page layout, subscripting, superscripting, headers, footers and hyphenation are also explored. Prerequisite: COMP 107/109. **1 credit**

COMP 118 WordPerfect 5 Level 2 – Continues from COMP 117. Explores additional features such as spelling-checker, thesaurus, page numbering, headers/footers, macros and merge. This course is particularly useful for those who plan to use WordPerfect extensively in their work. Prerequisite: COMP 117. **1 credit**

COMP 119 WordPerfect 5 Level 3 – Continues from COMP 118. Topics include columns, outlines, sorting, indexing, table of contents, line drawing, math or graphics. Prerequisite: COMP 118. **1 credit**

COMP 126 Programming Concepts and Methodology – Introduces the principles and concepts of computer programming. Covers standard problem analysis tools: flow charting, Nassi-Schneiderman, decision tables, systems analysis, flow charts, structure charts, and database management. Lectures and hands-on exercises are used to present the principles of programming. A prerequisite for most systems and programming courses. Prerequisite: COMP 107/109,114,115,116. **3 credits**

COMP 127 Microsoft Word 4 Level 1 – Introduces Microsoft Word and its uses for various word processing applications. Topics include creating, modifying and printing a document. Covers the editing features of inserting, replacing, formatting and justifying text. Style sheets are also explored. Prerequisite: COMP 107/109. **1 credit**

COMP 128 Microsoft Word 4 Level 2 – Continues from COMP 127. Covers additional skills such as using the spell-checker, thesaurus, calculator and glossaries, creating tables of contents and indexes, using macros and creating columnar formats. Prerequisite: COMP 127. **1 credit**

COMP 129 Microsoft Word 4 Level 3 – Continues from COMP 128. Covers more advanced features. Topics include creating macros, outlining, merging and sorting documents, using forms and summary sheets, and interfacing with other programs. Prerequisite: COMP 128. **1 credit**

COMP 130 Assembler Programming Language Level 1 – Introduces programming to persons intending to become computer programmers. IBM Assembler language is used to familiarize the student with the inner workings of the computer. Students learn to produce working, fully documented Assembler programs for elementary business problems, and to write, test and debug a series of Assembler programs in an on-line environment. Topics include data storage – character, hexadecimal, packed and zoned data types; data definition and conversion; arithmetic operations; registers and sub-routines; program analysis; flowcharting; coding; single and multi-level totals. Prerequisite: COMP 126 or equivalent data processing experience. **3 credits**

COMP 132 FORTRAN IV Programming Language Level 1 – Presents programming in a high-level programming language which provides sufficient knowledge and experience to design, flowchart, write, test and debug simple computer programs using FORTRAN IV. Additional topics include the syntax and use of a subset of the statements comprising the FORTRAN IV language, application of these statements to solve simple numeric problems, preparation and submission of programs to available computer. Serves as preparation for COMP 232. Prerequisite: Grade 12 mathematics and COMP 126. **3 credits**

COMP 135 RPG Programming Language Level 1 – Teaches the fundamentals of programming in RPG to people with an understanding of data processing concepts. Presents RPG programming concepts and techniques as applied in business batch processing. Students learn to write programs of medium complexity and develop, write, test and run two batch programs and one basic interactive program using the AS/400 computer. Topics include disk and keyboard input, printed output, the basic RPG logic cycle, control breaks, matching records, arrays, tables and programming techniques. Prerequisite: COMP 126. **3 credits**

COMP 137 C Programming Language Level 1 – Covers basic data types, control constructs, operators and syntax, followed by discussion of functions, arrays and pointers. A brief introduction to the Standard C Library functions is also provided. The course consists of lectures and labs with a number of programming assignments, and serves as preparation to COMP 237. Knowledge of an Assembler language or PASCAL is required for maximum benefit from this course. Prerequisite: COMP 130/236 or equivalent. **3 credits**

COMP 138 Ventura Level 1 – Deals with the exciting application of producing typeset-quality documents/forms/flyers without using a print shop by using this package from Xerox. Topics include creating textual materials, incorporating pictures with texts, working with style sheets and producing typeset-quality outputs. Prerequisite: COMP 117/127 or equivalent. **1.5 credits**

COMP 139 Ventura Level 2 – Continues from COMP 138 to cover finetuning capabilities and special effects. Topics include importing pictures and databases, advanced type and page formats, and text file conversion. Prerequisite: COMP 138. **1.5 credits**

COMP 144 Assembler Microcomputer Programming Language: IBM PC Level 1 – Introduces programming to persons intending to program in the Assembler language on the IBM PC microcomputer. Lectures and practical hands-on experience using IBM PC's introduce the fundamentals of the PC Assembler Language. Prerequisite: COMP 126. **3 credits**

COMP 145 BASIC Programming Language (IBM PC) Level 1 – Teaches the fundamentals of writing business-type data entry and report writing programs. Lectures and hands-on experience using IBM PC type computers and Microsoft QUICKBASIC cover structured programming; using sequential and random type files; subtotals on reports; report design; program documentation; string handling; and validating input data. Prerequisite: COMP 126. **3 credits**

COMP 147 Lotus 1-2-3 Level 1 – Focuses on spreadsheet functions. Spreadsheet basic functions are explained, then how to enter data, change the appearance of the display, use the basic worksheet commands and built-in functions, work with files and print spreadsheets. Prerequisite: COMP 107/109. **1 credit**

COMP 148 Lotus 1-2-3 Level 2 – Continues from COMP 147. Focuses on managing a database using database functions and graphics capabilities to produce graphs. Prerequisite: COMP 147. **1 credit**

COMP 149 Lotus 1-2-3 Level 3 – Continues from COMP 148. Focuses on using the Lotus Macro Language. Topics include creating macros to speed up Lotus commands, automate routine tasks, and provide customized menu-driven systems for end-users. Prerequisite: COMP 148. **1 credit**

COMP 157 dBASE IV Level 1 – Uses dBASE IV to create a database, enter data into it, make changes, manipulate, inquire, and retrieve/print the data. Building indexes, creating customized data-entry forms, and generating formatted reports are also covered. Prerequisite: COMP 107/109. **1 credit**

COMP 158 dBASE IV Level 2 – Continues from COMP 157. Emphasizes the dot prompt mode of using dBASE IV. Explores the important concept of linking multiple tables and the application generator. Proper relational database design is discussed. Prerequisite: COMP 157. **1 credit**

COMP 159 dBASE IV Level 3 – Continues from COMP 158. Begins the programming aspect of dBASE IV. The course covers the major statements used in command file programming and illustrates how to develop a working database system in dBASE IV. Prerequisite: COMP 158. **1 credit**

COMP 160 Computer Systems Introduction Level 1 – Introduces the basic definition and design of computer systems. Emphasizes the fundamentals of systems analysis including development of system objectives, problem definition, information gathering, effective written and verbal communication (particularly with user department personnel) about systems problems and possible computer solutions. The course presents the systems development process and covers basic systems theory, the systems development cycle, information gathering, flowcharting, report writing, forms design and presentation techniques. Additional techniques and their applications to common business systems are presented in COMP 260. Prerequisite: COMP 126. **3 credits**

COMP 162 Microcomputers Using dBASE Level 1 – Broadens the knowledge of microcomputer users in the field of database management using a well established database system. Explores all aspects of dBASE IV's powerful programming capabilities. Students develop a menu-driven system using multiple database files. Programming and DOS experience would be helpful to the student. Prerequisite: COMP 126. **3 credits**

COMP 164 Microsoft WORD – Introduces the fundamentals of a powerful word processor to students with little or no word processing experience in this six-week course. Although this program can be used with both the Macintosh and the IBM PC, this course will be taught on the IBM PC with a mouse. Familiarity with MS/PC DOS would be helpful. **1.5 credits**

COMP 167 WordPerfect – Covers all levels of word processing and features such as spell check, thesaurus, graphics and mail merge. The course starts with basic word processing and continues to complex editing, sorting, merging and business concepts using a word processor. Students learn many features of WordPerfect which prepares them to utilize this word processor extensively in their work. Prerequisite: COMP 107/109. **3 credits**

COMP 168 Framework III Level 1 – Covers the use of Framework III as a power tool to help in various real-life situations. Students learn to use Framework's database management, spreadsheet, word processing and dynamic outlining features, and apply them to solving problems. Includes: common database structures, spreadsheet design techniques, word processing, report generation, graphical techniques, mailmerge, file and disk management; introduces the use of Framework's programming language. Students complete a major project. Prerequisite: No previous experience of computers is required but keyboard skills are desirable and access to Framework in the work environment is a considerable asset. **3 credits**

COMP 169 LOTUS 1-2-3 – Provides an understanding of the value and uses of a spreadsheet program, and the detailed commands of Lotus 1-2-3 with respect to spreadsheets, graphics, data management and macros. Hands-on experience gives thorough practical knowledge. **3 credits**

COMP 175 Accpac General Ledger – Implements a general ledger (G/L) system. Topics include converting an existing manual system to Accpac, adding and editing transactions in batches, posting batches to the ledger, and printing financial reports. The financial statement report writer is explored. Prerequisite: COMP 107/109 and a basic understanding of accounting principles. **1.5 credits**

COMP 178 NewViews Accounting Level 1 – Exposes students to a revolutionary approach to computerized accounting where everything is fully integrated and no month-end or year-end closing is required. The basic concepts and navigation commands are covered followed by accounting using NewViews. Prerequisite: COMP 107/109 and a basic understanding of accounting principles. **1 credit**

COMP 179 NewViews Accounting Level 2 – Continues from COMP 178. Covers handling history, budgeting, security and exporting/importing. The concept of procedures is discussed and supplied procedures are used. Prerequisite: COMP 178. **1 credit**

COMP 180 NewViews NPL Programming – Continues from COMP 179, and uses the NewViews Procedure Language (NPL). Topics include adding, running, deleting and interrupting procedures. The course covers the NPL constructs of macros, data declarations, numeric and string operations, control of flow, handling screen and keyboard, data handling, and DOS Access. Prerequisite: COMP 179. **1 credit**

COMP 181 Bedford Accounting Level 1 – Covers setting up a set of books using this integrated accounting package. Topics include general ledger, accounts receivable and accounts payable. Prerequisite: COMP 107 and a basic understanding of accounting principles. **1 credit**

COMP 182 Bedford Accounting Level 2 – Continues from COMP 181. Covers the handling of payroll, inventory and job costing. Prerequisite: COMP 181. **1 credit**

COMP 186 Accpac Accounts Receivable and Payable – Explores monitoring the accounts receivable function of a business. The entire cycle of accounts receivable from setup to producing management reports is examined. Covers the entire cycle of Accounts Payable, including setup, data entry, balancing, cheque preparation, reconciliation, and printing reports. Covers the interface to Accpac General Ledger. Prerequisite: COMP 175. **1.5 credits**

COMP 187 Computerized Accounting – Uses IBM PC's or equivalent, and the Bedford Accounting Package to cover general ledger, payables and receivables, payroll, job costing and preparation of financial statements, for persons with some knowledge of computing and accounting. Prerequisite: COMP 107/109 and FMGT 101, or equivalent. **3 credits**

COMP 190 Meet the MAC – Utilizes the hands-on approach during lectures and labs to introduce the student to the Macintosh microcomputer. The student acquires practical and theoretical knowledge of MS WORD (for word processing), MS EXCEL (for spreadsheets), and HYPERCARD. **3 credits**

COMP 191 3-D Computer Animation Applications Level 1 – Combines the theory of computer graphics with an overview of the Cartesian coordinate system, the UNIX operating system, and the animation/workstation configuration. Professional demo videos are viewed and discussed. Modeling software is used to create 3-D geometrical objects which are then colored, textured, lit, animated, rendered and stored to videotape. **6 credits**

COMP 230 Assembler Programming Language Level 2 – Continues COMP 130 offering more detail on IBM Assembler language and computer architecture. Students learn the architecture and principles of IBM computer operation and how to use Assembler language for common business programming. Topics include Assembler instruction formats; binary instructions; registers, base/displacement addressing; tables and table look-up techniques; sub-routines and program structure; IOCS: file definition and imperative macros. Prerequisite: COMP 130. **3 credits**

COMP 232 FORTRAN IV Programming Language Level 2 – Provides progression into aspects of FORTRAN IV language beyond those covered in COMP 132. Students study the use of FORTRAN IV to design, flowchart, write, test and debug assigned programs and programs within their own fields of endeavor, and follow the logic of programs written by others. Topics include the syntax and use of FORTRAN IV statements related to double precision and logical constants; variables and expressions; subroutine, function and block data sub-programs; processing sequential files on tape and disk devices; the application of these statements to solving both numeric and non-numeric problems; preparation and submission of programs to computer. Prerequisite: COMP 132. **3 credits**

COMP 233 COBOL Programming Language Level 1 – Presents business computer programming using the popular high-level COBOL language. Suitable for accountants or accounting students wanting to understand programming in a data processing environment. Serves as preparation for COMP 333, for COBOL programming as a career. The student learns to apply the basic principles and practices of business computer programming and to write simple

programs in COBOL. Topics include programming methods; structured programming; documentation standards; flowcharting; report design; sequence checks; page over-flow and control breaks. COBOL topics include all language components required to write simple business report programs. Students will write, compile and run COBOL programs on an IBM computer. Prerequisite: COMP 126. **3 credits**

COMP 234 PL/1 Programming Language Level 1 – Covers typical business programming techniques including coding, testing and debugging PL/1 programs of a relatively complex nature using the PL/1 high-level language. Lectures and lab sessions cover data declaration; record and stream I/O; PL/1 arithmetic; structures; arrays; built-in functions; procedure and begin blocks. Prerequisite: COMP 130. **3 credits**

COMP 236 PASCAL Programming Language – Covers the entire PASCAL instruction set for students who understand general programming principles. Also covers characteristics and advantages of structured and modular programming as well as reading and writing structured programs in PASCAL. Topics include structured programming; modularity; basic and complex data types and structure including arrays, trees, lists and pointers; control statements and structures including recursion, procedures and functions, and PASCAL syntax diagrams. Prerequisite: Work experience in programming and/or one of the following BCIT language courses (or equivalent) COMP126/234/130/131/132/233. **3 credits**

COMP 237 C Programming Language Level 2 – Continues the material covered in COMP 137. Intended for programmers with a good working knowledge of C. Topics include data structures, advanced use of pointers, machine level operations, programming style, portability and efficiency. Special emphasis will be placed on the development and use of program libraries and software tools in the C environment. Prerequisite: COMP 137 or equivalent. **3 credits**

COMP 241 Data Communication Concepts Level 1 – Introduces data communication systems and provides a basic understanding of business data communication applications and related concepts, for those involved in communication and computer industries or wanting to become conversant with data communication. Topics include basic principles and components of communication systems; line facilities and service offerings provided by common carriers; protocols and data offerings provided by common carriers; protocols and data link controls; local area networks; communication network performance. Prerequisite: Programming or systems design experience. **3 credits**

COMP 242 Microcomputers: Exploring Technical Aspects – Provides a theoretical perspective of the micro-computer field exposing the student to the capabilities and limitations of a number of microprocessor devices and microcomputer systems; the wide range of microcomputer applications, including logic design and control as well as traditional data processing applications; microcomputer software – operating systems, languages, program development systems and applications, software and micro-computer technology. Topics include definition of microcomputer, microprocessor; LS or VLS technology; micro CPU concepts; microcomputer families, popular real devices; introduction to microprocessor pin-outs, data-bus, address bus, control lines, clock memory (RAM, ROM, PROM); integration of microcomputer system, memory connection, I/O ports, common buses (e.g. S-100), power supplies, peripherals, etc.; hierarchy of levels of computer description: system, PMS, programming (A/L), register transfer (RT), Boolean logic, circuit, device physics; comparing some real micro systems (Apple vs North Star vs IBM PC, etc.); software, operating systems, languages, compile vs

interpretation, CPM, PASCAL, BASIC, Pilot, FORTH, C, LOGO, etc.; trends, costs, chips, manufacturers, Who's Who in Silicon Valley. Prerequisite: Minimum of COMP 101/102/103/105/126. An understanding of the computer field from COMP 130 or other computer language courses is highly recommended. **3 credits**

COMP 244 Assembler Microcomputer Programming Language: IBM PC Level 2 – Continues from COMP 144 and provides more detail on the IBM PC Assembler language. Topics include macros, math, disk I/O, resident programs, communications and drivers. Students complete an approved project of their choice. Prerequisite: COMP 144. **3 credits**

COMP 245 BASIC Programming Language (IBM PC) Level 2 – Expands on the knowledge obtained in COMP 145. Topics include control-flow structures, recursion, file and device I/O, serial port communication, string processing, graphics, error trapping, DOS system calls, mixed language programs, managing source files, creating executable files, and libraries. Prerequisite: COMP 145. **3 credits**

COMP 247 LISP Programming Language – Examines LISP origins and uses in industry, language features, and various Artificial Intelligence programming techniques (e.g. inference engines). Intended for programmers interested in the development of Artificial Intelligence/Knowledge Systems applications. LISP is a very popular language for AI/KS work. Its expressiveness and flexibility are highly prized by AI programmers. It is the basis of many powerful AI/KS programming tool kits. Students will build LISP applications. Prerequisite: IBM micro experience and successful completion of at least one Level 1 programming language, or permission of the instructor. **3 credits**

COMP 248 PROLOG Programming Language – Explains PROLOG, chosen for the Japanese Fifth Generation computer project. This popular language for Artificial Intelligence/Knowledge Systems (AI/KS) work is a logic based language, which encourages elegant and concise solution to many difficult programming problems. PROLOG origins and uses in industry, language features, and various AI programming techniques (e.g. meta-interpreters) are examined. Students will build PROLOG applications. Prerequisite: IBM micro experience and successful completion of at least one Level 1 programming language, or permission of the instructor. **3 credits**

COMP 249 POWERHOUSE Programming Language Level 1 – Provides a solid base in programming with POWERHOUSE, a fourth generation language. Includes the use of all the language modules; the data dictionary utilities, QDD and QUTIL; the screen processor, QUICK; the report generator, QUIZ; and the volume transaction processor, QTP. Prerequisite: Programming experience, or a Level 1 programming language, or permission of the instructor/manager. **3 credits**

COMP 260 Computer Systems Introduction Level 2 – Expands on the fundamentals learned in COMP 160 to develop analytical skills and basic computer systems design techniques. Includes common business applications as processed on small-to-medium-sized computers. Students learn to gather and organize systems data, prepare systems flowcharts, design files, set up an implementation schedule and other documentation. Coding structures and application systems, i.e. invoicing accounts payable and accounts receivable, are discussed in detail and the role of data communications, database usage and small computers in systems design are also discussed. A major systems project utilizes the material presented in COMP 160/260. Scheduling techniques such as Gantt charts, PERT/CPM are introduced. Prerequisite: COMP 160. **3 credits**

COMP 261 Computer Systems Development Level 1 – Provides a working knowledge of systems analysis and develops job skills related to the design of information processing systems, including the ability to contribute to the investigation, analysis and design phases of systems development projects. Implementation phases of the systems development life cycle are covered in COMP 361. Lectures, discussion and an extensive case study guide students through feasibility studies, fact finding and analysis. Design alternatives include forms design, hardware considerations, standards and documentation. Prerequisite: COMP 160/260 or an advanced programming course. **3 credits**

COMP 263 Microcomputers Using dBASE Level 2 – Broadens the student knowledge of dBASE IV, not only from a programming vantage, but also to cover systems overview and design. Students design, program, and implement dBASE IV systems of their own selection. Prerequisite: COMP 162, or a thorough knowledge of the dBASE IV Command Language. **3 credits**

COMP 266 Microcomputers: Business Applications and Lotus 1-2-3 Macros – Covers Lotus 1-2-3 Macros and constructs business models in areas such as budgeting, inventory control, cash flow analysis, etc. Hands-on exercises will be stressed, including "what-if" analyses. Prerequisite: COMP 169. **3 credits**

COMP 267 Microcomputers: Package Implementation – Provides the knowledge and experience for the successful installation of a microcomputer business application package. Using lectures, hands-on experience and data, students will be guided through all phases of the installation of an up-to-date accounting package on an IBM PC microcomputer. Topics will include: review of operating systems (DOS) and hardware requirements as they relate to package implementation. Other current popular application packages may be discussed and demonstrated. Prerequisite: COMP 107/109. **3 credits**

COMP 268 Framework III Level 2 – Covers the use of FRED, Framework III's programming language. Students become familiar with concepts and procedures involving: project analysis and evaluation so Framework's programming capability can be used to successfully complete business projects; program design to plan programs logically and efficiently; program writing to create project-required programs; program refinement and completion to ensure that programs meet project needs. Prerequisite: Thorough familiarity with Framework III capabilities, features, operations, and basic functions. A minimum of COMP 168 or equivalent. **3 credits**

COMP 284 Decision Support Systems 1: Forecasting and Simulation – Utilizes scientific methods to analyze management problems and formulate probability models to simulate the possible outcomes of business decisions and to forecast and make decisions based on this method. Results will be analyzed by the student. SPSS and Waterloo Basic will be utilized to produce simple-to-sophisticated models. Heavy emphasis is placed on applications. Prerequisite: COMP 126 or equivalent, plus OPMT 197. **3 credits**

COMP 285 SPSS – Introduces the student to programming techniques using the statistical package SPSS. The student learns how to generate descriptive statistics, graphs (bar charts, histograms, pie charts, etc.), and frequency distributions. Inference, sampling and data handling techniques as well as reporting on data (non-statistical reports) follows. Hypothesis testing, forecasting techniques (such as moving average, exponential smoothing, linear and multiple regression, and Box-Jenkins, descriptive measures, bivariate data, and ANOVA) are also covered. Some real world applications are also examined. Prerequisite: OPMT 197 or equivalent. **3 credits**

COMP 286 Novell NetWare 286 – Introduces the student to the Local Area Network environment using Novell's NetWare 286 Operating System. Topics include design and implementation of a LAN, including appropriate hardware and topology selection; efficient design of login scripts, creation and administration of users on the network; use of the essential NetWare menu and command-line programs; and proper system backups. Prerequisite: COMP 107, OPMT 188. Familiarity with hardware would be an asset. **1.5 credits**

COMP 287 Smalltalk and Object Oriented Programming – Addresses the issues of programmer productivity, graphical interfaces, data modeling, and symbolic programming (e.g. artificial intelligence). Major software companies such as MicroSoft and IBM are designing new development tools (e.g. for OS/2) based on the OOP approach. Smalltalk, the original and dominant OOP language, provides a sophisticated development environment for creating software. This course introduces OOP concepts, Smalltalk programming, graphical interfaces and some knowledge (expert) system concepts. Prerequisite: IBM micro experience and successful completion of at least one Level 1 programming language, or permission of the instructor. **3 credits**

COMP 288 Actor, OOPS & MS Windows – Object-oriented programming (OOP) is a powerful tool for rapid development of complex software, and is especially suitable for event-driven graphical user interface (GUI) applications. Microsoft Windows is the industry standard DOS-based GUI and multitasking environment. Actor is an excellent OOP language used to develop commercial Windows applications, and provides a sophisticated Smalltalk-like development environment. This course introduces OOP concepts, Windows architecture, Actor programming, and the development of Windows GUI applications. Prerequisite: IBM micro experience and successful completion of at least one Level 1 programming language, or permission of the instructor. **3 credits**

COMP 291 3-D Computer Animation Applications Level 2 – Combines an in-depth study of computer graphics theory with modeling of complex forms and advanced applications of colors, textures, lighting, and movement. Advanced features of the UNIX operating system are explored with emphasis on system administration. The technical arrangement and hardware connectivity of computer animation installations are detailed along with explanations of the software modules that create and control the animation process. Prerequisite: COMP 191. **6 credits**

COMP 293 Introduction to Multimedia – Covers developing user friendly interactive multimedia lessons on a computer. The multimedia lab project uses videodisc technology and implements principles of instructional and screen design, etc. Explains the fundamentals of how to teach using multimedia. Note: Although the lab is IBM based, the principles apply to all computer platforms. Prerequisite: Familiarity with DOS or IBM Computers. **4 credits**

COMP 330 Assembler Programming Language Level 3 – Offers advanced study of IBM Assembler language and the opportunity to develop the ability to write extensive programs in this language. Persons already employed in programming find this course helpful in broadening their understanding of programming concepts and IBM operating systems. Students study input/output control and operating interfaces, learn to use the Assembler macro language and magnetic tape and disk storage devices. Lectures and laboratory exercises provide practical experience and cover operating systems interfaces, tape and disk storage, macro writing sub-programs, and logical IOCS operations. Prerequisite: COMP 230. **3 credits**

COMP 332 FORTRAN IV Programming Language Level 3 – Continues the study of FORTRAN IV language beyond COMP 232. On successful completion, students can make a meaningful contribution to industry projects with minimum supervision. Emphasis is on developing programs within students' fields of endeavor rather than on assigned projects. Topics include the syntax and use of FORTRAN IV statements related to areas such as complex variables, constants and expressions; varying dimensions of arrays and formal elements during processing of a program; processing direct access files on disk devices; the application of statements to solving both numeric and non-numeric problems; preparation of program submissions to an available computer. Prerequisite: COMP 232. **3 credits**

COMP 333 COBOL Programming Language Level 2 – Develops an understanding of tape file organization and the COBOL instructions associated with tape files; disk file organization, including indexed-sequential and random access files and the COBOL instructions associated with their use; utility programs and proper libraries; special techniques. Topics include efficient COBOL programming techniques; sequential and binary table look-ups; subprograms; overlay techniques; multiple disk and tape file handling; indexed sequential and direct (random) file organizations, and all associated COBOL instructions. Disk libraries, DOS utility support, and sort programs are also taught. Prerequisite: COMP 233 or previous programming experience in COBOL. **3 credits**

COMP 334 PL/1 Programming Language Level 2 – Covers the PL/1 high-level language using typical business programming including coding, testing and debugging programs of a relatively complex nature. The course continues COMP 234 and includes tape and disk processing, advanced programming techniques and language features. Prerequisite: COMP 234. **3 credits**

COMP 341 Data Communication Concepts Level 2 – Continues COMP 241. Valuable to students involved in the communication and computer industries. Students are exposed to advanced topics relating to communication systems for business applications. Topics include the methods and techniques necessary to develop data communication systems and computer teleprocessing; performance modeling of existing and planned networks; future and planned service offerings by common carriers; network control centre operation; common carriers and regulatory matters. Prerequisite: COMP 241. **3 credits**

COMP 345 CASE Technology – Examines how the emerging CASE technology facilitates the planning and design of systems. CASE tools are used as a design workbench in automating structured techniques, such as creating structured diagrams, maintaining dictionaries, directories, automating data modeling, checking and cross-checking the designs being created, using mathematically-based verification techniques, automating code generation. Highlights the major capabilities of major CASE tools in the market. Hands-on experience on a CASE product. Prerequisite: Knowledge of structured techniques. **3 credits**

COMP 346 FOCUS – Concerns productivity in the data processing industry. Information centres meet user needs for fast response for information by using 4th generation languages, because they speed up the process of developing and implementing information systems. FOCUS is a tool to meet these requirements. This course teaches students how to create, update and report from FOCUS databases using FOCUS commands and productivity aids: TABLETALK and FILETALK. Of interest to data processing professionals who want to assess the potential of this 4th generation language tool. Prerequisite: COMP 370 and one high level language. **3 credits**

COMP 349 Powerhouse Programming Language Level 2 – Expands on the material covered in COMP 249. Topics include procedures, QTP in depth, file linkages, multi-pass programming, and security. Prerequisite: COMP 249. **3 credits**

COMP 358 Expert Systems Technology 1 – Gives students proficiency in the LISP language for use as an Expert System development tool. Once the basic syntax and features of the language have been covered, the course focuses on LISP application areas in particular those suitable for Expert Systems work. Prerequisite: Programming maturity or permission of instructor. **6 credits**

COMP 360 Computer Systems Testing – Introduces students to the discipline of software testing. The course discusses various levels of testing and focuses on the testing effort within the framework of the life cycle of a development project. Topics include levels of testing – unit, integration, system, etc., scenario development for on-line transactions and batch jobs. Students will develop plans, write scenarios, execute tests and document results and problems. Prerequisite: A programming course and COMP 160/260 or 261/361. **3 credits**

COMP 361 Computer Systems Development Level 2 – Expands on COMP 261 and provides a working knowledge of systems analysis. The course develops the job skills for the documentation and implementation of information processing systems. Lectures and discussion, and a continuation of the case study from Level 1, cover controls, communication techniques, scheduling systems conversion and post-implementation auditing. Prerequisite: COMP 261. **3 credits**

COMP 363 Operating Systems Concepts – Introduces the basic principles of operating systems design and implementation. Examines an operating system as a manager of various computer resources including memory management, processor scheduling, disk organization, file systems, concurrency control, interprocess communications, I/O, Deadlocks, etc. Real operating systems are used for illustration and comparison. Prerequisite: COMP 242, 236. **3 credits**

COMP 370 Relational Database Systems – Covers relational database technology, including basic characteristics; relational algebra and calculus; entity-relationship charts; data analysis and design; dependencies; anomalies and normalization; query languages (SQL); loading, retrieval and updating; data dictionary; creating and using views; report writer. Students design, load and update a relational database. Prerequisite: COMP 260/270/361. **4 credits**

COMP 384 Decision Support Systems 2: Resource Allocation – Covers the methodology of deterministic models and techniques for solving management problems. Topics include linear, dynamic and mathematical programming, Games Theory II, heuristic methods and an introduction to expert systems. The course also examines some distribution models and real world applications. Prerequisite: COMP 284. **3 credits**

COMP 385 Applied Artificial Intelligence: Design of Expert Systems – Examines the formalization and storage of knowledge, automated reasoning strategies, problem selection, software tools and industry trends. Expert or knowledge systems is a sub-field of Artificial Intelligence with many practical applications. Briefly, problem-solving knowledge in a narrow domain is encoded then a specialized control program uses this knowledge base to determine solutions to relevant problems. Students will develop knowledge systems using a "shell", LISP or PROLOG. Prerequisite: Microcomputer and programming experience, or COMP 126 and another language. **3 credits**

COMP 391 3-D Computer Animation Applications Level 3 – Combines detailed exploration and application of powerful UNIX operating system features in system administration with discussions of current, ultra-high-end hardware/graphics software research and applications. Complex 3-D geometrical forms are created with photorealistic software treatments in color, lighting, texture and bump mapping. Finely tuned, aesthetically pleasing, motion paths and timing curves sensitive to desired moods are stressed. Students become totally familiar with a professional animation workstation studio, its hardware/software requirements and inter-connectivity. Prerequisite: COMP 291. **6 credits**

COMP 440 CICS – Teaches experienced PL/1 and COBOL programmers to design and code on-line programs using CICS. Topics include screen mapping and the CICS commands to handle processing. Prerequisite: COMP 333/334 or equivalent experience. **3 credits**

COMP 484 Decision Support Systems 3: Implementation – Explains the architecture which is the structure of a DBMS (database management system), model base management system, user interface, communications package, spreadsheet, and knowledge-based and simulation systems. The design phase covers the different design types for each of the above components. Based on the chosen design, a small DSS is written which has a user interface, a simple DBMS and a model base management system. The student is able to use this as a kernel for a real world system. C is the programming language used. Prerequisite: A Level 2 programming language, preferably COMP 237 (or equivalent), and COMP 384. **3 credits**

COMP 700 Technical Issues in Software Development – Covers software engineering principles from a technical point of view; review of data-flow diagrams, matrices and tree structures; project estimation, scheduling, planning, control, and documentation; security issues; quality assurances; performance analysis; prototyping; user interfaces; software implementation, testing, and maintenance; information engineering. Prerequisite: Knowledge in programming, systems analysis and design, database principles. **5 credits**

COMP 702 Applied Research Methods in Computer Systems – Introduces research methodologies and approaches appropriate to applied research projects in computer systems. Discusses research frameworks, role of theory, and empirical approaches such as field study, survey, controlled experiment and modeling. Covers suitable statistical methods. Prerequisite: Admission into Advanced Diploma Program. **3 credits**

COMP 703 Colloquium – A series of informal sessions in which students run their own seminars on topics of current interest, or attend seminars run by other students or experts from industry. Some sessions may involve field trips, demonstration of packages/projects or special courses from industry. Prerequisite: Admission into Advanced Diploma Program. **3 credits**

COMP 705 Data Communications Principles – Covers concepts, theory and practices employed in modern communications systems. Topics include transmission physics, modulation, encoding, multiplexing, the telephone system, network architectures (emphasis on ISO-OSI 7-layer reference model) and various practical network implementations (including integrated Services Digital Network, Local Area Network and Wide Area Network). Students work through a range of practical problems and are expected to write and present a major research paper. Prerequisite: Algebra, Trigonometry, elementary physics and COMP 471 or equivalent. **5 credits**

COMP 711 Computer Graphics Fundamentals – Introduces SunOS, IRIX, SunView and 4Sight; writing, compiling, linking C programs on graphics workstations. Covers simple 2D graphics pipeline, clipping algorithms, viewports, segmentation, interactive graphics, graphics engines; 2D/3D transformations, clipping, viewing and perspective projections; wireframe modeling, hidden line removal, object hierarchy, SunGKS, SunPHIGS and GL. Prerequisite: Proficiency in C Programming, Trigonometry and Linear Algebra. **5 credits**

COMP 757 Neural Network Applications – Explores neural network (NN) types Perceptron, Adaline, Madaline, Hopfield, Brain-State-in-a-Box, Back-Propagation, Recurrent Networks, Hidden Layers; Auto-Associative and Hetero-Associative, Complexity-Optimized, Spatio-Temporal Pattern Recognition, Boltzmann Machine, Probabilistic Neural Networks. Custom network design features are investigated, including Simulated Annealing during learning and recall; Connection Pattern Models such as Connect-Like, Connect-Randomly, Connect-Fully; Randomizing or jogging entire Network, Layer or Processing Element. A variety of learning rules are discussed, including Hebb, Hopfield, BSB, Kohonen and Generalized Delta. While the course must investigate theoretical issues in some detail, the overall emphasis is on applying NN theory to real situations. The course features discussions on applications such as airport explosives diagnosis and currency trading. Students develop "proof of concept" prototype NN applications in their own areas of interest. Prerequisite: COMP 358 (Applied AI) or equivalent. **5 credits**

COMP 771 Advanced Database – Provides an in-depth study of the relational model, relational database design theory and practice; different query languages (such as relational algebra, relational calculus, SQL, QBE); query processing techniques, decomposition and optimization; protecting database with integrity, views and security; transaction management with concurrency control. Examines physical data organization and implementation of relational operations. Students design and implement a database project, and submit a term paper that analyzes an existing database product or deals with a topic of applied research. Prerequisite: COMP 370 or equivalent. **5 credits**

COMP 780 Practicum 1 – A major capstone project in the student's area of specialization for which guidance or sponsorship by industry is essential. Ideally the project will be of interest to the student and useful to the participating company. This is a major vehicle for technology transfer to and from industry. Prerequisite: Admission into the Advanced Diploma Program. **10 credits**

COMP 800 Management Issues in Software Engineering – Covers the management aspects in software engineering/development. Personnel planning, budget control, critical path monitoring, management-level liaison with clients, project tracking, quality assurance, resource allocation and planning, etc. Prerequisite: Admission into the Advanced Diploma Program. **3 credits**

COMP 805 Data Communication Applications – Presents practical issues involving the use and implementation of modern communication systems. Topics include both hardware and software issues, serial data transmission, communication protocols, network configuration and network administration. Students gain practical experience by developing communication software (including low-level device drivers) for at least two hardware platforms, and by setting up and working with various computer networks. Students are expected to design and implement a significant communication program. Prerequisite: COMP 705. **5 credits**

COMP 811 Topics in Computer Graphics – Explores raster line drawing and scanning algorithms, antialiasing, 2D/3D interactive raster graphics systems, solid modeling, hidden surface removal, polygon meshes, Bezier curves, B Splines and NURBS, SunPHIGS+, lighting/shading/color/reflectance algorithms, ray tracing and radiosity models, computer animation, video/broadcast graphics systems. Prerequisite: COMP 711 **5 credits**

COMP 857 Selected Topics in Applied AI – Covers the latest practical applications in this fast-changing field. Prerequisite: COMP 757,457. **5 credits**

COMP 871 Selected Topics in Database – Examines current developments in database: integration of classical database concepts with emerging developments in object-oriented database systems and knowledge-based systems; first-order logic for relational and deductive databases. Other topics may include database machine architecture and uniformization, logic-based query optimization, database administration and/or distributed databases. Prerequisite: COMP 771. **5 credits**

COMP 880 Practicum 2 – A major capstone project in the student's area of specialization for which guidance or sponsorship by industry is essential. Ideally the project will be of interest to the student and useful to the participating company. This is a major vehicle for technology transfer to and from industry. Prerequisite: Admission into the Advanced Diploma Program. **10 credits**

COMP 901 Computing for the Timid – Provides a short course for those who have never used a computer – particularly those who are afraid of them. Explains common terminology and the major parts of the computer, keyboard, disks. Gives hands-on experience on IBM PC's to familiarize the student with computers. **non credit**

COMP 925 Build Your Own PC – Gives the student an understanding of the internal physical components of the IBM. An IBM-compatible kit is purchased and assembled by the student. Teaches how to care for and maintain it, including problem diagnosis, and how to upgrade computer hardware. Cost of the kit is extra. **non credit**

ELECTRONICS

***For more information or questions on prerequisites, contact Ernie Hancock, Tel. 432-8253.

ELEX 001 Electrical/Electronics Careers – A discussion of electrical and electronics career opportunities, the electronics industry in British Columbia and throughout Canada, and a discussion of electrical and electronics engineering technology courses available to the person interested in an electronics career or hobby. **non credit**

ELEX 100 Circuit Analysis 1 – 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 analyzed and designed. Methods of analysis for more complex circuits include mesh, superposition, nodal, Thevenin and Norton. Transients in RC and RL circuits are analyzed. Average and RMS values for sinewaves and rectangular waves are calculated. Labs are synchronized with lectures so that theory is studied and confirmed by application. Prerequisite: Math 12, Physics 11 or departmental approval. **7 credits**

ELEX 101 Electronic Manufacturing Processes – Through the design and manufacture of 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 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 PC board repair, high reliability soldering requirements, repair of heat and mechanically damaged PC boards, as well as techniques required for the design and manufacture of single and double-sided printed circuit boards. **5.5 credits**

ELEX 102 Digital Techniques 1 – Begins with a description of the fundamental theory of the decimal and binary number systems, followed by an introduction to the binary (two states or levels) concept and binary variables as related to mechanical switches. Various digital logic circuits are discussed and truth tables and Boolean output equations are generated. Various logic sources are defined and interfaced to combinational logic circuits comprising electronic logic gates. A TTL data book will be utilized to facilitate combinational 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 Demorgan's equivalent logic symbols (Duality of Gates). Encoders and decoders will be introduced. Upon successful completion of this course, students will be able to use the standard logic symbols correctly and apply proper gating techniques to the analysis and construction of basic logic circuits from word problems, or in the laboratory environment. **5.5 credits**

ELEX 112 Digital Techniques 1 Upgrade – Provides an upgrade from the old ELEC 202 which was 3 credits to the new ELEX 102 which contains more material and is now 6 credits. Also for those with previous trades, technical digital training. Prerequisite: ELEC 202 or departmental approval. **3 credits**

ELEX 163 Printed Circuit Board Design – Trains students in the design and manufacture of single and double-sided printed circuit boards. This course is designed with the electronic hobbyist in mind. For those students seeking credit for ELEX 101, but without PC board training, this course will complete the credit requirement. **2.5 credits**

ELEX 200 Circuit Analysis 2 – Introduces the behavior of electrical circuits and networks when driven by 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; phaser diagrams, impedance, admittance, voltage, current and power diagrams; analysis of AC circuits with complex algebra; resonance and resonant circuits, highpass and lowpass filters; the application of circuits laws and theorems to single-phase AC circuits, coupled circuits. Circuit theory is verified using multimeters, sine wave generators and dual trace oscilloscopes. Prerequisite: ELEX 100, MATH 143 or 114/115 or departmental approval. **5.5 credits**

ELEX 201 PASCAL – An introductory course on microcomputer use, DOS operating system, programming language, compiler and interpreter. The IBM personal computer is used throughout this course for interactive student training. The main part of the course covers PASCAL programs for electronics engineering applications. Students will also learn to document, debug, and utilize available software libraries. Prerequisite: ELEX 100 (may be taken concurrently). **4.5 credits**

ELEX 202 Digital Techniques 2 – Builds on the knowledge gained in ELEX 102. Studies the utilization of logic gates in larger combinatorial circuits such as magnitude, comparators, etc.; digital arithmetic and associated hardware;

sequential logic devices such as D, J-K, and T; flip-flops, counters, shift registers and their application in systems such as frequency counters and parallel/serial data manipulation circuits; gathering and comprehension of electrical specifications from data books; noise margins; propagation delay and loading considerations. Interfacing techniques to discrete devices, analog and digital data multiplexing, bus structures and techniques, and an introduction to solid state memory devices. Successful completion will lead to entry in ELEX 302. Prerequisite: ELEX 102, 203* (* may be taken concurrently), or departmental approval. **7 credits**

ELEX 203 Electronic Circuits 1 – Explains how electronic circuits work; how to analyze, design, modify and combine them to perform complex functions. Topics include interpretation of bipolar and field-effect transistor characteristic curves; voltage and current amplifying circuits; the transistor as a switch; loadline analysis; choice of Q-point; bias circuits; equivalent circuits; frequency response, feedback, oscillation response; oscillator circuits; power amplifiers; heat sink calculations; DC power supplies and characteristics, application of switching devices. Prerequisite: MATH 143 or 114/115, PHYS 106, ELEX 200* (*may be taken concurrently), or departmental approval. **8 credits**

ELEX 208 Circuit Analysis AC/DC – Enables persons with good math skills/previous technology level education to cover/review those topics necessary to take the more advanced courses in the Electronics program. Students study the basics of how DC and single phase AC circuits work, and how to analyze and design them for particular situations. If you are uncertain if you meet the prerequisites for this course you may attend the first session and then apply for written permission to attend. Counselling will be provided. Prerequisite: Recent Math 12 and Physics 11 both with minimum C+, or equivalents, plus additional higher level Math course(s) recommended. **2.5 credits**

ELEX 302 Microprocessor Systems 1 – Applies knowledge gained in ELEX 102/202 to study digital mux, display mux, A/D and D/A concepts, bus techniques, memory IC's and memory decoding schemes. A detailed introduction to microcomputer architecture is undertaken using the Z80 as an example. The student is also introduced to machine/assembly language programming, an operating system, as well as utilities such as an assembler, text editor, linker, software debugger, etc. Prerequisite: ELEX 200, 201, 202, 203, 303 OR 333. (ELEX 303 or 333 may be taken concurrently.) **7 credits**

ELEX 303 Electronic Circuits 2 (Control) – A continuation of ELEX 203. 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, sine wave oscillators, and simple function generators. Other circuits include digital/analog and analog/digital converters; three terminal regulator-based power supplies; and SCR phase control circuits. Prerequisite: ELEX 200 or 208, 203, MATH 243 or 116/117, or departmental approval. **7 credits**

ELEX 305 Electrical Equipment – Magnetic circuits, AC and DC motors and generators, transformers, fuses, circuit breakers, three-phase power and three-phase rectification are studied in detail. Meets or exceeds the ELEX 325 requirement for the Control Option diploma. Meets or exceeds the ELEC 257 requirement for Mechanical. Explains the operation of electrical equipment for tradespersons. Prerequisite: Previous AC and DC circuit analysis training required. **6 credits**

ELEX 307 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 phase lock loops. Both discrete transistors (bipolar and FET) and CMOS integrated circuits are used in building these circuits. Each circuit is analyzed in detail and its practical application is considered. Prerequisite: ELEX 200, 202, 203, MATH 243 or 116/117 or departmental approval. **5.5 credits**

ELEX 311 Applications Software – Introduces various PC-based software packages and their use as development tools. Types of software include the following general categories: an electronic spreadsheet, printed circuit board layout, logic circuit design and simulation, computer-aided drafting, word processing, and various disk and memory utilities. Throughout the course the student will be encouraged to become self-sufficient at using the software through experimentation, accessing reference manuals, and practical assignments. Prerequisite: ELEX 101, 201, 302* (*may be taken concurrently), or departmental approval. **6 credits**

ELEX 325 Electrical Equipment – Begins as a continuation of circuit analysis, then studies motors, generators, transformers and rectifiers. Topics include a review of phaser diagrams, power factor, three-phase power and circuit analysis, single- and three-phase power distribution systems, DC motors and generators, induction motors, synchronous motors and generators, motor control circuits, transformers (single- and three-phase), and three-phase rectification. Prerequisite: ELEX 200, MATH 243 or 116/117, PHYS 106 or departmental approval. **3 credits**

ELEX 331 Telecommunications Circuits and Systems 1 – Introduces the principles of telecommunications and defines the telecommunication system. Various modulation systems are explained including amplitude modulation, single-sideband and frequency and phase modulation. A typical transmitter and receiver are examined, first in block form, then the various component circuits are examined in more detail. Frequency synthesis is also covered. Prerequisite: ELEX 200 or 208, 202, 203, 303 or 333*, MATH 243 or 116/117 (*may be taken concurrently), or departmental approval. **7 credits**

ELEX 333 Electronic Circuits 2 (Telecom) – Provides further knowledge of electronic circuits with emphasis on their application in telecommunications. Topics include small-signal tuned amplifiers; control of gain; tuned power amplifiers; stability of tuned amplifiers; wideband amplifiers; operational amplifiers; active filters; and parameter systems and their use in small-signal analysis. Prerequisite: ELEX 202 or 208, 203, MATH 243 or 116/117 or departmental approval. **5.5 credits**

ELEX 341 Data Acquisition and Signal Conditioning – Examines the application and design of precision analog circuits to 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 and multiplexing systems, with emphasis on the 2-wire current loop. A strong practical approach is ensured by lab exercises and projects. Prerequisite: ELEX 200, 203, MATH 243 or 116/117 or departmental approval. **7 credits**

ELEX 406 Data Communication – Introduces the techniques used to communicate digital data from one point to another. Topics include transmission media, channel characteristics and interface standards (RS 232C, RS 449, current loop), techniques for modulation (FSK, PSK, QPSK) and data coding (NRZ, RZ, Manchester), error detection and correction. Other topics include bandwidth bit rate limitations, character-oriented (HDLC) and bit-oriented (Bisync) protocols, as well as networking schemes. Prerequisite: ELEX 302, 303 or 333, and 307 or departmental approval. **7 credits**

ELEX 412 Microprocessor Systems 2 – Examines the techniques used in troubleshooting and design of microprocessor systems including memory systems, extended memory, dynamic memories, bus buffering, relocatable and modular software, eeprom burning, support chips, display and keyboard interface, and direct memory access. These topics introduce the student to the hardware and software concepts and strategies that are essential for the continued operation and development of computer systems. Prerequisite: ELEX 302 and 307. **3.5 credits**

ELEX 460 Feedback Systems – An introduction to 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 behavior of closed-loop control systems. Classifications 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 are issued engineering software to aid them in problem-solving. Both analog and digital motion control systems are designed, assembled and tested. Prerequisite: ELEX 341, MATH 334, ROBT 303. **8 credits**

ELEX 512 Introduction to Single Chip Microcomputers 68HC11 – Examines the structure, operation and applications of the Motorola 68HC11 single chip microcomputer. Each student will have the use of an IBM-type MS-DOS-based computer for machine language program development and a 68HC11 emulator board for interfacing and programming. Prerequisite: Previous digital hardware and Assembly language programming experience is essential. **2.5 credits**

ELEX 513 Single Chip Microcomputers 2 68HC11 – Application of single chip microcontroller-based project from concept to final system. Includes hardware and Assembly language software development. Prerequisite: ELEX 512 or familiarity with Assembly language programming of the Motorola MC68HC11. **2.5 credits**

ELEX 514 Real-Time Programming Multitasking for Microcontrollers Part 1 – Drawbacks to conventional real-time software design. Task and context switching, emulation of multiple processors. Based on MC68HC11 microcontroller. Prerequisite: Proficiency in Assembly language programming is essential. **2 credits**

ELEX 515 Real-Time Programming Multitasking for Microcontrollers Part 2 – Resource sharing; re-entry; exclusion and semaphores; server tasks. Prerequisite: ELEX 514 **2 credits**

ELEX 538 Introduction to RF Circuit Design for Engineers and Technologists – An introduction to RF circuit design, combines the theory and lab practice of HF and VHF circuit design. Topics include: impedance matching networks; wideband transformers; synthesis of lowpass, highpass, bandpass and bandstop BUTTERWORTH and CHEBY-CHEV filters; introduction to microstrip circuits; high frequency modelling of transistors; small-signal amplifier design using Y and S parameters; stability analysis; design of oscillators and RF amplifiers. Design, build, test circuits. Prerequisite: Must be an engineer or technologist or must have departmental approval. **3 credits**

ELEX 588 Switching Power Supplies: Introduction – Theory of operation, design procedures, and component selection for series (buck), shunt (boost), buck-boost (inverting), half bridge, full bridge and other common switcher types. Students will construct and test series and shunt switchers in a well equipped laboratory. This course is recommended for electronics technicians, technologists

and engineers needing an introduction to switching power supplies. Prerequisite: Previous electronics theory and laboratory training and experience is required. **2 credits**

ELEX 900 Microcomputer Experimentation on IBM PC – Introduces hardware and software concepts necessary for information input/output using Assembly computer language on IBM PCs with 8086/8088 microprocessors. Of interest to engineering technologists and hobbyists in electronics or computer systems. **non credit**

ELEX 905 PLC Introduction for Electronics Technology – An introductory course on PLCs designed for engineers, technologists and technicians. The course includes PLC operation, PLC hardware overview and the basic instruction set (relay ladder logic, timers, counters, shift registers, etc.), as well as a solid grounding in the design and documentation of PLC programs. The student will be designing programs for the GE 90/70, Telemecanique TSX-17 and Westinghouse PLCs. An electrical/electronics background is not required for this course but candidates should have had exposure to handwired relay logic systems. **non credit**

ELEX 915 Programmable Logic Controllers Level 2 – A continuation of ELEX 905, the course expands on the instructions covered in ELEX 905 to include more advanced PLC functions including math functions, analog I/O, data manipulation and communications. This course is lab oriented and the student will design programs for the GE 90/70 and Telemecanique PLCs. A description of PLC hardware and operation pertaining to the new functions covered in this course will also be outlined. Prerequisite: ELEX 905 or equivalent. **non credit**

ELEX 920 Circuit Analysis 1 Introduction – An introduction to circuit analysis. A non credit course which parallels the first 12 weeks of ELEX 100. Students who wish to continue for credit may register in ELEX 100 before week 13. (ELEX 920 fees will be applied to ELEX 100 with continued registration.) Prerequisite: Math 12, Physics 11 or departmental approval. **non credit**

ELEX 930 Digital Techniques Introduction – An introduction to digital techniques. A non credit course which parallels the first 12 weeks of ELEX 102. Students who wish to continue for credit may register in ELEX 102 before week 13. (ELEX 930 fees will be applied to ELEX 102 with continued registration.) **non credit**

ELEX 940 Process Control Systems 1 – An introduction to the basics of instrumentation and control in today's industrial environment. The feedback control strategy will be examined with proportional, integral and derivative modes applied to temperature, level and flow processes. **non credit**

ELEX 941 Process Control Systems 2 – A continuation of ELEX 940. This course expands upon the basic feedback control system to include strategies of cascade, ratio and feedforward control. Prerequisite: ELEX 940 or departmental approval. **non credit**

ELEX 945 Process Transducers 1 – Introduction to basic industrial measurement systems. Participants will learn the fundamentals for the most common measurements in the process industries including temperature, pressure, level and flow. **non credit**

ELEX 946 Process Transducers 2 – A continuation of ELEX 945. Topics include measurement and signal conditioning techniques applied to industrial process measurements of temperature pressure, level and flow. Prerequisite: ELEX 945 or departmental approval. **non credit**

ELEX 948 Distributed Computer and Control Systems Introduction for Instrumentation – For engineers, technologists and technicians. Participants investigate the concepts of distributed control systems, including common functions and features as applied to typical process control.
non credit

FISH HARVESTING AND PROCESSING

FISH 900 Seafood Processing and Quality – Enables students to: identify major BC fish species; understand and evaluate seafood quality; handle seafood with minimal quality loss; describe processing techniques in BC's salmon, herring and groundfish industries; apply basic plant sanitation principles; understand the principles of a quality assurance program; describe government processing regulations. For those now working in the fish processing industry or those seeking employment in this area.
non credit

FISH 910 Seafood Retailing and Distribution – Enables students to: identify fishery products; understand and evaluate seafood quality; minimize quality loss during transport, receiving, storage and display; promote seafood. Provides hands-on experience and the opportunity to learn from industry experts. For those now working at a seafood counter or specialty store or those seeking employment in this area.
non credit

FISH 930 Seafood Handling for the Food Service Industry – Enables students to: identify fish species and products; describe edibility profiles; understand and evaluate seafood quality; identify purchasing, receiving and storage techniques; describe consumer issues. For chefs, sous-chefs, purchasing agents and managers in the food service industry.
non credit

FOOD TECHNOLOGY

BISC 903 Canned Foods: Thermal Processing and Container Evaluation – Designed to provide certification for supervisors, inspectors, line employees and persons involved with thermal processing and/or container evaluation. Topics include: the microbiology of canning, food container handling, food plant sanitation, records for product protection, principles of heat processing, heat processing systems, container closure evaluation for metal and glass containers and processing of acidified foods.
non credit

BISC 904 Sanitation for Food Plants – The major emphasis of the program will be on the basic fundamentals of food plant sanitation. The workshop will offer a broad range of information incorporating specific technology. General topics are: the microbiology of sanitation; insect and rodent control, cleaning and sanitizing, plant storage control, handling toxic materials, waste material handling, plant inspections. Open to persons employed and associated with the food processing industry. There are no special educational requirements for admission.
non credit

FORESTRY

FSTR 158 Metric Log Scaling – Prepares candidates for the B.C. Forest Service Licensed Scalers Examination (Coastal). Students learn the skills involved in accurate measurement, volume estimation and grading of coastal logs for value through classroom sessions and practical scaling in various locations along the north arm of the Fraser River. Metric scale sticks and life vest supplied; students must supply suitable caulk boots. Emphasis is on the new B.C. Government metric scale and current (1989) coastal log grades. Appropriate for people with some knowledge or experience in the logging industry.
7 credits

FSTR 430 Logging Residue and Waste Survey Certification – BCIT, in conjunction with the Ministry of Forests, offers a 5-day Logging Residue and Waste Survey Certification course. A background of cruising or scaling would be a definite asset. Suitable experience or a temporary 1991 Residue and Waste Certificate is a prerequisite to writing the examination for certification.
2 credits

FSTR 921 B.C. Log Scale fbm – This course is for licensed log scalers who require endorsement in imperial measurements using foot board measure. The course includes classroom sessions and practical scaling in various locations along the north arm of the Fraser River. Scale sticks and life vest supplied; students must supply suitable caulk boots. Prerequisite: FSTR 157 or 158 or equivalent, or log scaling ticket.
non credit

FSTR 922 Log Scaling Refresher – A five-day refresher course to prepare candidates for the B.C. Forest Service Licensed Scalers Examination (Coastal). The course includes classroom sessions and practical scaling in various locations along the north arm of the Fraser River. Scale sticks and life vest supplied; students must supply suitable caulk boots. Emphasis is on the B.C. Government metric scale and current (1989) coastal log grades. Prerequisite: FSTR 157 or 158 or equivalent, or log scaling experience.
non credit

GEOGRAPHIC INFORMATION SYSTEMS

GIST 700 Fundamentals of Geographic Information Systems – An overview of GIS covering fundamental 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.
3 credits

GIST 708 Fundamentals of Digital Mapping – 'Informs students of the fundamental operations involved in the process of digital base mapping through analytical photogrammetry, and how to compile, transform, edit and store data sets in a form equivalent to government standards for this type of information. Prerequisite: GIST 821 (may be taken concurrently).
3 credits

GIST 718 Remote Sensing – Describes the concepts and foundations of remote sensing; the features of the instrumentation used in remote sensing; defines pattern recognition and examines the key steps in applying remote sensing to earth resources management problems. Prerequisite: GIST 821 (may be taken concurrently).
3 credits

GIST 720 Project Planning – Students will research project topics, present a project proposal, establish supervisors, identify sources of data and begin data acquisition.
3 credits

GIST 721 Applied Mathematics 1 – Numerical methods. Floating point computations, matrices, and simultaneous linear equations, interpolation methods, approximation methods, linear algebra, solutions to non-linear equations. Prerequisite: Math 12 or equivalent.
3 credits

GIST 725 PAMAP GIS Level 1 – Introduction to operational aspects of PAMAP GIS software in a microcomputer environment. Topics include data entry, editing and map design GIS operations using MAPPER, and fundamental GIS operations using ANALYZER. Working problems drawn from resource management.
3 credits

GIST 726 TERRASOFT GIS Level 1 – Introduction to operational aspects of TERRASOFT GIS software in a micro-computer environment. Topics include data entry, editing and map design in TERRASOFT CAD environment, and fundamental GIS operations. Working problems drawn from resource management and urban applications. **3 credits**

GIST 728 ARC/INFO GIS Level 1 – Introduction to operational aspects of GIS software using ARC/INFO GIS in a workstation environment. Topics include data entry and editing in ARCEDIT, map design in ARCPLLOT, and fundamental GIS operations. Working problems drawn from resource management and urban applications. **3 credits**

GIST 730 Technical Topics in Computer Systems – Reviews trends in computer system architecture, hardware and software, operating systems, programming languages, and application programs. Introduces concepts of data communications and networking, and introductory mathematics for computing. **3 credits**

GIST 732 Fundamentals of Computer Graphics – Graphics systems, devices, software libraries, graphic primitives, attributes, 2D transformations, windowing and clipping, graphics standards. Prerequisite: AICO 522 or equivalent. **3 credits**

GIST 733 Relational Database Systems – The relational database model. Relational algebra and calculus. Query languages, data definition language, data dictionaries, normal forms, distributed systems. **3 credits**

GIST 800 Technical Issues in GIS – Examines a variety of data structures and algorithms used in GIS. Examines such topics as digital elevation modelling, spatial interpolation, generalization, data standards, digital data exchange, and data integration. Prerequisite: GIST 700; GIST 832 (may be taken concurrently). **3 credits**

GIST 801 Selected Topics in Geographic Information Systems – Examines current topics in GIS such as rule-and knowledge-based systems, error in GIS, visualization, three dimensional GIS, object oriented databases and programming, multi-media, cartographic modelling. Prerequisite: GIST 800. **3 credits**

GIST 810 Management Issues in GIS – GIS project management, GIS integration with external systems, data acquisition and conversion issues, spatial data management. Prerequisite: GIST 700, 800. **3 credits**

GIST 811 Management of Technological Change – System evaluation, benchmarking, acquisition, implementation strategies, training issues. Prerequisite: GIST 700, 800. **3 credits**

GIST 812 GIS Seminar for Natural Resource Management – A two day seminar session introducing concepts and terminology of geographic information systems. Topics include hardware, software, system acquisition, base mapping issues, data conversion and accuracy, GIS system implementation and natural resource GIS applications. Seminar sessions are given by a variety of natural resource GIS industry experts. **1 credit**

GIST 813 GIS Seminar for Local Government – A two-day seminar session introducing concepts and terminology of geographic information systems. Topics include hardware, software, system acquisition, base mapping issues, data conversion and accuracy, GIS system implementation and local government GIS applications. Seminar sessions are given by local government and GIS industry experts. **1 credit**

GIST 820 Project – Affords students the opportunity to work on a comprehensive project with an industry mentor, or on a project of their own choosing. Prerequisite: Completion of

all course requirements.

12 credits

GIST 821 Applied Mathematics 2 – Statistics. Prerequisite: GIST 721. **3 credits**

GIST 825 PAMAP GIS Level 2 – A continuation of GIST 725 covering the interpreter, topographer and file translator utilities and user commands. Prerequisite: GIST 725. **3 credits**

GIST 826 TERRASOFT GIS Level 2 – A continuation of GIST 726 covering database linkage, use of database software, coordinate geometry, digital terrain modelling, analytical GIS functions, and data import/export. Prerequisite: GIST 726. **3 credits**

GIST 828 ARC/INFO GIS Level 2 – A continuation of GIST 728 covering use of ARC macro language programming, database software, coordinate geometry, digital terrain modelling, analytical GIS functions and data import/export. Prerequisite: GIST 728. **3 credits**

GIST 832 File and Data Structures – Sequential, direct and keyed indexed file handling. Queues, linked lists, trees. Prerequisite: AICO 523. **3 credits**

GIST 833 Object Oriented Programming with C++ – Introduces concepts of object oriented programming (encapsulation, inheritance, polymorphism) using C++ in a microcomputer environment. Problems drawn from computer graphics and geographic information systems. Prerequisite: AICO 523. **3 credits**

GIST 834 Data Communications and Networking – Communication between computers. Networking theory and practice. Distributed processing with special emphasis on microcomputers. Software management of LAN systems. Theory of ETHERNET and ISO standard. Prerequisite: GIST 730. **3 credits**

LANDSCAPE

LAND 100 Soil Improvement – This course offers a basic working knowledge of the physical and chemical properties of soil relevant to the needs of landscape architects, landscape contractors and parks and recreation staff. Students will become equipped to make rational decisions with soils destined for purposes such as landscaping, playing fields, golf courses and home gardens. **3 credits**

LAND 101 Structural Material – An introductory course in structural material for students with little or no experience of Landscape Technology. Structural materials include rock, brick, unistone, wood, asphalt, concrete, glass and plastic. The student studies the origin, qualities and use of materials in landscape design and management; appropriate materials for particular jobs, and a cross-section of these materials with specifications. Topics include selection and location of materials in the landscape. **3 credits**

LAND 103 Grading and Drainage Plan Production – Introduces the production of detailed grading and drainage plans for land development including roadways, parking lots, building sites, sportsfields and parks. Students learn to recognize contour signatures, to grade for cuts and fills, roadways and drainage. Skills and knowledge of grading problems and techniques will be developed through a series of small assignments, culminating in the preparation of a major site grading and drainage plan. MECH 140 recommended but not required **3 credits**

LAND 104 Horticulture – This introductory course encompasses botany, plant propagation and the scientific principles of the art of horticulture. Practical aspects such as annual flower production, hanging baskets, chrysanthemum culture and related projects will be carried out in the greenhouse. **4.5 credits**

LAND 105 Plant Introduction – This course enables the student to identify the genus, species and variety or cultivar of approximately 125 to 150 trees, shrubs, ground covers and vines commonly used in landscape design. LAND 104 recommended but not required. **3 credits**

LAND 106 Pesticides for Retailers and Landscape Applicators – For persons engaged in retailing, commercial landscape maintenance or nursery crop production, who intend to write examinations under the Pesticide Control Act to become certified pesticide dispensers/applicators. Students study pesticides used in B.C. and have the opportunity to write the Pesticide Control Act examination, in the last week of the course, under the direction of the B.C. Ministry of the Environment. Topics include: legislation, pesticide safety, pesticide formulation, prescribed uses, data interpretation in various bulletins, and the responsibilities of pesticide applicators and dispensers. **1.5 credits**

LAND 201 Landscape Structural – This course is designed for the student with basic knowledge of landscape materials and fundamental drafting techniques. An introduction to the production of landscape detail drawings for interlocking pavers, concrete surfaces, retaining walls, wood cribbing, fencing, paths, rockwork, water features and planting details. Several classes will be labs in which the student will install some of the above landscape features. LAND 101 recommended but not required. **3 credits**

LAND 202 Plant Material Study – Enables the student to identify the genus, species and cultivar of an additional 125 to 150 trees, shrubs, ground covers and vines commonly used in landscape design. LAND 105 recommended but not required. **3 credits**

LAND 203 Residential Landscape Design – Examines site inventory, client requirements, functional analysis and the aesthetics of both hard and soft landscaping to produce functional and pleasant landscape concept plans, and planting plans for single family residences. MECH 140 recommended but not required. **4.5 credits**

LAND 204 Parks and Recreation – An introductory course in the development of parks and recreational facilities and their design/maintenance. Examines the historical differences and development of Federal/Provincial Regulations – municipal parks with the emphasis on municipal parks. Examines the basic facilities required for municipal parks and recreation areas, layout and maintenance of outdoor and indoor facilities. Course content includes planning principles for passive and active indoor and outdoor recreational facilities. Sports fields, swimming pools, ice arenas, golf, marine facilities, beaches, children's play areas. General features – fences, walls, shrubs and trees, lights, parking and general maintenance. Final four nights are a design workshop for a major community park. **4.5 credits**

LAND 205 Management for Landscape – Introduces landscape technicians to management skills required in landscape development including the legal requirements affecting land use, contract documentation, ethics and professional liability. The student studies professional responsibilities in respect to the consultant's relationship to client/contractor; client relationship; production of contract documents; legal liability, contract supervision. **3 credits**

LAND 207 Landscape Irrigation – Provides technical information and basic training in turf and landscape irrigation. Topics include basic hydraulic theory, system design and construction fundamentals; scientific and practical aspects of water application; installation, operating and maintenance procedures for major types of irrigation systems. **3 credits**

LAND 208 Sports Turfgrass Management – An introductory course in turfgrass management for persons associated with maintenance of golf courses, municipal parks and outdoor recreational facilities. Topics include turfgrass botany (classification, nomenclature, identification and utilization); weeds, disease and insect problems and control strategies; soils (introduction and classification); soil amendments and fertilizers; tillage and cultivation systems. Also includes basic construction of sand playing fields along with cultural practices and management programs for these fields. **3 credits**

LAND 209 Cost Estimation – This course is for persons with limited experience in cost estimating, and contractors wanting more accuracy in their estimating practices. In this course the student will develop an estimating system based on quantifying overhead recovery, material, labor, equipment and sub-contractor costs as well as profit margins. This system, coupled with methods of area and volume surveying, will be used to prepare a quotation for a hypothetical landscape project supplied by instructor. There will be a tender opening at the end of the course when the results will be examined in detail. **3 credits**

MATHEMATICS

MATH 001 Technical Mathematics: Introduction (90 hours) – An upgrading/refresher course for students who have not completed high school mathematics, or who completed it more than three years ago, or whose Math background is otherwise weak. The course meets the Math 12 entrance requirement for BCIT programs. Students intending to enter a technology which requires a Math 12 grade of C+ or better must achieve a final mark of 65% or higher in MATH 001. Prerequisite: C or better in Math 11, or equivalent. **non credit**

MATH 002 Technical Mathematics: Introduction – Flexible entry correspondence course that satisfies the Math 12 entrance requirement for BCIT. Students intending to enter a BCIT technology which requires a Math 12 grade of C+ or better, must achieve a final mark of 65% or higher in Math 002. Students who have difficulty with mathematics or those who have been away from school more than three years are advised to take the classroom course (see P/T offering – Math 001). Prerequisite: A pass in Math 11 or an approved equivalent mathematics course. **non credit**

MATH 004 Refresher Mathematics (30 hours) – A review of mathematical techniques essential for success with basic technical Math and calculus courses in BCIT technology programs. Topics include common algebraic methods for solving equations, simplifying expressions, manipulating formulas, etc.; basic trigonometry; graphing properties of common geometric figures; techniques for solving problems. Emphasis is placed on developing practical skills and systematic approaches to solving problems and verifying solutions. A course for students who have met the mathematics prerequisite, but who have not used basic Math techniques for several years. Prerequisite: Math 12 or equivalent. **non credit**

MATH 101 Technical Mathematics 1: Trigonometry (36 hours) – A course for engineering technology students in the application and theory of trigonometric functions including right angle trigonometry, radian measure, vector and triangle problems, trigonometric identities and graphing, polar coordinates, compound and double angle formulas, trigonometric equations and inverse functions. Prerequisite: Recent Math 12 or MATH 001 (or equivalent) with C+ or better. **3 credits**

MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry (36 hours) – The theory and application of common and natural logarithms, and an introduction to analytic geometry. Emphasis on the plotting, interpretation and uses of logarithmic/semilogarithmic graphs; geometric and practical properties of conic sections; polar/rectangular transformations. Quadratic surfaces are briefly discussed. Prerequisite: Recent Math 12 or MATH 001 (or equivalent). **3 credits**

MATH 114 Mathematics for Electronics: Part A (63 hours) – The first of two parts which includes: common and natural logarithms, logarithmic/semilogarithmic graphs, decibels, exponential growth and decay, systems of linear equations, determinants, application to electrical networks, trigonometric functions, identities, solution of triangles, graphing and addition of sinusoidal functions, complex numbers, rectangular/polar transformations, phasor representation of sinusoidal waveforms, application to electrical technology, the derivative, differentiation rules, applied maxima/minima. MATH 114 and MATH 115 replace MATH 143. Prerequisite: Recent Math 12 or 65% or higher in MATH 001 or equivalent. **4 credits**

MATH 115 Mathematics for Electronics: Part B (63 hours) – The second of two parts. See MATH 114 for details. MATH 114 and MATH 115 replace MATH 143. Prerequisite: MATH 114 or equivalent. **4 credits**

MATH 116 Calculus for Electronics: Part A (54 hours) – The first of two parts which includes: implicit differentiation; related rates and approximations of differentials used in electronics technology; anti-differentiation; the indefinite/definite integral including evaluation of areas, average 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 spectrums. MATH 116 and 117 replace MATH 243. Prerequisite: MATH 115, MATH 143 or equivalent. **3.5 credits**

MATH 117 Calculus for Electronics: Part B (54 hours) – The second of two parts. See MATH 116 for details. MATH 116 and 117 replace MATH 243. Prerequisite: MATH 116 or equivalent. **3.5 credits**

MATH 122 Logarithms – Equivalent to the “logarithms” portion of MATH 102, this course is set up as a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. It covers the theory and applications of common and natural logarithms, plotting logarithmic/semilogarithmic graphs and their interpretation. ASTT accredited if taken with Math 124. Prerequisite: Recent MATH 12 or MATH 001 or equivalent. **1.5 credits**

MATH 123 Trigonometry – Equivalent to MATH 101, except it is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Includes the theory and application of trigonometric functions; right angle trigonometry; vectors; trigonometric graphs, identities and equations; compound and double angle formulas; inverse functions. ASTT accredited. Prerequisite: Recent Math 12 or MATH 001 or equivalent with C+ or better. **3 credits**

MATH 124 Analytic Geometry – Equivalent to the “analytic geometry” portion of MATH 102, except it is a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. Geometric and practical properties of conic sections, including polar coordinates and transfor-

mations. ASTT accredited if taken with MATH 122. Prerequisite: Recent Math 12 or MATH 001 or equivalent with C+ or better **1.5 credits**

MATH 125 BASIC 1: Introduction to Microcomputers IBM PCs (36 hours) – Designed for engineering technology students with no previous BASIC programming or micro-computer experience. Topics include computer terminology, hardware, disk operating system, commands, BASIC language concepts (input/output, BASIC arithmetic and functions, relational operators, branching statements, subroutines and graphics statements). **3 credits**

MATH 203 Technical Mathematics 3: Calculus (72 hours) – An introductory course in calculus and its technical applications involving the differentiation and integration of algebraic, trigonometric, logarithmic and exponential functions. The course emphasizes the application of calculus in solving engineering technology problems. Prerequisite: MATH 101 and MATH 102 or equivalent. **6 credits**

MATH 204 Technical Mathematics 4: Calculus (72 hours) – A continuation of MATH 203. Topics include further work on integration, partial differentiation, an overview of Maclaurin, Taylor and Fourier series, and the solution of differential equations with special consideration given to the use of Laplace transforms. Prerequisite: MATH 203. **6 credits**

MATH 221 Calculus: Part 1 – Equivalent to the first part of MATH 203, except it is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Includes differential calculus with instantaneous rates of change, Delta-process, the derivative, implicit differentiation, curve sketching, differentiation rules for algebraic functions, applied maxima/minima. Prerequisite: MATH 122, 123 and 124, or equivalents. **3 credits**

MATH 222 Calculus: Part 2 – Equivalent to the second part of MATH 203, except it is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Introduces integral calculus, including the indefinite and definite (with application to areas, volumes and centroids), trapezoidal rule and antidifferentiation. Prerequisite: MATH 221 or equivalent. **3 credits**

MATH 227 Calculus: Part 3 – This is a distance education (correspondence) course. Students may enrol any time throughout the year and take up to one year to complete the course. Differentiation and integration of trigonometric, logarithmic and exponential functions. Prerequisite: MATH 222 or equivalent. **3 credits**

MATH 320 Matrix Algebra (36 hours) – Topics include matrix operations, solving systems of linear equations, translations and rotations, eigen values and eigen vectors. Students are expected to have had some computer programming experience. Prerequisite: MATH 001 or equivalent. **3 credits**

MATH 343 Transform Calculus for Electronics – First and second order differential equations. The laplace transform as an integral function. Transform pairs for functions and operations, inverse transforms from tables, techniques of partial fraction expansion for inverse transformation. Poles, zeroes, s-plot, s-domain circuit diagram and applications. Transients in multimesh circuits, transfer functions and frequency response to sinusoidal inputs. Fourier series, trigonometric fourier coefficients and frequency spectrum. Prerequisite: MATH 243 or MATH 116/117. **3 credits**

MATH 349 Numerical Methods for Mechanical – The application of numerical methods to engineering problems is introduced. Using the BASIC language, the algorithms are programmed and used in complex problem-solving. Matrix methods and their application to computer graphics, linear programming and other applied mathematics problems are presented. Prerequisite: MATH 204 or 249 or equivalent.

4 credits

MATH 449 Statistics and Quality Control for Mechanical – The application of basic statistical principles and techniques to industrial quality control is emphasized in this course. Topics include descriptive statistics (Pareto and CE analysis), the Hypergeometric, Poisson, Binomial and Normal Probability Models, an introduction to hypothesis testing, tolerances and fits, sampling distribution, basic capability analysis, design of acceptance sampling plans, operating characteristic curves, use of Mil-Std 105D, risks in sampling, use and interpretation of control charting for \bar{x} -bar and R or S, and statistical process control (SPC). Provides a sound foundation for students hoping to challenge the American Society for Quality Control's Certified Quality Technician and Engineer Examinations. Prerequisite: MATH 349 or 203.

5.5 credits

MATH 460 Mathematics for CAD/CAM – Geometric modeling including cubic splines, bezier curves and surface patches. Matrix approach to transformations. Raster algorithms and techniques including curve generation, halftoning and other special effects. Kinematics and simulation. Solid modeling. Overview of finite element method. Selected algorithms from cartography. Interactive computer graphics concerns. Prerequisite: MATH 349.

5.5 credits

MATH 962 Introductory SPC for the Plastics Industry (7 hours) – This is a one-day seminar in statistical process control. It provides an intuitive and simple mathematical look at SPC terminology and techniques. Topics include histograms; sampling techniques; capability indices; pareto analysis; cause and effect diagrams; construction and analysis of \bar{X} -bar and R charts, with relevant industry applications. A statistical calculator is required. Course can be modified to industry demand. For more information contact Louise Routledge at 434-5734, local 5400.

non credit

MECHANICAL

MECH 104 Statics – Vectors, force systems, concurrent and coplanar, nonconcurrent and coplanar. Graphical representation and solutions. Equilibrium; mathematical representation of equilibrium. Analysis of frames. Statically determined structures. Redundancies. Beams, principles of moments and centroids. Second moment of area. Prerequisite: MATH 101.

4 credits

MECH 106 Manufacturing Processes 1 – A basic orientation course which provides the student with practice in metal removal, and a study of related theory.

4 credits

MECH 107 Introduction to Thermal Processes – Introduction to heat and fluid processes. Steam tables, first law of thermodynamics. Basic steam power and refrigeration cycles.

3 credits

MECH 140 Drafting Fundamentals – A general "hands on" course for students from a broad spectrum of backgrounds and interests. This course covers use of instruments and equipment, sketching, geometric constructions, theory of orthographic projection and dimensioning of detail drawings, auxiliary and sectional views, and isometric drawings.

3 credits

MECH 200 Mechanical Drafting 2 – Advanced techniques including limits and fits, isometric and orthographic single line piping diagrams, descriptive geometry, intersections, development, gears, threads and fasteners, weld symbols, working drawings and projects. Prerequisite: MECH 100 or MECH 140.

4 credits

MECH 206 Mechanics of Materials – Stress, strain and deflection. Tension, compression, shear, torsion, deflection and buckling of material under load. Beams, columns, shafts, thin and thick-walled cylinders, riveted and welded joints, combined stress situations. Prerequisite: MECH 104.

5.5 credits

MECH 208 Dynamics – Kinematics: basic equation of motion, motion diagrams, trajectories. Kinetics: Newton's Laws, inertia, rectilinear and rotational kinetics, systems of bodies. Work, energy, power and efficiency, impulse and momentum. Prerequisite: MECH 104.

5.5 credits

MECH 216 Drafting: Civil/Survey – A general insight into graphical aspects of civil problems for managers, construction workers, foremen, planners and estimators. Students study the application of drawing skills and techniques to civil engineering. Drawing assignments relate to topographical drafting plans and profiles, cuts and fills and municipal sewage systems or rights of way plans. Prerequisite: MECH 140.

3 credits

MECH 240 Manufacturing Processes 2 – Machine tool operations, production processing and economics, evaluation of production features, maintenance. Metal joining processes and equipment, production costs and design applications. Prerequisite: MECH 106.

5.5 credits

MECH 250 Pulp and Paper Process Piping 1 – Introduces drafting techniques, symbols and dimensioning practices for welded, threaded and flanged piping. The student learns to draw scale piping layouts using single and double line drafting techniques; isometric piping drawing with dimensions and call-outs. Prerequisite: MECH 200 or departmental approval.

3 credits

MECH 301 Machine Design 1 – An introductory course in 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, shafts, belt drives, geometric and force relationships in spur gearing, and an introduction to other machine elements. Problems are handled in both S.I. and British units. Prerequisite: MECH 206, 208.

4 credits

MECH 302 Thermal Engineering 1 – 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 107.

4 credits

MECH 303 Fluid Mechanics – Basic principles of fluid properties, energy losses, Reynold's number, Moody diagram, flow measuring devices, dynamics of flow lift and drag. Fluid statics. Prerequisite: MECH 208.

4 credits

MECH 304 Manufacturing Processes 3 – A study of hot and cold fabrication processes; materials and machines, quantities/costs will be investigated. An introduction to CNC programming by both manual and punched tape inputs. Prerequisite: MECH 240.

4 credits

MECH 320 Fluid Power 1 – Provides an understanding of pneumatic control 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.

3 credits

MECH 350 Pulp and Paper Processing 2 - The student develops a piping layout to detailed design, including procedures for designing economical piping systems, layout of main process lines; critical lines and specialized piping. Prerequisite: MECH 250. **5 credits**

MECH 401 Machine Design 2 - The sequel to MECH 301, covers couplings, brakes and clutches; anti-friction and journal bearings; helical, bevel and worm gearing; power screws, springs and machine frame components; introduction to mechanical vibrations, with emphasis on critical speeds of rotating bodies. An introductory treatment of bulk materials handling systems is also included. Problems are handled in both S.I. and British units. Prerequisite: MECH 301 **6.5 credits**

MECH 404 Thermal Engineering 2 - Mixtures of gases and vapors, Gibbs-Dalton Law, psychrometry, air conditioning, combustion processes and nozzle flow; analysis of steam and gas turbines and jet propulsion. Practical lab investigations by students. Prerequisite: MECH 302. **5.5 credits**

MECH 413 Tool Design - The course includes introduction to 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, standard parts. Assignments will be worked on away from classroom. Prerequisite: MECH 200. **4 credits**

MECH 420 Fluid Power 2 - Provides an understanding of hydraulic control systems and an introduction to fluidic control systems and control logic. Fluid power components, their symbols, function and construction are examined and used in the design, construction and testing of a variety of hydraulic control systems. Sizing calculations for system components are also covered. Prerequisite: MECH 320. **4 credits**

MECH 432 Automatic Sprinkler Systems Design 1 - For persons involved in engineering design, supervision or inspection of commercial and industrial automatic sprinkler systems, to gain an understanding of pipe schedule systems and water supply system analysis. The course examines the basics of wet and dry pipe systems; NFPA Standard #13; system components and applications; basic hydraulics of piping systems; water supply system analysis and tests with various examples; quick opening devices. Classroom lectures may be augmented by a Saturday field trip to take water flow tests. Students require an electronic calculator with XY function. Prerequisite: MECH 303 or departmental approval. **3 credits**

MECH 436 Automatic Sprinkler System Design 2 - Advanced detailed instruction for persons involved in fire service, engineering design, supervision or inspection of automatic sprinkler systems in commercial and industrial buildings. The course examines deluge, pre-action, combined dry pipe and pre-action, water spray and special systems; hydraulics of sprinkler systems including tree, looped and gridded systems; computerized calculations; economical design considerations; water tanks; fire pumps, booster pumps, jockey pumps; maintenance. Prerequisite: MECH 432. **3 credits**

MECH 444 Metrology - Includes measurement of surface texture and flatness, optical and electrical comparators, metrology of screw threads, precision measuring instruments, fundamentals of inspection, mass production gauging. Prerequisite: MECH 240. **5.5 credits**

MECH 445 CNC Laboratory - Computer Numerical Control programming and verification on a 3-axes CNC mill and other CNC machines. Prerequisite: MECH 304. **4.5 credits**

MECH 460 Engineering Economy - Emphasizes 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 analyze comparative costs and to understand the time value of money (interest), inflation, depreciation, running costs, salvage value and tax considerations. **2 credits**

MECH 466 Fluid Systems - Dimensionless parameters. Pump and piping characteristics, operation and maintenance. Cavitation. Air movement and supply, fan performance and characteristics, duct sizing and networks. Prerequisite: MECH 303. **2.5 credits**

MECHANICAL SYSTEMS

MSYS 103 Plumbing - Topics include codes; basic engineering principles and graphic presentations related to plumbing systems design, load calculations, piping methods, sizing of system components for storm and sanitary drainage and water distribution. Some drafting skill will be required. Prerequisite: MECH 100 or 140. **4 credits**

MSYS 200 Systems Drafting 2 - Further topics in mechanical drafting practices and projects on systems in buildings and plants. Prerequisite: MECH 100 or MECH 140. **4 credits**

MSYS 220 Heating and Ventilating 1: Residential - Covers the principles and practices of air heating systems for residences. Encompasses a study of warm air furnace system components and design procedures. These will be applied to the preparation of working drawings. An overview of alternate energy sources, passive and active solar heating systems will be discussed. Prerequisite: MECH 140 or equivalent (may be taken concurrently). **3 credits**

MSYS 221 Heating and Ventilating 1: Commercial - Topics include heat energy flow, building psychrometrics, occupant comfort, and a study of air heat systems components controls and design procedures for heating and ventilating of commercial buildings. These will be applied to preparation of heat loss estimates, heating and ventilating calculations, working drawings. Prerequisite: MECH 140 or equivalent (may be taken concurrently). **3 credits**

MSYS 320 Heating and Ventilating 2 - Covers the principles and practices of building zoning, fuel cost estimating, hydronic heating system components, controls, boilers, venting of appliances, gas piping, combustion and ventilation air. These will be applied to preparation of design calculations and working drawings. Prerequisite: MECH 140 or equivalent (may be taken concurrently). **3 credits**

MSYS 403 System Noise Control - Lab assignments are arranged to solve fundamental problems of sound propagation; to use mechanical equipment sound performance data to select equipment to satisfy acceptable noise levels, and to recognize and arrive at solutions to potential mechanical system noise problems in the design state. The physics of noise propagation will be covered, together with the theory of vibrations and techniques of design and transmissibility of vibration. Prerequisite: PHYS 216 or 206 or 232. **3 credits**

MSYS 420 Air Conditioning Design - Properties of air extending use of psychrometric chart to air conditioning comfort criteria and examination of air conditioning processes; refrigeration for air conditioning, encompassing evaporator, compressor, condenser and expansion valve performance characteristics and selection; air conditioning systems encompassing representative unitary, constant volume and variable volume systems. Prerequisite: MSYS 220 and 320. **3.5 credits**

MSYS 430 Air Conditioning Controls and Systems – Air conditioning systems fall into different categories. This course enables the student to understand where and when each system applies. Systems include: VAV, constant volume, heat pumps, etc. The student will have the opportunity to design air conditioning projects using the latest software on IBM ATs. The programs will be used for air condition system design, ductwork layout and links to AutoCAD piping design. Prerequisite: MSYS 420 or departmental approval. **5 credits**

MINING

MINE 154 The Mining Industry – Provides a background for those unfamiliar with the mining industry. Introduces the importance, nature, sub-divisions and economic framework of the mining industry; exploration techniques – brief descriptions of geology, geophysics and geochemical principles; mining methods – surface and underground, particularly those common in B.C., reclamation; treatment methods – ore values are concentrated with crushing, grinding, flotation, gravity separation, leaching and other operations. Smelter contracts and mine evaluations may be covered. **3 credits**

OPERATIONS MANAGEMENT

OPMT 103 Quality Control Methods 1 – A basic statistical quality control course focusing on control charting methods. The course will cover basic principles of pre-production process capability studies and process control production. This course and OPMT 201 will assist students preparing to write the A.S.Q.C. Certified Quality Technician Examination. **3 credits**

OPMT 182 Operations Management – Students will be introduced to problem situations at the management level of a production organization. Each topic is introduced by lecture and continued by lab practice in various solution techniques. Students are expected to produce management reports for each assignment. Topics are: business forecasting at the product level; inventory control including EOQ, ELS and an introduction to MRP; project control using CPM and PERT; quantitative methods including linear programming and waiting line techniques; introduction to business accounting and finance, including production cost accounting. All students are required to work with packaged computer programs. Prerequisite: TCOM 210 or COMM 183 **6 credits**

OPMT 183 Industrial Engineering for Robotics – Surveys the general background to operations management in terms of planning and organizing manufacturing operations. Topics include facility location and layout, methods improvement and production/inventory management. **4 credits**

OPMT 187 Project Planning and Scheduling – For those who require basic information about the critical path method (CPM) and its application to project management. The course introduces the fundamentals of CPM as used in planning, scheduling, resource allocation and project management. It includes an introduction to planning and scheduling techniques; Gantt charts, arrow diagrams; precedence diagrams; PERT; time-cost relationships; resource allocation; bid determination; project management and the role of the computer. **3 credits**

OPMT 203 Quality Control Methods 2 – Provides students with the opportunity to learn and apply the principles of Acceptance Sampling. **3 credits**

OPMT 411 Production Engineering Management – Presents aspects of management and the industrial engineering functions of a manufacturing plant. Intended for technologists, engineers, designers, draftpersons and technical sales people who wish to have a clearer understanding of the range of problems and decisions involved in a manufacturing organization. Topics include management and plant organization, plant location and layout, production control, maintenance management, production planning, job design and time standards. Prerequisite: TCOM 210 or COMM 183. **5.5 credits**

OPMT 460 Industrial Engineering – Covers problem-solving and decision-making approaches to project installation. Topics include: PERT networks, CPM barcharts, work measuring techniques in planning and project installations, method study techniques, acceptable management principles in labor supervision. Prerequisite: TCOM 210 or COMM 183. **5.5 credits**

PETROLEUM

PETR 151 Fundamentals of Reservoir Fluids – This course deals with some of the fundamental concepts which form the foundation on which petroleum engineering is based. It is intended to give the student an understanding of the theoretical meaning of some of the chemical and physical properties of petroleum and then develop the physical meaning of each of these properties and the interrelationships. Emphasis is on the way characteristics of each property relate to petroleum reservoir engineering. **3 credits**

PETR 152 Petroleum Production and Transmission – Provides an introduction to the exploration, drilling, production and transmission of petroleum products. Topics include: exploration, testing/evaluation, production, pipeline design, specification control, maintenance, terminals/stations, drilling, completions, treatment, hydrate control, testing, compressors, measurement. Enrolment is open and there are no prerequisites. Offered in alternate years. **6 credits**

PETR 154 Gas Distribution and Utilization – Provides an introduction to the operation of a natural gas distribution system. Topics include: contracts, planning, measurement, gas load control, maintenance, combustion, LNG and CNG, codes and safety, customer service/sales, pressure control, construction, design, natural gas utilization, alternate fuels. No prerequisites required. Offered in alternate years. **6 credits**

PHYSICS

PHYS 004 Refresher Physics (30 hours) – Provides a review of the basic Physics 11 concepts which are important for success in most first-year physics courses required in BCIT technology programs. Topics include kinematics, dynamics, mechanical energy, electricity and optics. There will be some lab exercises, and problem-solving skills will be emphasized. The course is recommended for those who took Physics 11 more than one year ago, who have not applied the concepts and need to review. Prerequisite: Physics 11 or equivalent. **non credit**

PHYS 009 Pre-entry Physics (93 hours) – This course meets the Physics 11 entrance requirement for BCIT programs. It offers an introduction to physics, the basic principles and common applications. Approximately two-thirds of the course deals with mechanics, the remainder with heat and electricity (electrostatics and DC circuits). Problem-solving techniques are emphasized. Prerequisite: You are advised to have completed any necessary mathematics upgrading courses before taking PHYS 009. **non credit**

PHYS 106 Physics for Electronics Technology (84 hours)

- A general level course about physical quantities-their properties, relationships and connecting principles. Translational and rotational motion are studied (i.e. force, mechanical energy, power), as well as basic electrostatics (charge and field), atomic physics and the band theory of solids and its application to semi-conductor devices. The labs emphasize measurement, data analysis and experimental techniques as they relate to the lecture material. Prerequisite: Math 12. **7 credits**

PHYS 131 Physics 1: Part 1 (36 hours) - Topics include kinematics, statics, linear and rotational dynamics. Problem-solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: MATH 001 or equivalent. Physics 11 is also recommended. **3 credits**

PHYS 132 Physics 1: Part 2 (36 hours) - Topics include properties of matter, heat and thermodynamics. Problem-solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: PHYS 131 or equivalent. **3 credits**

PHYS 136 Physics 1 (Correspondence) - Equivalent to PHYS 131/132 theory only. Since this is a distance education (correspondence) course, students may enrol any time throughout the year and take up to one year to complete the course. The principles of physics as they apply to technology are covered including measurement and data analysis, mechanics, elasticity and strength of materials, fluid mechanics and thermal energy. Prerequisite: Math 12. Must seek approval to register in course. **3 credits**

PHYS 206 Physics for Electronics Technology (72 hours) - Continuation of PHYS 106. Magnetism, induced electromotive force, thermal energy, vibrations and waves with particular reference to sound waves, electromagnetic waves, physical optics and nuclear physics. The labs emphasize measurement, data analysis and experimental techniques as they relate to the lecture concepts. Technological applications are presented throughout the course. Prerequisite: PHYS 106 or equivalent. **4.5 credits**

PHYS 231 Physics 2: Part 1 (36 hours) - Formerly PHYS 133. First part of sound, light and optics, basic electricity and magnetism, basic semi-conductor theory, atomic and nuclear phenomena. Prerequisite: PHYS 132 or equivalent. **3 credits**

PHYS 232 Physics 2: Part 2 (36 hours) - Formerly PHYS 134, this is a continuation of PHYS 231. Prerequisite: PHYS 231 (formerly PHYS 133) or equivalent. **3 credits**

PHYS 236 Physics 2 (Correspondence) - The sequel to PHYS 136. Topics include wave motion; sound and light sources; propagation and reflection of light; refraction and dispersion; interface and diffraction; illumination and color; electrostatics; direct and alternating current; magnetism; atomic and nuclear physics. Prerequisite: PHYS 136 or equivalent. Must seek approval to register in course. **4.5 credits**

PHYS 465 Electro-optics (42 hours) - Both introduction and applications are covered in the areas of radiometry, geometrical and physical optics, solid state properties of matter, sources, lasers, detectors, solar cells, modulators and fiber optics. Prerequisite: Grade 11 Mathematics and Physics. A BCIT Electronics Technology Diploma or equivalent is recommended. **3 credits**

ROBOTICS AND AUTOMATION

ROBT 301 Robot Applications - Discusses various robot configurations, the coordinate systems in which they operate and the 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. Prerequisite: MECH 240, 320, ELEX 201, PHYS 208 or 206, MATH 234 or 116/117. **8 credits**

ROBT 302 Automation Equipment - Covers the basic principles of generators and the construction, speed-torque characteristics, braking conditions and speed control of permanent magnet DC motors. The course will also cover the operation and control of brushless DC motors and stepper motors. Prerequisite: ELEX 200, 202, 203, and PHYS 208 or 206, MATH 234 or 116/117, ROBT 303. **5.5 credits**

ROBT 303 Microprocessors: Programming and Interfacing - 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 and troubleshooting techniques used in fault analysis. Prerequisite: ELEX 201, 202, 203, 341. **7 credits**

ROBT 311 CNC Programming - Introduces the student to current CNC languages such as APT. Investigates the integrated manufacturing centre. Special emphasis on exposure to CNC machines, model milling machines and lathes, drill presses, and 2 1/2 axis milling machines. **5 credits**

ROBT 401 Robot Sensors - 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, and range finding and navigation techniques using proximity sensors are studied. Prerequisite: ROBT 303, 302, 341. **5.5 credits**

ROBT 403 Design Project - A graduation project researched and presented by the student on an aspect of automated technology. Students will give written and oral presentations on their proposed and completed designs. Prerequisite: Concurrent completion of all courses leading towards a Robotics and Automation Diploma. **4.5 credits**

ROBT 404 Computer Integrated Manufacturing - Teaches the use of a microcomputer-based Computer Aided Design system. Programming the operation of Computer Numerical Control machine tools, using manual and computer assisted methods is also covered in depth. The integration of Computer Aided Design and Manufacturing is investigated. Prerequisite: MECH 240, ELEX 201. **5.5 credits**

ROBT 900 Introduction to Industrial Robotics - This non-credit introductory course will investigate various types of industrial robots and the coordinate systems in which they operate. Control of robot motion required for specific applications will be evaluated. Specifications such as accuracy, speed, number of axes and load capacity will be studied. Hands-on instruction will be given on BCIT's robotic systems. **non credit**

SURVEYING AND MAPPING

SURV 100 Survey Fundamentals for Inspectors – Identification of survey monumentations; reading legal and engineering plans; distance measurements, slope distances, horizontal distances; offsets; datums, benchmarks, elevations and invert elevations; cut and fill; batterboards; slope staking and levelling. **1.5 credits**

SURV 101 Survey Instrument Operations: Levels – Introduction to all types of levels; hand level, tilting level, reversible level, automatic level and precise levels. Manipulation and use of levels. Levelling procedures and notekeeping formats. Note reductions and adjustments of level circuits. Location of reduction errors. Field checks of instruments and adjustments. Field projects. **3 credits**

SURV 102 Survey Instrument Operations: Transits and Distance Measurements – Introduction to the transit. Use of first, second and third types of transits. Emphasis will be on 2nd and 3rd order transits. Setting up and centering procedures. Horizontal and vertical angle measurements; notekeeping and reductions. Field testing and checks on instrumental errors. Introduction to distance measuring methods: chaining, stadia measurement and EDM (Electronic Distance Measurement). Chaining, chainage corrections. Errors arising from chaining and minimizing of errors. Electronic distance measurements and reductions. Field projects. **4 credits**

SURV 105 Construction Surveying Techniques – This course will appeal to builders, carpenters and construction crews who need to use the level and transit to carry out site surveys. Determination of elevations/setting out elevations. Establishing control grids, referencing, setting out survey points by various methods, control of verticality of highrise constructions, field checks, quality control, prolonging lines. Field tests of surveying instruments. Prerequisite: SURV 101 and 102 or Departmental approval. **3 credits**

SURV 108 Engineering Survey – Covers the basic use of levels: open plate and optic transits, tape measurement methods of horizontal distance and direction determination. Computations: slope reduction, open and closed traverse calculations, benchmark levelling, steel and tape correction techniques, electronic distance measurements, stadia work, tachometers, route surveys, earth work, site work, construction control. Upon completion, students can use a variety of survey instruments and office procedures, draft plans, profiles and maps to determine precise areas, volumes and undertake field surveys. **7 credits**

SURV 112 Surveying Computations 1 – Topics include basic trigonometric functions, algebra and geometry; operation of an electronic calculator; field measurement calculations of chained distances and levelling notes; solution of right and oblique triangles, bearings - magnetic quadrantal and full circle; traverse calculations, polar and rectangular co-ordinates, missing parts; adjustments of traverses; area by co-ordinates; subdivision of areas; simple circular curves; areas of irregular areas, volumes of regular and irregular solids; stadia calculations; setting out and design calculations; basic UTM integrated traverse calculations. **7 credits**

SURV 115 Introduction to Global Positioning Systems (GPS) Survey – Basic concepts of GPS; point and differential positioning; static, semi-kinematic, and kinematic positioning; positioning by pseudorange or carrier phase measurements; undifferenced, single, double and triple difference observables; explanation of Trimbal and Ashtech equipment and interpretation of software printouts; discussion of problems in GPS surveying (ambiguity resolution, multipath signal propagation). Prerequisite: SURV 208 or Departmental approval. **1.5 credits**

SURV 118 Programming the HP48s: Engineering Applications – (Includes models HP48S, HP48SX, HP28). Manual operation with emphasis on the use of mathematical tools when solving engineering problems; calculus, statistics and input/output (I/O) capabilities are also covered. Development of programs for engineering applications. Also programming through the use of the HP48SX PC interface. **2 credits**

SURV 119 Programmable Calculators: Sharp's – (Models 1350, 1360, 1460, 1600). This course is designed to familiarize the student with the operation of the hand held computer from two perspectives: first, as a calculator to do random computations; second, as a programming tool to solve routine survey problems. 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. **2 credits**

SURV 190 Survey CAD: Rapid Transit – Uses custom survey software (Rapid Transit) for coordinate geometry and CAD applications to generate a variety of survey plans, contouring, create tin model, calculate areas and volumes, linear transformation, Helmert's transformation. **2 credits**

SURV 200 Surveying With Total Stations – Covers all aspects of the use of the total station in order to take advantage of its capabilities. Manipulation and operation of the instrument. Field measurements. Acquisition of data with the data collector. Processing of data from raw field data to final results. Demonstrations of use of computer software to produce final plans. Prerequisite: SURV 208 or Departmental approval. **3.5 credits**

SURV 208 Engineering Survey 2 – Slope staking, areas of cross-section, volumes. Setting out of simple curves by various methods. Calculations and setting out of a spiral curve. Underground survey. Intersection, resection and inaccessible base. Eccentric stations. EDM control traversing and heighting. Introduction to the field aspects of the total station instrument. Prerequisite: SURV 108. **7 credits**

SURV 310 Highway Design and Layout for Surveyors – Deals with calculations and survey aspects of modern highway design and layout. Topics include geometry of circular curves (simple, compound and reverse), clothoid spirals (transition curves) and vertical curves. Calculations concerning profiles, cross-sections, slope staking and volumes. Modern field techniques. Reading computer printouts and plans. Prerequisite: SURV 208 or Departmental approval. **3 credits**

SURV 312 Surveying Computations 2 – Topics include: coordinate systems, transformation of coordinates, missing parts, complex problems in partitioning land. Curves: circular, compound and reverse, transition. Vertical curves. Resection and intersection, eccentric stations, consistency checks, trigonometric levelling, computation of volumes. Prerequisite: SURV 112 or Departmental approval. **3 credits**

SURV 325 AutoCAD Applications for Surveying and Mapping – Computer-aided drafting and design course for practising survey technologists, land surveyors, foresters. Course is designed to show the power and ease in drafting and planning purposes. A large pool of AutoCAD commands for different drawings are explored and examined. Prerequisite: AICO 213 or departmental approval. **3 credits**

SURV 326 Surveying Applications with Microstation – Using Microstation on INTERPRO 32s or PCs. Introduction to Microstation menus and commands. Creating surveying plans with Microstation. Digitizing with Microstation. Prerequisite: TBA. **2 credits**

SURV 362 Geodetic Surveying 1 – Properties of the ellipse and ellipsoid of revolution; calculation of radii of curvature; spherical excess; Legendre's theorem, method of addends. Field test; triangle closures, sine equations, sine consistency checks; reduction to sea level. Convergence of meridians, computation of geodetic position, forward and inverse. Trigonometric levelling; reciprocal, non-reciprocal, refraction, intervisibility problems. Prerequisite: MATH 204 recommended. **3 credits**

SURV 363 Adjustment of Survey Measurements – 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 parameter; conditional observations, combined adjustments; adjustments of triangulation, trilateration nets, and traversing. Prerequisite: SURV 311. A course in linear algebra and BASIC for micro-computers is desirable. **3 credits**

SURV 463 Mathematical Cartography – 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 British Columbia; UTM projection; stereographic projection of New Brunswick. Prerequisite: SURV 363. **4 credits**

SURV 465 Survey CAD 2 – Topics include data structures, algorithms for computer cartography. Preparation of Legal Surveying plans under the terms set out in the "Surveyor General's Instructions to Land Surveyors". Engineering drawings such as plans, profiles and earthwork diagrams. Base mapping for Geographic Information systems (GIS). Prerequisite: SURV 325. **4 credits**

SURVEYING AND MAPPING: PHOTOGRAMMETRY

PHOT 102 Photo Interpretation and Remote Sensing – Engineers, planners, foresters, geographers, hydrologists, geologists and agriculturists, learn the application and interpretation of aerial photographs and other remote sensor acquired data, as applied to their respective fields. Students develop a working ability in image interpretation from photographic (camera) imagery, near-infrared imagery, thermal infrared imagery and radar imagery. Course covers the application of photographic systems in remote sensing, imaging, non-imaging sensors; the technical elements of image interpretation, imagery interpretation equipment; mapping from remote sensor acquired data, terrain and mineral assessment and evaluation, forest land inventory and assessment, water resources evaluation, soils evaluation and assessment; urban environment inventory and analysis, analysis and application of aerial photos and other remote sensing data to engineering (route location, regional and site analysis). **7 credits**

PHOT 217 Photogrammetry 1 – Introduces students to the mechanics of photogrammetry through a combination of theory and practical work. Topics include introduction to photogrammetry; photo interpretation; mapping from photographs; cameras; flight planning for vertical photography; mosaics, principle of stereovision; determination of height from aerial photos; radial line plotting; oblique photogrammetry, plotting instruments, stereoscopes, photographic laboratory procedures, analytical photogrammetry; tilted photogrammetry; determination of ground coordinates from measurements on photos; supplementing ground survey control; card punching for computer; running a program for co-ordinates; adjusting and trouble-shooting program elements and an introduction to aerial triangulation. **7 credits**

TRANSPORTATION SYSTEMS (HIGHWAYS)

TSYH 101 Introduction to Technical Communication Part 1 – This course lays the groundwork for learning how to assemble material in order to communicate effectively in writing. It is presented in two parts so students can master good writing techniques before applying them specifically to letters, memos, etc. **2 credits**

TSYH 102 Introduction to Technical Communication Part 2 – Applies the techniques learned in TSYH 101 to specific forms of written communication. **2 credits**

TSYH 103 Reporting Technical Information – A mandatory course for students in the Diploma Program. It covers all aspects of report writing: organizing information, presentation, drawing conclusions, packaging. Students will be required to submit assignments for assessment and constructive criticism. **2 credits**

TSYH 104 Writing Analytical Reports – A mandatory course for students in the Diploma Program. It covers all aspects of analytical report writing: organizing information, presentation, drawing of conclusions, packaging. Students will be required to submit assignments for assessment and constructive criticism. See also TSYH 199 Technical Report. **2 credits**

TSYH 120 Technical Mathematics Part 1 – The first of two courses in technical mathematics which is mandatory for those in the Diploma Program. The course builds on high school mathematics material so students are able to relate basic algebra, trigonometry, geometry and vectors to their technical field. Through working examples, students develop the ability, confidence and versatility to deal with physical situations involving mathematical solutions. **3 credits**

TSYH 123 Technical Mathematics Part 2 – The second of two courses in technical mathematics, as described in TSYH 120. **3 credits**

TSYH 126 Statistics Part 1 – The first of three courses designed to familiarize students with the underlying principles, concepts and terminology of descriptive and inferential statistics. Students will learn to intelligently read, interpret and question the validity of statistical data presented in reports, magazines and journals. They will be able to use elementary statistical procedures to collect, summarize, analyze and interpret statistical data after course completion. The course is recommended for those involved in the collection or interpretation of traffic flow data, material test results or project planning. **1 credit**

TSYH 127 Statistics Part 2 – Continuation of TSYH 126. **2 credits**

TSYH 128 Statistics Part 3 – Continuation of TSYH 127. **2 credits**

TSYH 129 Network Analysis – An introduction to the mathematics involved in operations research. Course includes linear programming, transportation, assignment and queueing theory; and their applications in the decision-making process. **3 credits**

TSYH 132 Calculus Part 1 – The first of three courses in calculus dealing with differentiation and integration of algebraic expressions and some trigonometric, logarithmic and exponential functions. Additional topics include conic and calculus problems, and partial differentiation. **2 credits**

TSYH 134 Calculus Part 2 – A continuation of the series in calculus. **2 credits**

TSYH 136 Calculus Part 3 – A continuation of the series in calculus. **2 credits**

TSYH 140 Hydrology Part 1: Introduction to Hydrology – Provides a working knowledge of the terminology used in hydrology. Methods of determining watershed boundary areas, evaluating watershed characteristics for run-off estimation, precipitation measurement, streamflow measurement, calculation of flows and stream gauging are covered in preparation for TSYH 142 and 143. **2 credits**

TSYH 142 Hydrology Part 2: Flood Flow Determination – Introduces the primary methods of determining flood flows through the analysis of existing and obtainable data, including the Rational Method, streamflows, point flow frequencies and snowmelt. Method selection, probability calculation, determination of return periods, and probable flood flows based on the analysis of existing data are presented for practical use in the design of drainage structures based on estimated flood flow magnitudes. **1 credit**

TSYH 143 Hydrology Part 3: Rational Method Application – An expansion of TSYH 142. A step-by-step application of the Rational Method in peak flow determination is presented. Students will work on individual projects and follow a systematic approach to determining peak flows using the Rational Method as a basis for culvert and drainage designs. **1 credit**

TSYH 145 Hydraulics Part 1: Fundamentals of Fluids – An introduction to the terminology, physics and applications of hydrostatics and hydraulics. This course covers fluids at rest and in motion. Topics include: the properties of water, fluid pressure, hydrostatic force and buoyancy; fundamental laws of incompressible fluid flow; concepts of continuity, momentum, force, energy, power and work as they relate to hydraulic systems. Some basic concepts of pumps are also introduced. **2 credits**

TSYH 146 Hydraulics Part 2: Flow Under Pressure – A look at the fundamentals of fluid flow as they apply to pressurized pipe systems. Both small and large scale pipe networks and the head losses generated are examined. Also included are simple and complex networks, the concept of equivalent pipes and the Hardy Cross Method (analytical technique) for solving systems with multiple branches. **2 credits**

TSYH 147 Hydraulics Part 3: Flow in Open Channels – This course discusses normal and critical flow in open channels; the effects of erosion; changes in channel shape and variations in slope on the flow profile; backwater conditions. Simple hydraulic structures such as weirs and culverts are introduced and their effect on flow pattern is illustrated. **2 credits**

TSYH 150 Strength of Materials Part 1: Forces on Systems – The first of four courses on strength of materials. This course covers the basic principles of statics including forces generated by applied and gravitational loads; how to establish the resultant of these forces; break them down into components and calculate the axial resisting forces maintaining equilibrium. **2 credits**

TSYH 151 Strength of Materials Part 2: Stress/Strain – Concentrates on the analysis of stresses in frames, trusses and columns and the relationship between stress and strain, in preparation for further study of connections in steel and timber members. The properties of structural shapes are introduced preparatory to introducing design theory. **3 credits**

TSYH 152 Strength of Materials Part 3: Resistance of Materials – Builds on the foundation laid in TSYH 150 and 151, and completes the basic theory of the behavior of simple members under load. It is intended as a transition for more advanced structural courses, and as preparation for TSYH 153. **2 credits**

TSYH 153 Strength of Materials Part 4: Testing Practices and Analysis – Reinforces the concepts learned in TSYH 152 by illustrating the properties and relationships of stress and strain in laboratory conditions. Laboratory tests will be recorded on video. Students will observe and record results for analysis of data and demonstration of the stress/strain relationships for various materials. **2 credits**

TSYH 160 Graphical Communication Part 1: Basic Drafting – Students will be introduced to the standard layout of engineering drawings. Topics include the relationship between plans, elevations, sections, etc.; conventional lining and lettering techniques; the development of projected views. Special consideration will be given to sketching techniques and, through assignment preparation, the student will acquire basic drafting ability. **2 credits**

TSYH 162 Graphical Communication Part 2: Interpreting Topographical Drawings – Presents the required elements for reading and preparing drawings conveying survey data, drawing layout in plan and profile form, site development, and computations related to topographical data and highway design. **3 credits**

TSYH 165 Graphical Communication Part 3: Interpreting Construction Drawings – A companion course to TSYH 162 dealing with construction drawings for highways, bridges, culverts, retaining structures and other auxiliary works. **3 credits**

TSYH 168 Graphical Communication Part 4: Structural Steel Detailing – A specialized course providing the basis for reading structural steel engineering drawings and identifying members for size, type and location. Includes layout of connections for beams, columns and bracing, in preparation for fabrication drawings. **2 credits**

TSYH 170 Graphical Communication Part 5: Reinforcing Steel Detailing – Provides the basis for reading reinforcing steel engineering drawings and identifying patterns of reinforcing bars in various reinforced concrete structural members. Students prepare schedules and calculate total quantities and weights of bars in slabs, beams, columns and walls, from design drawings. **2 credits**

TSYH 180 Computers Part 1: Introduction to Data Processing – An introductory course in the use of computers as a means of processing data. It covers the hardware and software currently in use and provides the background knowledge necessary to overcome initial fear of computers. **2 credits**

TSYH 199 Technical Report – Diploma Program students are required to submit a technical report, 3,000 to 5,000 words long. It is normally the final of the Diploma Program and enables students to demonstrate their ability in presenting technical data in logical form. Report topics may be from any area of the student's work associated with the general field of Transportation Systems (Highways). Students initially submit a preliminary outline of their report for assessment and approval by a tutor familiar with the technological area. Then the final report is analyzed and assessed for accuracy and form of presentation by the tutor and the Communications Department. **6 credits**

TSYH 201 Soils Technology Part 1: Basic Properties – Provides an introduction to the terminology, theory and practices related to geology, soil mechanics and basic properties of soils. The course discusses natural processes that take place in the formation of soils and rocks; describes rock identification charts used in industry and covers simple field identification tests. Laboratory tests used to define soil properties that classify soil are identified (in accordance with the Unified Soil Classification System). **2 credits**

TSYH 203 Soils Technology Part 2: Engineering Properties – Describes the soil properties that are used in the design of engineering structures. Areas covered: basic principles and effects of water movement through soils; calculation of combined stresses in soil masses; settlement and consolidation; concepts of shear strength in soils
3 credits

TSYH 206 Soils Technology Part 3: Field Investigation – Details reasons and methods for conducting a geotechnical survey. Office procedures are introduced which allow geotechnical information to be obtained before moving into the field. Field aspects of a geotechnical survey, including location methods and simple survey techniques for sizing material deposits, are presented. Information required from a preliminary field reconnaissance and methods used (and relative costs) in a detailed investigation are also covered. Sampling methods and current "in-situ" tests are fully discussed.
3 credits

TSYH 209 Soils Technology Part 4: Testing Practices – Introduces the advantages/disadvantages of laboratory soil testing and describes the methods required when receiving, recording, handling, storing and testing soil samples. Common laboratory tests are described and explained; sample calculations for test data are given. Access to a local laboratory will be required to demonstrate testing practices.
1 credit

TSYH 210 Geotechnical Design Part 1: Earth Slope Stability – Introduces the mechanics of slope movement and causes of slope instability including identification of potential slope hazards. Analysis of translational and rotational failures; use of stability charts; design and remedial measures are covered.
3 credits

TSYH 212 Geotechnical Design Part 2: Rock Slope Stability – Introduces the basic mechanics of rock slope failures and the principles needed to analyze planar failures. Topics include methods of rock slope stabilization, rockfall protection and detection, required calculations and design applications.
3 credits

TSYH 214 Geotechnical Design Part 3: Foundations – Introduces terminology, theory and concepts associated with foundation analysis and design. Topics include types of foundations, related subsoil conditions, bearing capacities, settlement of shallow foundations, bearing capacity of deep foundations and site soil improvement using stabilization methods.
3 credits

TSYH 216 Geotechnical Design Part 4: Retaining Structures – Introduces theory and terminology related to the analysis and design of earth retaining structures together with practical design applications. Topics include lateral earth pressure theory, stability requirements of retaining wall designs, tie rods, wall types, selection and design.
3 credits

TSYH 220 Aggregates Part 1: Basic Properties – An introduction to the sources, types and qualities of aggregates, and the methods used to find them. Applications of aggregates and the codes governing them are discussed.
1 credit

TSYH 221 Aggregates Part 2: Production and Quality Control – Describes the operations and capabilities of different types of crushing plants: jaw crushers, roll crushers, cone crushers, impact crushers, tandem crushing units. Topics include screening capacities; calculated output; the ability of production systems to meet aggregate requirements; quality control inspection procedures; methods of correcting gradation defects resulting from production/stockpiling; the need for safety in all aspects of production.
2 credits

TSYH 222 Aggregates Part 3: Testing Practices – Describes the procedures used to obtain representative samples for testing. Testing procedures (including selection and preparation of equipment), performance, record keeping and result analysis for sieve analysis, specific gravity, absorption, abrasion, chemical soundness and petrographic analysis are covered. Access to a laboratory will be required to demonstrate competency in testing procedures.
1 credit

TSYH 230 Concrete Technology Part 1: Basic Properties – The production of Portland cement concrete is discussed in general terms. The various components used in the manufacture of concrete are detailed including a description of their production, possible defects or impurities, and the correct method of storing materials.
1 credit

TSYH 231 Concrete Technology Part 2: Mix Design – In accordance with C.S.A. A23.1 Section 14, students will be instructed on the effects of the placing method, use of admixtures and variations of cement type in the design of mixes. A step-by-step design approach will be demonstrated, based on the design criteria and moisture content of the aggregates, and procedures in the preparation of trial batches and the interpretation of their results.
2 credits

TSYH 232 Concrete Technology Part 3: Placing – Stresses the necessity for adequate equipment and manpower planning to ensure quality concrete products. The process from formwork preparation to final curing is discussed. Topics include correct batching, mixing, transporting, placing/vibrating, finishing and protection methods for concrete during the curing process.
1 credit

TSYH 233 Concrete Technology Part 4: Testing Practices – Describes the initial testing performed on concrete including slump, air entrainment, unit weight and temperature. Topics include maintenance and calibration of test equipment; procedures for preparing and curing samples; capping and testing compression cylinders; preparing and conducting flexural tests; interpreting test results. Students are advised of the problem areas in concrete preparation and placing that should be inspected, and the appropriate actions to be taken in the event of non-conformance with specifications. Access to a local laboratory will be required to demonstrate competency in the testing practices.
1 credit

TSYH 240 Asphalt Technology Part 1: Basic Properties – The first of three courses to introduce the field of asphalt technology including the basic properties of asphaltic cements, liquid asphalts and aggregates. This is an entry level course but students are advised to complete TSYH 220 as a prerequisite.
1 credit

TSYH 241 Asphalt Technology Part 2: Mix Design – Commences with the proportioning of asphalt mixes including the analysis and calculations required to determine the physical properties of the mix. Step-by-step procedures are given for mix design including the methodology, test specimens, procedures and interpretation of test data for two mix design methods. Fundamentals of manufacturing hot-asphalt mixes (storage, mixing methods, mixing plants, production, inspection) are covered, including hot-mix recycling and special mix designs.
2 credits

TSYH 242 Asphalt Technology Part 3: Testing Practices – Presents methods and procedures for conducting tests on asphalt cement and liquid asphalts. Preparing test specimens and recording and analyzing test data in compliance with specifications are discussed. Access to a laboratory will be required to demonstrate competency in the testing practices.
1 credit

TSYH 301 Surveying Fundamentals Part 1: Basic Instrumentation – A fundamental course in surveying which introduces commonly used survey equipment. After completion, students will be able to identify and describe the equipment, parts and applications in the field. **1 credit**

TSYH 302 Surveying Fundamentals Part 2: Methods and Procedures – A continuation of TSYH 301. This course details the field and office methods used for measuring and recording surveying data. Topics include booking and plotting notes, measuring angles and distances, basic computations for angles, level note reduction, simple circular curves, simple traverse plots, plans, profiles, cross sections and slope staking. **2 credits**

TSYH 303 Surveying Fundamentals Part 3: Basic Computations – A continuation of TSYH 302. This course takes data obtained from field surveys and details the computations involved with planning and design. Topics include elements of coordinate geometry, traversing slope reduction, trigonometric levelling, stadia reduction and coordinate transformation. **2 credits**

TSYH 304 Surveying Fundamentals Part 4: Field Applications – The last of four courses in surveying fundamentals, this course allows students to obtain credit for applying their skill with basic instruments and theory, learned in TSYH 301, 302 and 303. Students will be required to demonstrate, to the satisfaction of an approved evaluator, their ability in chaining procedures, levelling, transit work, use of electronic distance measuring equipment. **1 credit**

TSYH 310 Surveying Site Control – Computations related to horizontal and vertical positioning and an introduction to three specific aspects of datum and control systems are provided in this course. Topics include geodetic horizontal datum and ellipsoidal datum reductions; quality control and concepts of confidence; the use, calculation and coordinate transformation to UTM coordinate systems; methods, calculations and selection of procedures for implementing site survey control. **3 credits**

TSYH 311 Surveying Highways Part 1: Horizontal Alignment – The first of three courses covering the theory and computations involved in highway surveying computations and layout. Topics include horizontal alignment procedures and calculations, simple circular curves, compound, reverse and transitional curves. **2 credits**

TSYH 312 Surveying Highways Part 2: Vertical Alignment – The second of three courses covering the theory and computations involved in highway surveying computations and layout. Topics include vertical alignment procedures and calculations, and vertical parabolic curves (symmetrical and asymmetrical). **1 credit**

TSYH 313 Mapping Systems and Route Reconnaissance – An introduction to mapping systems used in British Columbia and the relationship between mapping and preliminary surveys. Aerial photography, ground surveys, mapping coverage and an introduction to the use of computer-aided drafting in surveying and mapping are presented. **1 credit**

TSYH 314 Surveying Highways Part 3: Field Applications – The last of three courses on highway surveying computations and layout, this course allows students to obtain credit for their skill in applying theory learned in TSYH 311 and 312 to practice. Students will be required to demonstrate, to the satisfaction of an approved evaluator, their competency in a series of surveying tasks related to vertical and horizontal survey computations and layout. **1 credit**

TSYH 315 Surveying Quantity Measurement – An introduction to the standard methods used in measuring and calculating land area and earthwork quantities. Area and volume formulas; typical highway applications; an introduction to accumulated volume computations; shrinkage and swell factors; and adjustments and elementary Mass-Haul analysis are presented. **1 credit**

TSYH 330 The Legal Surveying System – An introduction to the systems of legal surveying, monumentation requirements and regulations currently in practice in British Columbia. Topics include general survey principles, land registration, monumentation, sources of survey information, systems of survey, Land Act, Land Titles Act, Highways Act, Surveyor-General Regulations, and highway and railway survey requirements. **1 credit**

TSYH 335 Basic Field Astronomy – An introduction to astronomy, the course presents the terms, symbols and calculations to compute the azimuth of a line and latitude of a point based on polar and solar observations. The course manual provides the conceptual and theoretical basis for completing an assignment which requires computations from local observations. **2 credits**

TSYH 401 Highway Construction Part 1: Clearing and Excavation – An introduction to the terminology, theory, equipment and practices used in clearing, grubbing and excavation operations. The course covers the basic reasons for clearing and grubbing; terminology; soil properties and how they affect excavation; properties of rock and rock ripping productivity; capabilities of standard excavation equipment. Emphasis is placed on productivity calculations. Special reference is made to quantity measurements and specifications used in highway construction. **1 credit**

TSYH 402 Highway Construction Part 2: Earthmoving – A general introduction to types of earthmoving equipment and engineering fundamentals of earth hauling machinery. Topics include various earthmoving methods, factors involving equipment selection, and productivity. **1 credit**

TSYH 403 Highway Construction Part 3: Compaction and Stabilization – A course on the methods and equipment used in preparing highways for paving based on soil properties. Inspection and control, proctor and nuclear density, sand and balloon density tests are included. **1 credit**

TSYH 404 Highway Construction Part 4: Culvert and Drainage Installation – Provides an introduction to the terminology, theory and practices of culvert and drainage installation for highway projects. Particular reference is made to industry specifications for subdrainage and storm sewer system installation. **2 credits**

TSYH 405 Highway Construction Part 5: Rock Drilling and Blasting – An introductory course to the terminology and concepts of explosives use for rock removal in highway construction. Topics include properties of rock, explosive types, detonation, safety, and basic blast design. **1 credit**

TSYH 440 Pavement Construction Part 1: Construction Methods – This course introduces the site organization, equipment and methods utilized in the placement of Asphaltic Concrete Pavement, Portland Cement Concrete Pavement, and Asphalt Surface Treatments. A prior knowledge of the basic properties of concrete and asphalt is required. **2 credits**

TSYH 442 Pavement Construction Part 2: Inspection and Quality Control – A continuation of Part 1 with an emphasis on contract administration and inspection in the placement of granular materials, Asphaltic and Portland Cement Concrete Surface and Asphalt Surface Treatments. **1 credit**

TSYH 450 Estimating Part 1: Quantity Take-off – Prepares students to take-off quantities from construction drawings in order to prepare bills of quantities from design drawings and specifications, and establish a base for costing.

2 credits

TSYH 453 Estimating Part 2: Costing – A continuation of TSYH 450. The cost elements of quantities including labor, materials, handling, inventory, overhead, etc., are determined or applied to take-off quantities in preparing bid estimates and summarizing project costing.

2 credits

TSYH 460 Contracts Part 1: Types of Contracts and Contract Documents – A course covering the types of contracts used in construction: lump sum, unit price, cost plus, turnkey. Topics include contract documentation, instructions to tender, general conditions, special conditions, insurance clauses and specifications from industry.

2 credits

TSYH 461 Contracts Part 2: Cost Control – This course includes planning, work measurement, record-keeping, progress reports and extras. Recommended methods of field and office control for construction projects are given, with examples from industry.

2 credits

TSYH 501 Highway Design Part 1: Basic Design Data – An introduction to highway classification and the capacity and level of service concepts as defined in the R.A.T.C. Manual. Topics include elements of horizontal and vertical alignment design; components of road cross sections; impact of a new road or road improvement on the environment.

2 credits

TSYH 503 Highway Design Part 2: Route Selection – An introduction to the development of a highway design from its conception to horizontal and vertical alignment. Survey and mapping requirements and aerial photography are employed in the selection of preliminary alignment, including the detailed horizontal and vertical design of a highway. The course is project-based and requires a detailed design for a section of highway including the selection of radii; super-elevation and visibility standards for a particular design speed or road classification; calculation of data for horizontal curves (circular areas and transitional spirals) and vertical curves; calculation of the attainment and removal of super-elevation.

4 credits

TSYH 507 Highway Design Part 3: Earthworks – This course is based on the student project in TSYH 503. Students will be required to complete earthworks quantity data and produce a partial Mass-Haul diagram. After complete project data is submitted, a computer generated, unadjusted Mass-Haul diagram will be provided. Adjustments will be required for balanced earthworks (swell, shrinkage, waste, borrow, freehaul, overhaul). A cost estimate based on established unit prices and the resulting volumes is prepared by each student.

3 credits

TSYH 510 Highway Design Part 4: Drainage and Culvert Design – A course on high drainage facility design which requires a working knowledge of the principles of hydrology and hydraulics. Topics include hydraulic and structural design elements of culverts, ditches, storm water systems design, surface run-off control, environmental considerations and material specifications.

4 credits

TSYH 520 Pavement Design Part 1: Design Criteria – Highway design requirements for sub-base and base course materials are presented. Design and evaluation techniques will also be studied. Topics include axle loading, repetitions, pressure loading ($P = W/A$), internal angle of friction, allowable sub-grade reaction K , Benkleman Beam.

2 credits

TSYH 522 Pavement Design Part 2: Specifications – A continuation of TSYH 520 where design criteria are examined in terms of construction practices, job specifications and construction inspection.

1 credit

TSYH 530 Subdivision Planning/Design Part 1: Land Use Planning – Discusses natural state land use assessment, planning elements, community zoning and site plans, neighborhoods, lot and dwelling types, traffic considerations, road classifications, road patterns and names, single site planning, building envelopes, setbacks, lot layout design, cul-de-sacs, walkways and emergency access routes. Acts and Regulations governing subdivisions, the approval process, engineering servicing criteria and the economic aspects of land use development are reviewed.

2 credits

TSYH 532 Subdivision Planning/Design Part 2: Urban Street Design – The design of urban roads from limited local residential streets to arterial road standards. Horizontal and vertical alignment applications are detailed; consideration is given to drainage and auxiliary facilities such as parking, sidewalks and bus services. A project will require students to incorporate all design elements in preparation for design drawings of a section of urban arterial road.

3 credits

TSYH 535 Subdivision Planning/Design Part 3: Storm Sewers – The principles of hydraulics and hydrology are applied in preparation for design drawings of enclosed storm water systems. Topics include division of drainage systems into areas and sub-areas; the establishment of vertical and horizontal storm sewer alignments; computation of run-off; calculation and sizing of mains; the design of laterals and service connections.

2 credits

TSYH 537 Subdivision Planning/Design Part 4: Water Supply and Sanitary Sewers – The principles of hydraulics are applied to the design of water supply and sanitary sewer systems for urban development. Water supply demand, design criteria, flows, losses, appurtenances and network analysis, are included to enable students to prepare a supply and distribution system design and analysis, complete with pipe sizing and installation details. Sanitary sewer design topics include recommended design flows, pipe flow formulae and design criteria. System alignments, velocity controls, lot service connections and minimum sizing using the standard design computation tables are included, to enable students to prepare a sanitary system collection design.

2 credits

TSYH 560 Traffic Technology Part 1: Traffic Characteristics – Presents the operating characteristics of traffic: vehicle dimensions, weight and performance; driver perception; reaction and braking distances; minimum stopping distance; pedestrian and bicycle characteristics. The course includes traffic stream characteristics including spot speed, travel time, A.D.T. and D.H.V., speed/flow relationship, level of service, queuing theory and highway capacity.

1 credit

TSYH 561 Traffic Technology Part 2: Data Collection and Traffic Control – A continuation of TSYH 560. Includes the collection of data by volume counts; the moving vehicle method; speed measurement; license plate studies; signal location and equipment; signal tuning and phasing; detection loops; computer controlled systems; system management; pedestrian and signal warrants.

1 credit

TSYH 562 Traffic Technology Part 3: Traffic Characteristics – A continuation of TSYH 561 with emphasis on the design of lane layout, auxiliary lanes, channelization and turning. The types of signals relating to capacity at intersections and the limitation of unsignalized junctions are discussed.

1 credit

TSYH 563 Traffic Technology Part 4: Parking and Loading – A continuation of TSYH 562 with emphasis on the geometric design of off-street parking, loading facilities, parking garages, bus and truck terminals, on-street parking, the use of parking studies and shopping centre layouts.

1 credit

TSYH 570 Structural Design Part 1: Loads on Structures

– The structural design series are a continuation of TSYH 150, 151, 152 and 153. This course details the external forces applied to structures including environmental forces; live loads from equipment, vehicles and human occupancy; design factors and code requirements.

1 credit

TSYH 571 Structural Design Part 2: Structural Analysis –

The first part of this course continues shear force and bending moment diagram development from TSYH 151 including an introduction to statically indeterminate structures. The second part analyzes statically indeterminate structures by moment distribution, in preparation for computer analysis methods.

4 credits

TSYH 572 Structural Design Part 3: Basic Timber Design

– An introductory course for the design of both timber columns and beams by limit states including timber connections.

3 credits

TSYH 720 Engineering Economics Part 1: Fundamentals of Financial Calculations – An introduction to the time value of money and the effects of differing interest rates and periods of payment for both simple and compound interest.

Time cash flow diagrams are developed and the theory of annuities presented.

2 credits

TSYH 721 Engineering Economics Part 2: Introduction to Engineering Economics – Applies the principles learned in TSYH 720 to problems in comparison of alternatives; viability of investment and rate of return; the study of depreciation for the purpose of assessing lease/purchase alternatives and equipment replacement timing.

2 credits

WOOD PRODUCTS MANUFACTURING

WOOD 110 Wood Products Manufacturing – Persons interested in the manufacture of lumber and plywood will enlarge their knowledge of the equipment and methods used. Correct manufacturing techniques are examined to give an understanding of sawing, drying and planing of lumber, peeling and drying of veneer, and plywood construction. Management principles studied include guidelines for supervisors, control of quality and recovery, equipment and saw maintenance, safe plant environment, cost controls and pollution abatement. Field trips will be arranged to examine a lumber and plywood plant.

7.5 credits

School of Health Sciences

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GENERAL INFORMATION

Administration

George Eisler, M.A.Sc., P.Eng., M.B.A., Dean, School of Health Sciences
 Kathleen Bach, B.A., Director, Health Part-Time Studies
 Jannie Scriabin, B.Sc., M.Sc., A.R.T. (Clin.Chem.),
 Associate Dean, Medical Laboratory Sciences, Medical Imaging, Basic Health Sciences
 M. Bernadet Ratsoy, B.Sc.N., M.Sc., R.N., Associate Dean, Nursing
 Bruce Sandy, B.A., M.H.S.A. Associate Dean, Health Technologies
 Leslie Colquhoun, Supervisor, Health Part-Time Studies

Delivery Methods

Courses are delivered in a variety of formats.

- Classroom lecture or tutorial – one night per week, week long or weekends at BCIT Burnaby campus, Kaslo Campus, the Downtown Education Centre or other locations in B.C. by arrangement.
- Guided Learning – home study supplemented by teletutoring, seminars or labs.
- Clinical – short intensive periods of full-time study and clinical practice; may be clinical preceptorship or supervised practicum.
- Challenge Courses – self directed study as defined by course outline, objectives, and sample examination questions, for students with on-the-job knowledge and experience.
- Compressed Time Frames – offered for independent student registration or cooperatively with hospitals. Some full-time clinical and classroom instruction, together with Guided Learning, enables students to complete a specialty program in a shorter time.

Certification Levels

Programs and individual courses are available through Health Part-Time Studies at introductory, refresher and advanced levels and may be taken for professional development, certification, or an advanced diploma.

- Introductory Certificate – courses offered at an introductory level for those entering a health science discipline.
- Diploma – courses equivalent to diploma of technology or Diploma RN.
- Advanced Specialty Certificate – as a component of the Advanced Diploma program, courses are designed for technologists and registered nurses in practice to provide advanced level specialization.
- Advanced Diploma – an advanced level program designed to provide practising technologists and nurses with the knowledge, skills and attitudes required for further professional competence, advanced technological and clinical roles, management, and individual growth.
- Bachelor of Health Science – offered in collaboration with BCIT, this Open University degree incorporates the Advanced Diploma program.

Programs

Some courses are grouped in Certificate or Advanced Diploma Programs. Students wishing to take a complete program should consult with a program head to have their program of studies approved. The "Program Approval" form is contained in this calendar.

ADVANCED DIPLOMA IN HEALTH SCIENCE

Program Requirements

As a component of the Bachelor of Health Science program offered by the Open University in collaboration with BCIT, the Advanced Diploma has four components. The student will be required to successfully complete a minimum number of credits in each component, plus elective credits to a total of 45 credits. For more detailed information, request a copy of the Advanced Diploma ? calendar.

	Required Credits	Elective Credits
Health Science Discipline	24 - 36	0 - 12
Management	3	0 - 9
Health Care Systems	3	0 - 3
Educational Skills	3	0 - 9

Total of 45 credits required for an Advanced Diploma

Health Care Systems

Credit

HCSY 610 Health Care Systems 1	1.5
HCSY 620 Health Care Systems 2	1.5

Educational Skills

EDUC 601 Human Learning	2.0
EDUC 610 Clinical Teaching	3.0

Management

HMGT 600 Health Care Supervisory Skills	3.0
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BASIC HEALTH SCIENCES

Program Head: Dave Martin, B.Sc (Hons), M.S.R.

Courses are offered in the basic health sciences to help health professionals upgrade and advance their knowledge in the biological and behavioral sciences.

BHCE 601 Sectional Anatomy of Abdomen and Pelvis	3.0
BHCE 602 Cross Sectional Anatomy of the Thorax	3.0
BHCE 914 Anatomy and Physiology Review	0.0

HEALTH CARE MANAGEMENT

Program Head: Sonia Williams, B.A.(Hons.), M.Ed., M.S.R., F.S.R.

There are several levels of Health Care Management Studies (Level 1, Level 2 and Advanced Studies) leading to certification. These are supplemented by additional professional development courses in the Health Care Management field. The programs are designed to help managers and would-be managers sharpen their management skills and acquire new skills appropriate to their particular needs while broadening their general perspectives on the health care field. Applicants should be employed in health care agencies or be graduates of a health paraprofessional, professional or technological program.

Applicants for the Health Care Certificate Programs must have their proposed program of courses, and any revisions to existing program of courses, approved by the program coordinator. These requests may be made in person or in written form. Contact Health Part-time Studies at the BCIT Kaslo Campus for an interview appointment and/or the necessary forms.

Transfer credits may be awarded for academic work completed at other recognized institutions according to the policy established for Health Part-Time Studies.

For further information see Section 3 page 23 in this calendar or contact

the Health Care Management Program Head at BCIT.

Telephone: 439-4103. Applicants not wishing to complete the entire program may enrol in any of the mandatory or elective courses.

HEALTH CARE MANAGEMENT CERTIFICATE PROGRAM LEVEL 1

This program, offered in cooperation with the British Columbia Health Association (B.C.H.A.), is designed for first level managers. It provides information and practice in the application of management principles to health care and long term care management. It is appropriate for department heads, administrators, head nurses and anyone anticipating a management position. The courses are offered in a variety of time frames outlined in the Health Sciences Catalogues published three times a year.

Students who have completed HMGT 600 Health Care Supervisory Skills will receive credit towards their elective course work. Preferably, this course will be completed before entering the Level 1 program.

Mandatory Courses		Credit / Hrs
HCSY 610	Health Care Systems	1.5 18
HMGT 601	Health Care Organizational Behavior	3.0 36
HMGT 602	Health Care Principles of Management	3.0 36
HMGT 603	Health Care Operations Management	1.5 18
HMGT 604	Budgeting in Health Care	1.5 18
HMGT 605	Human Resource Management	3.0 36
HMGT 606	Health Labor Relations 1	1.5 18
HMGT 607	Long Term Care Labor Relations	1.5 18

Recommended Electives

108 hours of elective course work from:

Administrative (General) Management

ADMN 211	Management 2	2.0 36
ADMN 322	Organizational Behavior 2	3.0 36
ADMN 302	Problem-Solving and Decision-Making	3.0 36
COMP 107	Understanding PC/MS DOS	1.5 18
COMP 114	Word Processing Concepts	1.0 12
COMP 115	Spreadsheet Concepts	1.0 12
COMP 116	Database Concepts	1.0 12
FMGT 109	Accounting for the Manager	3.0 36
HMGT 600	Health Care Supervisory Skills	3.0 36
	(should be completed before HMGT 601 and 602)	

Education (Training))

ADMN 127	Training Techniques	3.0 36
EDUC 601	Human Learning	2.0 24

Financial Management		Credit / Hrs
ADMN 100	Microeconomics	3.0 36
ADMN 302	Problem-Solving and Decision-Making	3.0 36
COMP 114	Word Processing Concepts	1.0 12
COMP 115	Spreadsheet Concepts	1.0 12
COMP 116	Database Concepts	1.0 12
FMGT 101	Accounting 1	3.0 36
FMGT 201	Accounting 2	5.5 36

Personnel

ADMN 204	Human Resources Management	4.5 48
ADMN 205	Selection Interviewing	3.0 36
ADMN 304	Human Resources Planning	3.0 36
ADMN 305	Salary Administration	3.0 36

Systems

COMP 114	Word Processing Concepts	1.0 12
COMP 115	Spreadsheet Concepts	1.0 12
COMP 116	Database Concepts	1.0 12
COMP 160	Computer Systems Introduction 1	3.0 36

or

OPMT 188	Management Information Systems	3.0 36
OPMT 191	Purchasing	3.0 36
OPMT 192	Inventory Planning and Control	3.0 36

Recommended Pre-entry Courses

It is assumed that participants have well-developed written and verbal communication skills. For those wishing to upgrade these skills, the following courses are recommended.

COMM 192	Short Reports	1.5 18
MKTG 323	Effective Public Speaking	3.0 36

LONG TERM CARE

Long Term Care Management is an integral part of the Health Care Management Program. Compulsory courses present management principles, then apply these principles to both health care and long term care situations. The course HMGT 607 Long Term Care Labor Relations is compulsory for all those selecting the Long Term Care stream.

Recommended Electives		Credit / Hrs
ADMN 211	Management 2	3.0 36
ADMN 201	Counselling 1	3.0 36
ADMN 322	Organizational Behaviour 2	3.0 36
ADMN 302	Problem-Solving and Decision-Making	3.0 36
OHCE 301	Fire Protection 1: Fire Prevention	3.0 36
OPMT 191	Purchasing	3.0 36
OPMT 192	Inventory Planning and Control	3.0 36

HEALTH CARE MANAGEMENT CERTIFICATE PROGRAM LEVEL 2

This program is designed for middle managers in health care agencies and in long term care agencies. The program builds upon the Health Care Management Certificate Program Level 1 by requiring participants to complete an additional 252 hours(21 credits) of course work.

Level 2 program objectives include increasing the breadth and depth of knowledge by studying new subject material as well as advanced subjects, and solving problems using theory and skills gained in previous mandatory courses.

To qualify for the Level 2 Certificate, participants must complete additional mandatory core courses and electives. Electives are chosen in consultation with the program coordinator and are selected from the same elective streams as listed for the Level 1 program.

Mandatory Courses		Credit / Hrs	
HMGT 701	Information Systems in Health Care 1	1.5	18
HMGT 702	Health Care Law	1.5	18
HMGT 703	Financial Administration for Health Care Managers	1.5	18
HMGT 751	Information Systems in Health Care 2	1.5	18
HMGT 752	Health Labor Relations 2	1.5	18
HMGT 753	Application of Theory to Selected Health Problems	1.5	18

Elective Course

HCSY 620	Health Care Systems 2	1.5	18
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Recommended Electives

144 hours of elective course work from the streams shown for Level 1.

HEALTH CARE MANAGEMENT PROFESSIONAL DEVELOPMENT

Throughout the year, courses are featured for graduates from the Health Care Management Certificate Program, the Canadian Hospital Association's correspondence courses in management, other management courses, and for those people who simply wish more information about a particular health care topic.

HEALTH TECHNOLOGIES

BIOMEDICAL ENGINEERING

Program Head: Dave Moreau, BSc., Dipl.T., A.Sc.T.

Biomedical Engineering technologists maintain and repair electronic equipment used in medicine and biology. There is a need for individuals who have an understanding of this rapidly changing field. Courses are designed to provide specific skills for immediate job application. Advanced Diploma courses are being prepared in this area.

		Credit
ADNU 670	Patient Care Technology for Nurses	2.0
BMET 903	Introduction to Radiographic Imaging Systems	0.0
BMET 904	Introduction to Computed Tomography Systems	0.0
BMET 905	Digital Image Acquisition and Processing	0.0
BMET 906	Medical Lasers: Fundamentals, Safety and Service	0.0

ENVIRONMENTAL HEALTH (PUBLIC HEALTH INSPECTION)

Program Head: Charles Young, C.Tech., C.P.H.I.(C), R.P.H.I., M.Ed.

Environmental Health Technologists often face new challenges. Part-time Studies courses are designed to assist these professionals to become familiar with key issues in these new areas. The first Advanced Diploma courses are now available in this technology.

		Credit
ADEH 601	Hydrogeology	3.0
ADEH 604	Epidemiology and Biostatistics	3.0

ENVIRONMENTAL MANAGEMENT OF REAL ESTATE ASSETS: CERTIFICATE PROGRAM

Credit

EHCE 101	Introduction to Environmental Management	3.0
EHCE 102	Environmental Legal and Liability Issues	3.0
EHCE 103	Environmental Land Use Research	3.0
EHCE 104	Environmental Site Investigation and Remediation	3.0
EHCE 105	Environmental Assessment of Buildings and Facilities	3.0
EHCE 106	Environmental Finance	3.0
EHCE 107	Environmental Management	3.0
EHCE 108	Managing an Environmental Audit	3.0
EHCE 109	Emergency Preparedness/Emergency Responses	3.0
EHCE 110	Future Trends in Environmental Management	3.0

CERTIFICATE PROGRAM IN OCCUPATIONAL HEALTH & SAFETY

Program Head: Lars Larsson, C.R.S.P.
Certificate Program

This 45-credit program is designed for people employed in, or interested in safety in the workplace. To be eligible for the certificate, 30 credits must be taken from the list of mandatory courses and 15 credits from elective courses. Individual courses or groups of courses may be taken without enrolling in the complete certificate program.

Participants

The program will be of interest to those employed in occupational groups in which safety is part of the job responsibility:

- Accident prevention personnel
- Occupational health nurses and laboratory personnel
- Police and security personnel
- Building inspectors and managers
- Town planners
- Building and plant supervisors
- Managers and supervisors

Course Format

These courses are now under development into distance education format as part of the Occupational Health and Safety Diploma program. The following conversion schedule is provided to enable students to plan completion of their Certificate Programs. Courses will continue to be offered in each of the three 12-week terms.

Classroom Offering	Distance Education
OHCE 101 April 1991	January 1992 (to be combined with OHCE 102 and offered as OHCE 161)
OHCE 102	January 1991 (to be combined with OHCE 101 and offered as OHCE 161)
OHCE 103 April 1991	September 1992 (to be combined with OHCE 104 and offered as OHCE 271)
OHCE 104 Sept 1991	September 1992 (to be combined with OHCE 03 and offered as OHCE 271)
OHCE 201	January 1992 (to be offered as OHCE 142)
OHCE 202	September 1993 (to be combined with OHCE 204 and offered as OHCE 359)
OHCE 203 Jan 1993	September 1992 (to be offered as OHCE 458)

OHCE 204	September 1993 (to be combined with OHCE 202 and offered as OHCE 359)
OHCE 301	Sept 1991
OHCE 302	Jan 1992
OHCE 401	September 1993 (to be combined with Sept 1991 OHCE 403 and offered as OHCE 470)
OHCE 402	September 1993 (to be offered as OHCE 350)
OHCE 403	September 1993 (to be combined with OHCE 401 and offered as OHCE 470)

Requirements

To be eligible for a certificate in Occupational Health and Safety, students must complete:

- 30 credits of mandatory courses (10 courses)
- 15 credits of elective courses.

Student choose their courses in consultation with the Program Head, and have a Program Approval completed. It is strongly recommended that students include the following among the mandatory courses:

OHCE 101	Job Safety Analysis
OHCE 201	Legislation
OHCE 204	Hazardous Materials

Course Credit

Part of this 45-credit program can be credited to the 2-year Diploma Program at BCIT.

For information about the program, courses and program approval, contact the Program Head, Lars Larson, Occupational Health & Safety Technology, 432-8220. Mandatory Courses

Elective Courses

Prior to registering in elective courses, students must submit a Program Proposal Form for approval by the Program Head. Electives may include courses from the following subjects:

Business Computers
Organizational Behavior
Business Administration
Human Resource Management
Sprinkler Systems Design

PROSTHETICS AND ORTHOTICS

Program Head: Bill McGuiness, M.A.,C.P.O.

Short courses and workshops in Prosthetics and Orthotics are offered as needs are identified. To be placed on the mailing list contact Health Part-Time Studies.

MEDICAL IMAGING

Program Head: Ann McMillen, R.T., Dipl Hlth Care Mgmt., M.Ed.

Medical Radiography offers advanced level courses in a variety of technical subjects. While most of the courses are designed for Advanced Certification, they can be used to update knowledge.

REFRESHER

Credit

MRCE 90	Refresher Program for Medical Radiographers.....	0.0
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ADVANCED

BHCE 601	Sectional Anatomy of Abdomen and Pelvis	3.0
BHCE 602	Cross Sectional Anatomy of the Thorax	3.0
MRCE 611	Computed Tomography (Advanced Certification Credit 0.5)	3.0
MRCE 612	Technological Advances in X-ray Imaging	3.0
MRCE 614	Understanding Radiation Risks in Medical Imaging (Advanced Certification Credit 0.5)	3.0
MRCE 615	Magnetic Resonance Imaging Part 1: Physical Principles and Instrumentation (Advanced Certification Credit 0.5)	3.0
MRCE 617	Medical Radiation Protection	3.0

MEDICAL LABORATORY SCIENCE

Program Head: Karen Nicolson, B.Sc.,A.R.T.(Clin.Micro.)

Medical laboratory offers courses at many levels. Refresher courses prepare students for re-entering the work force, while advanced courses prepare student for the Advanced Registered Technologist examination and/or the Advanced Diploma in Health Sciences.

REFRESHER

Credit

MLCE 905	Clinical Chemistry Refresher	0.0
MLCE 906	Hematology Refresher	0.0
MLCE 907	Immunohematology Refresher	0.0
MLCE 908	Clinical Microbiology Refresher	0.0

ADVANCED

MLCE 610	Advanced Hematology: (The Red Cell) Part 1	3.0
MLCE 611	Advanced Hematology: (The Red Cell) Part 2	3.0
BHCE 610	Pathology.....	2.0

MEDICAL-SURGICAL SUPPLY CONSULTANTS CERTIFICATE PROGRAM

Designed to provide knowledge of specific medical-surgical areas to those involved in the sale and purchase of equipment and supplies. Applicants register in the full program and are expected to complete the four courses within a nine-month period.

Credit

MSSC 106	Human Anatomy and Physiology	4.5
MSSC 107	Medical-Surgical Procedures	3.5
MSSC 104	General Instrumentation	1.5
MSSC 105	Biomedical Electrical Safety	1.5

NURSING

Nursing courses are offered at the diploma and advanced diploma level. Advanced level (post-basic) programs are available in Critical Care Nursing, Operating Room Nursing, Emergency Nursing, Occupational Health Nursing, Neonatal Nursing, Obstetrical Nursing, Pediatric Critical Care, Corrections Nursing, and Rehabilitation Nursing. Clinical application courses may be full-time study practicums or preceptorships.

CREDIT COURSES FOR DIPLOMA NURSING PROGRAM

Program Coordinator: Moira Barnetson, R.N., S.C.M., R.F.N.

These are guided learning courses offering tutorial assistance in English, behavioral sciences and biological sciences to meet the requirements of the BCIT Nursing Diploma curriculum. More information is available in the Part-Time Studies catalog.

	Credit
CTCR 101 Anatomy and Physiology	3.5
CTCR 102 Writing for Nurses	3.5
CTCR 103 Personal Fitness Management	2.0
CTCR 104 Physiology	3.5
CTCR 105 Human Development 1	3.5
CTCR 106 Human Development 2	1.5
CTCR 107 Sociology	1.5
CTCR 108 Microbiology	2.0
CTCR 109 Immunology	2.0

ADVANCED NURSING

Advanced courses are designed to provide post-diploma qualifications in specialty areas for registered nurses. Theory courses are available in a guided learning mode, via modules supported with teletutoring to enable participants to study part-time while working in their own communities. Clinical courses are offered in short, full-time sessions. Challenge courses and compressed time frame offerings are also available in most specialties. These courses lead to an Advanced Diploma in Health Science. More detailed information is provided in the Advanced Diploma section and in the Advanced Diploma calendar.

GENERIC COURSES

	Credit
ADNU 603 Pathophysiology	5.0
ADNU 604 Pathophysiology for Critical Care Nursing	5.0
ADNU 607 Pathophysiology for Emergency Nursing	5.0
ADNU 623 Application of Psychological Aspects of Patient Care	4.0
ADNU 624 Psychological Aspects of Nursing Care	4.0
ADNU 630 Interpersonal Skills	3.0
ADNU 631 Individual Counselling Skills	3.0
ADNU 632 Group Counselling Skills	3.0
ADNU 633 Family Nursing	3.0
ADNU 640 Physical Status Assessment	3.0
ADNU 641 Mental Status Assessment	3.0
ADNU 650 Ethics in Health Sciences	2.0
ADNU 651 Multicultural Nursing	3.0
ADNU 660 Legal Issues in Nursing	3.0
ADNU 670 Patient Care Technology	2.0
ADNU 671 Introduction to Radiation Risks	3.0

CRITICAL CARE NURSING

Credit

Program Head: Colleen Varcoe, R.N., B.Sc.N., M.Ed.

ADNU 604 Pathophysiology for Critical Care Nursing	5.0
ADNS 630 Critical Care Nursing: Theory	5.0
ADNS 631 Critical Care Nursing: Theory for UBC/WVI Level 1 Graduates/GVHS/ADNS 610 completion	2.0
ADNS 531 Critical Care Nursing: Clinical Practicum for Small Hospitals 1	3.5
ADNS 532 Critical Care Nursing: Clinical Practicum for Small Hospitals 2	3.5
ADNS 632 Critical Care Nursing: Clinical Practicum 1	7.0
ADNS 633 Critical Care Nursing: Advanced Theory	5.0
ADNS 634 Critical Care Nursing: Clinical Practicum 2	7.0
ADNS 615 Trauma Management for Nursing and	2.0
ADNS 635 Preceptorship: Trauma Nursing or	3.0
ADNS 636 Preceptorship: Cardiovascular Surgical Nursing or	5.0
ADNS 637 Preceptorship: Recovery Postanesthetic Nursing or	5.0
ADNS 638 Preceptorship: Burns Management or	5.0
ADNS 639 Preceptorship: Cardiovascular Medical Nursing	5.0
ADNS 536 Post Anesthetic Nursing: Theory	2.0
ADNS 537 Post Anesthetic Nursing: Clinical Practicum	7.0

COMBINED CRITICAL CARE/EMERGENCY SPECIALTY

ADNU 603 Pathophysiology	5.0
ADNS 610 plus Emergency Nursing Theory and	5.0
ADNS 631 Critical Care Nursing Theory	2.0
ADNS 630 or Critical Care Nursing Theory and	5.0
ADNS 616 Emergency Nursing Theory	2.0
ADNS 611 Emergency Nursing Clinical Practicum 1	7.0
ADNS 632 Critical Care Nursing Practicum 1	7.0
ADNS 633 plus Advanced Critical Care Nursing Theory	5.0
ADNS 634 Advanced Critical Care Nursing Clinical	7.0
ADNS 612 or Advanced Emergency Nursing Theory	3.0
ADNS 613 Advanced Emergency Nursing Clinical	7.0
ADNS 615 plus Trauma Nursing	5.0
ADNS 635 Trauma Nursing/Preceptorship	3.0

CORRECTIONS NURSING

Program Head: Moira Barnetson, R.N., S.C.M., R.F.N.

ADNU 640 Physical Assessment	3.0
ADNU 641 Mental Status Assessment	3.0
ADNS 670 Introduction to the Justice System	1.0
ADNS 671 Clinical Assessment in Corrections Nursing	2.0
ADNS 672 Correctional Behavior Patterns and Crisis Management	5.0
ADNS 673 Health Education in a Correctional Setting	2.0
*ADNS 674 Infection Control in a Correctional Setting	2.0
*ADNS 675 Clinical Application Course	6.0

* Under Development

EMERGENCY NURSING

Credit

Program Head: Caroline Howe, R.N. Credit

ADNU 607	Pathophysiology for Emergency Nursing	5.0
ADNS 610	Emergency Care Nursing: Theory 1	5.0
ADNS 616	Emergency Care Nursing: Theory 1 for Critical Care Level 1 Graduates	2.0
ADNS 611	Emergency Care Nursing: Clinical Practicum 1	7.0
ADNS 612	Emergency Care Nursing: Theory 1	3.0
ADNS 615	Trauma Management For Nurses	2.0
ADNS 613	Emergency Care Nursing: Advanced Clinical Practicum	7.0
ADNS 614	Emergency Care Nursing: Preceptorship	5.0

NEONATAL NURSING

Program Head: Seonag Cresswell, R.N., B.S.N.

ADNS 680	Introduction to Neonatal Nursing: Theory	5.0
ADNS 681	Introduction to Neonatal Nursing: Clinical	3.0
ADNU 630	Interpersonal Skills	3.0
ADNS 682	Care of the High-Risk Neonate: Theory ..	5.0
ADNS 683	Care of the High-Risk Neonate: Clinical ..	4.0
ADNU 650	Ethics in Health Sciences	2.0
ADNS 684	The Critically Ill Neonate: Theory	3.0
ADNS 685	The Critically Ill Neonate: Clinical	4.0

The following courses are available as continuing education for those who do not wish to proceed to clinical courses.

ADNS 780	Introduction to Neonatal Nursing: Theory	5.0
ADNS 782	Care of the High-Risk Neonate: Theory ..	5.0
ADNS 784	The Critically Ill Neonate: Theory	3.0

OBSTETRICAL NURSING

Program Head: Reina Guliker, R.N., B.S.N.

ADNS 644	Low-Risk Obstetrical Nursing	6.0
ADNS 645	Obstetrical Clinical Preceptorship 1	4.0
ADNS 646	Moderate to High-Risk Obstetrical Nursing	6.0
ADNS 647	Obstetrical Clinical Preceptorship 2	8.0
ADNS 648	High-Risk Obstetrical Nursing	6.0
ADNS 649	Obstetrical Clinical Practicum	6.0

The following courses are available as continuing education for those who do not wish to proceed to clinical courses.

ADNS 744	Low-Risk Obstetrical Nursing	6.0
ADNS 746	Moderate-to-High-Risk Obstetrical Nursing	6.0
ADNS 748	High-Risk Obstetrical Nursing	6.0

OCCUPATIONAL HEALTH NURSING

Program Head: Stephanie Wilson, R.N., B.N., C.C.O.H.N.

Phase 1

ADNS 660	Introduction to Occupational Health Nursing	3.0
HMG 611	Organizational Behavior for Occupational Health Nurses	3.0
ADNS 669	Health Assessment for Occupational Health Nurses	3.0
ADNS 661	Health Assessment: Clinical	5.0

Phase 2

ADNS 662	Fundamentals of Industrial Hygiene	3.0
ADNS 663	Occupational Toxicology	3.0
ADNS 664	Health Surveillance	3.0
ADNS 665	Health Maintenance: Clinical	4.0
ADNS 668	Health Promotions in the Workplace	3.0

Phase 3

ADNS 666	Advanced Concepts in Occupational Health Nursing	3.0
ADNS 667	Occupational Health Nursing: Preceptorship	3.0

Note: The nurse will require current certification in Industrial First Aid prior to the second clinical course.

OPERATING ROOM NURSING

Program Head: Marnie Simon, R.N.

ADNS 501	Operating Room Nursing: Introduction Principles and Practices	4.0
ADNS 502	Operating Room Nursing: Skills Lab	1.0
ADNS 503	Operating Room Nursing: Introduction Surgical Procedures	5.0
ADNS 504	Operating Room Nursing: Clinical Course	11.0
ADNS 505	Pediatric Operating Room Nursing: Preceptorship	1.5
ADNS 506	Operating Room Nursing: Introduction to Surgical Specialties	5.0
ADNS 507	Operating Room Nursing: Introduction to Surgical Specialties - Clinical	8.0

Continuing Education Courses

ADNS 520	Orthopedic Operating Room Nursing: Introduction	2.0
ADNS 522	Orthopedic Operating Room Nursing: Advanced	2.0
ADNS 524	Vascular Operating Room Nursing	2.5
ADNS 526	Neurosurgical Operating Room Nursing ..	3.5
ADNS 528	Thoracic Operating Room Nursing	2.5
ADNS 901	Operating Room Nursing: Refresher	0.0

PEDIATRIC CRITICAL CARE

Program Head: Seonag Cresswell, R.N., B.S.N.

ADNS 650	Pediatric Critical Care Pathophysiology ..	4.0
ADNS 651	Pediatric Critical Care Nursing Theory	6.0
ADNS 652	Pediatric Critical Care Nursing Practicum 1	8.0
ADNS 653	Pediatric Critical Care Nursing Adv. Theory	3.0
ADNS 654	Pediatric Critical Care Nursing Practicum 2	3.0
ADNU 633	Family Nursing	3.0
ADNU 650	Ethics in Health Sciences	2.0

REHABILITATION NURSING

Program Head: Moira Barnetson, R.N., S.C.M., R.F.N.

Phase 1

ADNS 690	Rehabilitation Nursing 1	4.0
ADNU 640	Physical Status Assessment	3.0

Phase 2

ADNU 624	Psychological Aspects of Nursing Care ..	4.0
ADNS 691	Rehabilitation Nursing 2	4.0
ADNU 641	Mental Status Assessment	3.0
*ADNS 692	Rehabilitation Nursing 3 (Clinical)	6.0

Phase 3

*ADNS 693 Rehabilitation Nursing 4 (Preceptorship) 8.0
ADNU 632 Group Counselling Skills3.0

* To be developed

Course Descriptions & Credits

ADVANCED NURSING SPECIALTIES

ADNS 501 Operating Room Nursing: Introduction Theory and Practice – This first theory course introduces the student to the theory and principles related to the practice of perioperative nursing of the adult and pediatric patient. Three days of classroom review are offered at the completion of the directed independent study. Prerequisite: R.N. ADNS 501 should be taken in the same time as ADNS 502. **4 credits**

ADNS 502 Operating Room Nursing: Skills Laboratories – Application to the theory and principles of perioperative nursing in the performance of selected basic skills. During the first two days in a laboratory setting, basic psychomotor skills are demonstrated and practiced. Further skills practice and testing over the following two days. Prerequisite: ADNS 501 which can be taken concurrently. **1 credit**

ADNS 503 Operating Room Nursing: Introduction Surgical Procedures – A review of basic gross anatomy and physiology followed by an introduction to surgical techniques and related perioperative nursing practices used for general, gynaecological, plastics and selected urological, orthopedic and EENT surgeries for the adult and pediatric patient. The associated instrumentation, equipments, supplies and drugs required for these selected surgical procedures is also described. Prerequisite: ADNS 501 or ADNS 501 Challenge. ADNS 502 recommended. **5 credits**

ADNS 504 Operating Room Nursing: Clinical Practice Clinical – 9-week (full-time study) combination of supervised clinicals and laboratories to provide basic skills in perioperative nursing. Scrubbing and circulating for general, gynaecological, urological, plastics and selected EENT and orthopedic surgeries. Limited experience in post-anesthetic recovery room also provided. Prerequisite ADNS 501 and ADNS 502. Corequisite: ADNS 503. **11 credits**

ADNS 505 Pediatric Operating Room Nursing: Preceptorship – This clinical preceptorship of one week offers the introductory level student who has successfully completed ADNS 503 and ADNS 504 an optional clinical experience. One-week, full-time preceptored experience in introductory pediatric perioperative nursing, if available, in a specialized pediatric operating room. Prerequisite: ADNS 504. **1.5 credits**

ADNS 506 Operating Room Nursing: Introduction to Surgical Specialties: Theory – Introduces the student to the perioperative techniques and equipment used in the surgical specialties of ophthalmology, thoracic, vascular, orthopedic and neurosurgery. Information on lasers, power equipment and microscopes is included. The principles and practices of operating room organization and management are also presented. Prerequisite: ADNS 503, 504. **5 credits**

ADNS 507 Operating Room Nursing: Introduction to Surgical Specialties: Clinical – This clinical course combines a 3-week instructed practicum and two weeks of preceptored experience in the surgical specialties of ophthalmology, vascular, thoracic, orthopedic and neurosurgery. Information on advanced technology, multi

system trauma and O.R. management is also included. The combined courses prepare the student for practice in major surgical suites. Certification is available on successful completion. Prerequisite: ADNS 504. Corequisite: ADNS 506. **8 credits**

ADNS 520 Orthopedic Operating Room Nursing: Introduction – This advanced theory course is presented in modular form for directed independent study. It offers the beginning level or experienced operating room nurse a comprehensive introduction to the surgical techniques, instrumentation and procedures used in basic orthopedic surgery. This is the only level two course that may be taken directly following completion of level one. The one year of Operating Room experience required for the other courses in this level is waived. **2 credits**

ADNS 522 Orthopedic Operating Room Nursing: ADVANCED – This advanced theory course offers experienced operating room nurses comprehensive information on the advanced orthopedic surgical procedures and techniques used and the perioperative nursing skills required for this surgical specialty. The specialized techniques include: arthroplasties, intramedullary fixation, external fixation of complicated fractures, advanced techniques in spinal surgery and care of the multiple trauma patient with orthopedic injuries. Techniques used in anesthesia and for recovery room care of the patient undergoing major orthopedic surgery are also included in this course for directed independent study. Prerequisite ADNS 503/504 or equivalent plus one year current nursing experience, or two years current nursing experience. **2 credits**

ADNS 524 Vascular Operating Room Nursing – This advanced theory course offers experienced operating room nurses comprehensive information on the surgical procedures and related perioperative nursing skills required for vascular surgery. Information on instrumentation, surgical procedures, anesthetic techniques and recovery room considerations for this specialty are included in the modules for directed independent study. **2.5 credits**

ADNS 526 Neurosurgical Operating Room Nursing – This advanced theory course offers experienced operating room nurses comprehensive information on the surgical procedures and related perioperative nursing skills required for neurosurgery. Information on instrumentation, surgical procedures, anesthetic techniques and recovery room considerations for this specialty are presented in modular form for directed independent study. **3.5 credits**

ADNS 528 Thoracic Operating Room Nursing – This advanced theory course offers experienced operating room nurses comprehensive information on the surgical procedures and related perioperative nursing skills required for thoracic surgery. Information on instrumentation, surgical procedures, anesthetic techniques and recovery room considerations for this specialty are in the modules for directed independent study. **2.5 credits**

ADNS 531 Critical Care Clinical for Small Hospitals 1 – This 2-week clinical course provides the knowledge and skills necessary to work in a critical care setting which does not provide hemodynamic monitoring. Focuses on the application of theory from ADNS 630 to the care of patients requiring ECG monitoring, intensive assessment and mechanical ventilation. Includes two days of lab on airway management, mechanical ventilation, physical assessment, ECG monitoring and IV therapy. Prerequisite: ADNU 604 (65%), ADNS 630 (75%). **3.5 credits**

ADNS 532 Critical Care Clinical for Small Hospitals 2 – This 2-week clinical course permits students who have completed ADNS 531 to complete the equivalent of ADNS 632. Includes one lab day on hemodynamic monitoring and a cardiac arrest management course. The course focuses on the critical care, clinical knowledge and skills covered in ADNS 632 but not covered in ADNS 531. The emphasis will be on the nursing of patients with hemodynamic monitoring and drugs. Prerequisite: ADNS 531. **3.5 credits**

ADNS 536 Post-Anesthetic Nursing: Theory – Presents basic theory pertinent to post-anesthetic nursing: anesthetic agents, post-anesthetic complications, admission assessment, general PAR course and PAR discharge criteria. Includes: review of basic anatomy and physiology as well as specific surgical nursing theory. Prerequisite: ADNU 604, ADNS 630. **2 credits**

ADNS 537 Post-Anesthetic Nursing: Clinical Practicum – A 4-week clinical course designed to permit application of ADNS 630 and ADNS 533 theory. Includes cardiac arrest management and skill practice in airway management, EKG monitoring, ventilator management and hemodynamic monitoring. Also includes 3 weeks of supervised clinical practice in both a post-anesthetic care unit and intensive care unit. Seminars integrate theory related to specific post-operative care, pediatric nursing and psychosocial and legal aspects of PAR nursing. Prerequisite: ADNS 536 (75%), 630 (75%). **7 credits**

ADNS 610 Emergency Care Nursing: Theory – Presents basic theory pertinent to emergency nursing care. Integrates theory of disease processes and injury commonly seen in emergency care settings with appropriate assessment parameters, priorities of care, therapeutic interventions and specific skills, such as dysrhythmia interpretation and ABG analysis. Prerequisite: ADNU 603, or 607 (65%). **5 credits**

ADNS 611 Emergency Care Nursing: Clinical Practicum – This 4-week clinical course is designed to permit application of ADNS 610 theory. Laboratories and seminars augment learning from theory modules to facilitate practice of specific skills (airway management, interviewing, assessment cardiac arrest management and intravenous therapy), and to allow students opportunity to discuss relevant issues with peers. Clinical experience will be obtained through 3- weeks of clinical practice under the supervision of a clinical instructor in an Emergency Department. Prerequisite: ADNS 610 (75%). BCLS Level C. **7 credits**

ADNS 612 Emergency Care Nursing: Theory – Presents more advanced multi-dimensional concepts and therapeutic measures such as triage, psychiatric disorders, obstetrical emergencies, burns, ventilator management and hemodynamic pharmacology. Prerequisite: ADNS 610, ADNU 607. ADNS 615 may be taken concurrently. **3 credits**

ADNS 613 Emergency Care Nursing: Advanced Clinical Practicum – Integrates previously learned advanced concepts and therapeutic measures into clinical practice. Emphasizes establishing priorities and efficiently organizing nursing care for patients with varying types and complexities of illness and injury. Nurses will apply and integrate knowledge and skills through 4 weeks of clinical practice under the supervision of a clinical instructor in a Tertiary/Regional Emergency Department. Laboratories on triage, splinting and wound care will also be included in this clinical component. Prerequisite: ADNS 612 (75%). Corequisite: ADNS 615. **7 credits**

ADNS 614 Emergency Clinical Preceptorship – Focuses on integration and refinement of previously learned theory and skills through a 3-week (112.5 hr) clinical preceptorship. The preceptorship experience allows the nurse to continue to develop as an independent and collaborative member of the health care team and ensures that the graduate demonstrates the confident behavior expected of a beginning practitioner in an Emergency Department. Once the course objectives have been met, optional learning opportunities such as observational experiences in burn units, I.C.U's, community resource facilities or Emergency Health Services may be arranged. Prerequisite: ADNS 613. **5 credits**

ADNS 615 Trauma Management for Nurses – Focuses on the etiology, pathophysiology, assessment and nursing management of trauma as seen in emergency care settings. Examines trauma related to each of the body systems (craniocerebral trauma, cardiothoracic trauma, etc.) and culminates in an integrated approach to the assessment and management of multiple trauma. Applications of theory from the modules will occur during a one-day laboratory through demonstrations and simulated practice in case study scenarios. Prerequisite: Sound knowledge of basic pathophysiology, airway management, intravenous therapy, etc. Experience working in either an emergency or critical care setting preferred. **2 credits**

ADNS 616 Emergency Care Nursing: Theory (Adapted) – Adapted from ADNS 610 Emergency Care Nursing Theory, for graduates of the UBC/VCC Level 1 Critical Care Nursing Program, or students who have successfully completed ADNS 630 Critical Care Nursing: Theory. Appropriate for students interested in obtaining a combined specialty certificate in Critical Care and Emergency Nursing. **2 credits**

ADNS 630 Critical Care Nursing: Theory – Presents basic theory pertinent to critical care. Integration of the nursing care problems commonly encountered in critical care units (myocardial infarction, respiratory failure, increased intracranial pressure and renal failure) with specific skills such as dysrhythmia interpretation, ABG analysis, ventilator care and hemodynamic monitoring. Prerequisite: ADNU 603 or 604 or 607 (65%). **5 credits**

ADNS 631 Critical Care Nursing: Theory – Adapted from ADNS 630 for graduates of Critical Care Level 1 (UBC/VCC/Malaspina), graduates of the GVHS critical care program or students who have completed ADNS 610 Emergency Nursing Theory. **2 credits**

ADNS 632 Critical Care Nursing: Clinical Practicum 1 – A 4-week clinical course designed to permit application of ADNS 630 theory. Includes skill practice in airway management, hemodynamic monitoring and ventilator management in a lab setting. Also includes 3 weeks of supervised clinical experience. Seminars are held to integrate theory related to crisis intervention, communication and family theory. Prerequisite: ADNS 630 75%, B.C.L.S. Level C. **7 credits**

ADNS 633 Critical Care Nursing: Advanced Theory – Introduces more complex health problems such as AIDS, SHOCK, multiple trauma and DIC. Includes advanced therapeutic measures such as ICP monitoring, advanced ventilator care and advanced cardiopulmonary monitoring. Prerequisite: ADNS 630 75% **5 credits**

ADNS 634 Critical Care Nursing: Clinical Practicum 2 – Advanced skills such as ICP monitoring, dual chamber pacemakers and cardiac output measurement will be practised in a laboratory setting with supervised clinical practice in a tertiary care setting. Develops organization and efficiency in management of critically ill patients and

crisis situations. Seminars cover change theory, decision making, legal/ethical issues and health team collaboration and referral. Prerequisite: ADNS 632, 633 (75%), current ACLS certification. **7 credits**

ADNS 635 Preceptorship: Trauma Nursing Critical Care – Building on principles of trauma management presented in ADNS 615, this course focuses on the care of the multiply injured patient beyond the emergency unit. 85 hours of clinical and observational experiences are arranged individually. Prerequisite: ADNS 634 Prerequisite/Corequisite: ADNS 615. **3 credits**

ADNS 636 Preceptorship: Cardiovascular Surgical Nursing – Theory covering cardiac surgery, anesthetic agents, valvular disease, etc., is followed by observational experiences in the operating room and cardiac catheterization lab. 96 hours of clinical experience in a cardiac surgical intensive care unit are arranged. Prerequisite: ADNS 633 & current employer reference, 634, and current ACLS. **5 credits**

ADNS 637 Preceptorship: Postanesthetic Recovery Room Nursing – Theory related to anesthetic agents and the principles of recovery room nursing is followed by 96 hours of clinical experience in a tertiary level recovery room. The integration of surgery-specific theory with observational and clinical experience is guided by specific assignments. Prerequisite: ADNS 634, current ACLS and employer reference required. **5 credits**

ADNS 639 Preceptorship in Cardiovascular Medical Nursing – Theory related to 12 lead ECG interpretation and nursing care related to cardiovascular diagnostic tests, thrombolytic therapy, angioplasty, dual chamber pacemaking. 96 hours of clinical practice will include observation of diagnostic and therapeutic measures and supervised clinical in a tertiary coronary care unit. Prerequisite: ADNS 634, current ACLS. **5 credits**

ADNS 644 Low-Risk Obstetrical Nursing – Covers knowledge required to provide nursing care to women with low-risk pregnancies and their neonates in obstetrical units of community hospitals. Focuses on the antepartum, intrapartum and postpartum periods. Includes the use of selected communication skills in interaction with childbearing families of varied cultural backgrounds, and a discussion of legal responsibilities in the obstetrical setting. In order to proceed to ADNS 645 you must obtain at least 75% in this course. **6 credits**

ADNS 645 Obstetrical Clinical Preceptorship 1 – Full-time clinical experience (approximately 3 weeks) with a preceptor in a labor and delivery unit of a community/regional hospital. The nurse will have the opportunity to apply the knowledge and develop the skills required to provide nursing care to women with low-risk pregnancies and their neonates. An introduction to fetal monitoring is included. Dates arranged individually. Prerequisite: ADNS 644 (75% minimum). **4 credits**

ADNS 646 Moderate-to-High-Risk Obstetrical Nursing – Introduces knowledge required to provide nursing care to women with moderate-to-high-risk pregnancies and their neonates. Focuses on antepartum, intrapartum and postpartum periods. Covers critical decision-making skills and theories related to patient teaching, grieving and loss. Includes recognition of high-risk neonates. In order to proceed to ADNS 647 you must obtain at least 75% in this course. Those planning to proceed into ADNS 647 next term must apply by week 6 of this term. Prerequisite: ADNS 644, 645. **6 credits**

ADNS 647 Obstetrical Clinical Preceptorship 2 – A 6-week, full-time clinical experience with a preceptor on an obstetrical unit of a regional hospital. The nurse will have the opportunity to develop critical decision-making skills and apply theories of families, cultures, grieving and loss. Includes 4 weeks on a labor and delivery unit and 2 weeks on a postpartum unit. Advanced fetal monitoring is included. Dates arranged individually. Prerequisite: ADNS 646. **8 credits**

ADNS 648 High-Risk Obstetrical Nursing: Theory – Focuses on the knowledge required to care for women with high-risk pregnancies and/or pre-existing medical conditions. Covers ethical theory and ethical dilemmas related to unanticipated events of child bearing and includes an introduction to theory. In order to proceed to ADNS 649 you must obtain at least 75% in this course. Prerequisite: ADNS 647. **6 credits**

ADNS 649 Obstetrical Clinical Practicum – A 4-week, full-time supervised clinical experience in a tertiary care hospital. The nurse will have the opportunity to apply knowledge and develop skills required to provide nursing care to women with high-risk pregnancies and medical complications. The experience includes antepartum, postpartum, intrapartum and neonatal care in the observational nursery. Prerequisite: ADNS 648. **6 credits**

ADNS 650 Pediatric Critical Care Pathophysiology – Reviews cellular organization and response to diseases commonly experienced by children in critical care units. Organized by systems covering cardiovascular, endocrine, renal and gastrointestinal physiology and diseases. **4 credits**

ADNS 651 Pediatric Critical Care Nursing: Theory – A guided learning course which presents basic theory related to nursing care of critically ill children. Deals with the nursing care problems commonly encountered in a pediatric intensive care unit (respiratory failure, sepsis, neurological problems, renal failure). Also covers content required to implement specific skills such as hemodynamic monitoring, ABG analysis, ventilator support, etc. **6 credits**

ADNS 652 Pediatric Critical Care: Practicum 1 – A full-time clinical experience approximately 5 weeks (181.5hrs). Emphasis will be placed on development of assessment skills and application of principles of care learned in ADNS 651. Prerequisite: ADNS 651. **8 credits**

ADNS 653 Pediatric Critical Care Nursing: Advanced Theory – Builds on theory covered in ADNS 651. Emphasis will be placed on the more complex problems experienced by critically ill children: multiple trauma, burns and transplant surgery, and open heart surgery. Includes advanced therapeutic measures such as I.C.P. monitoring, and advanced ventilator care. Prerequisite: ADNS 651 (75%) **5 credits**

ADNS 654 Pediatric Critical Care: Practicum 2 – A 2-week, full-time clinical course, (112.5 hrs) building on skills practised in ADNS 652, emphasizes the care of children experiencing more complex problems. Includes advanced hemodynamic monitoring. Prerequisite: ADNS 652, 653. **3 credits**

ADNS 660 Introduction to Occupational Health Nursing – Introduces the student to the historical development and objectives of occupational health. General concepts underlying health and safety in work environments and the role of Occupational Health and Safety team members are discussed. Basic business writing skills are addressed and the impact of organizational structure, labor relations and multiculturalism on the role of the occupational health nurse is considered. Pertinent legislation/regulations and the professional and legal responsibilities of the occupational health nurse are emphasized. **3 credits**

ADNS 661 Health Assessment: Clinical – A full-time, 140-hour (19-day) session provides laboratory and supervised clinical practice of interviewing and health assessment skills. A 3-day audiometric course will be given at WCB, Richmond. Students will make individual visits to a variety of Occupational Health settings in the lower mainland. Prerequisite: ADNS 660 (75%), HMG 611, ADNS 669 (75%) and Industrial First Aid Certificate. **5 credits**

ADNS 662 Fundamentals of Industrial Hygiene – Presents theory related to hazards found in various work settings. Recognition and control measures for physical, chemical, ergonomic and biological stressors are addressed. Prerequisite: ADNS 660 or permission of the Program Head. **3 credits**

ADNS 663 Occupational Toxicology – Presents the principles of toxicology and epidemiology as they relate to the workplace. Substances such as pesticides, solvents, metals, gases and particulates are discussed. Reproductive and carcinogenic hazards are addressed. Prerequisite: ADNS 662 or permission of the Program Head. **3 credits**

ADNS 664 Health Surveillance – Presents theory related to monitoring the health of employees in specific work settings. The role of the OHN in employee assistance programs, primary care and rehabilitation is addressed. Prerequisite or Corequisite: ADNS 663. **3 credits**

ADNS 665 Health Maintenance: Clinical – A 3-week, full-time experience incorporating labs and practicum on counselling skills and environmental monitoring. The W.C.B. Rehabilitation Clinic, Richmond, B.C. will be visited. Group field visits under the guidance of Industrial Hygienists and Safety Professionals will be arranged. The final five days will be spent in one Occupational Health setting. Prerequisite: ADNS 663, 664 (75%), 668 (75%), 661, and current Industrial First Aid Certificate. **4 credits**

ADNS 666 Advanced Concepts in Occupational Health Nursing – Builds on previous courses with theory required to establish, administer, promote and evaluate an OH service. Prerequisite: ADNS 663, 664, 668. **3 credits**

ADNS 667 Occupational Health Nursing Preceptorship – Provides an opportunity to apply and integrate knowledge and skills from previous courses under the guidance of an experienced OHN. 84 hours of clinical experience focus on one industry and will be arranged individually. Prerequisite: ADNS 665, 666 (75%), Current Industrial First Aid Certificate. **3 credits**

ADNS 668 Health Promotion in the Workplace – The occupational health nurse is being asked to offer cost effective programs. This course provides an opportunity to design a specific illness prevention/health promotion program as it pertains to workplace health risks. The program plan will be based on a completed needs assessment and will include detailed plans for implementation and evaluation. The education and change processes will be addressed. Prerequisite: ADNS 662 or permission of the Program Head. **3 credits**

ADNS 669 Health Assessment for Occupational Health Nurses – The theoretical basis for assessing the health of individual employees is presented. Theory for special assessment procedures is included. Prerequisite: ADNS 660 or permission of the Program Head. **3 credits**

ADNS 670 Introduction to the Justice System – Presents an overview of the Justice System's goals, legislation and security procedures. **1 credit**

ADNS 671 Clinical Assessment in Corrections Nursing – Provides exposure to clinical practice in assessment and symptom analysis. One week supervised experience. Prerequisite: ADNU 640, 641, ADNS 670 and CPR Certificate. **2 credits**

ADNS 672 Correctional Behavior Patterns and Crisis Management – Presents pathological behaviour patterns continuously occurring in correctional settings and discusses current theory and practice for the management of that behaviour. **5 credits**

ADNS 673 Health Education in a Correctional Setting – Focuses on teaching and learning skills for individuals who are not motivated to change their behavior using the usual approaches. **2 credits**

***ADNS 674 Infection Control In A Correctional Setting** – Covers the management of infectious diseases in a correctional setting. Includes immunization, common communicable diseases, T.B. control, sexually transmitted diseases and general principles. **2 credits**

***ADNS 675 Clinical Application: Corrections Nursing** – 3-week supervised practicum in a correctional setting, designed to consolidate and apply theory learned in previous courses in the program. **6 credits**

ADNS 680 Introduction to Neonatal Nursing: Theory – Presents the basic theory required to begin caring for infants in a special care nursery. Emphasis is on maternal influences on the fetus and newborn, a few common neonatal disorders and the basic nursing skills required to begin caring for infants in a Level II nursery. In order to proceed to ADNS 681 you must obtain at least 75% in this course. **5 credits**

ADNS 681 Introduction to Neonatal Nursing: Clinical – Full-time clinical experience (approximately 2 weeks) with an instructor. Students will have some choice as to the location of this clinical experience. Emphasizes assessment skills and basic care of the ill newborn. Prerequisite: ADNS 680 (minimum 75%). **3 credits**

ADNS 682 Care of the High-Risk Neonate: Theory – Builds on theory covered in ADNS 680. Emphasis is placed on pathophysiology of common neonatal disorders, the nursing care of high-risk newborns, and care of the family with an infant in a special care nursery. In order to proceed to ADNS 683, you must obtain at least 75% in this course. Prerequisite: ADNS 680. **5 credits**

ADNS 683 Care of the High-Risk Neonate: Clinical – A full-time clinical course (approximately 3 weeks) This course will build on clinical skills practised in ADNS 681 emphasizing the care of high-risk newborns. Use of a variety of equipment including mechanical ventilators will be included. Prerequisite: ADNS 681 (or approved exemption), 682 (minimum 75%), ADNU 670 or granted exemption. **4 credits**

ADNS 684 The Critically Ill Neonate: Theory – Presents the theory required to care for critically ill newborns in a Level III nursery. Emphasis will be on the care of infants with multisystem failure and the pathophysiology of life threatening disorders. Prerequisite: ADNS 682. **3 credits**

ADNS 685 The Critically Ill Neonate: Clinical – A full-time clinical course (approximately three weeks). Emphasis is on complete nursing care of critically ill newborns. Prerequisite: ADNS 683. Corequisite: ADNS 684. **4 credits**

ADNS 690 Rehabilitation Nursing 1 – Introduction to selected theories and concepts. Focuses on the physiological aspects of rehabilitation nursing including head injury, stroke, spinal cord, arthritis, multiple sclerosis and amputation. **4 credits**

ADNS 691 Rehabilitation Nursing 2 – Builds on the concepts studied in ADNU 624 and applies them to the rehabilitation setting. Nurses learn the knowledge and skills necessary to meet the psychosocial needs of individuals. Prerequisite: ADNS 690, ADNU 624. **4 credits**

***ADNS 692 Rehabilitation Nursing 3** – This 4-week course incorporates laboratory and supervised clinical experience to enable the nurse to integrate and apply previous learning while assisting patients in a rehabilitation setting to meet both their physiological and psychosocial needs. Prerequisite: ADNS 690, 691, ADNU 624, 641. **6 credits**

***ADNS 693 Rehabilitation Nursing 4** – This course, which combines guided learning with a 6-week clinical preceptorship, provides the nurse with an opportunity to apply rehabilitation nursing knowledge, skills and attitudes at an advanced level. Prerequisite: ADNS 692. **8 credits**

ADNS 901 Operating Room Nursing Refresher Course – This non-credit course offers students with a minimum of two years experience in the operating room in the last ten years, the opportunity for a refresher in the basic skills and theory pertaining to entry-level perioperative nursing. Modules and a manual to direct study will present the theory, principles and procedure of entry-level perioperative nursing. Three weeks of full-time clinical instruction and three weeks clinical preceptorship will offer the student the clinical experience to regain the skills required to meet the requirements of entry-level operating room nursing practice. **non credit**

ADVANCED NURSING

ADNU 603 Pathophysiology – Reviews cellular organization and response to disease. Organized by systems covering cardiovascular, respiratory, neurological, endocrine, renal and gastrointestinal physiology and diseases. **5 credits**

ADNU 604 Pathophysiology for Critical Care Nursing – See ADNU 603.

ADNU 607 Pathophysiology for Emergency Nursing – See ADNU 603.

ADNU 623 Application of Psychological Aspects of Patient Care – A guided learning course which deals with interventions for the dysfunctional behavior described in ADNU 624. Prerequisite: ADNU 624. **4 credits**

ADNU 624 Psychological Aspects of Nursing Care – Covers identification and assessment of behavior. Emphasizes theory related to the development of inappropriate responses associated with specific behavior patterns. **4 credits**

ADNU 630 Interpersonal Skills – Provides training which will enable the learner to respond with empathy, warmth and respect to patients. The course is based on a systematic human relations training model. **3 credits**

ADNU 631 Individual Counselling Skills – Introduces health care practitioners to the application of interpersonal skills for the interviewing and counselling of individuals. Prerequisite: ADNU 630. **3 credits**

ADNU 632 Group Counselling Skills – Introduces health care practitioners to the application of interpersonal skills to working with groups of clients. Uses a person-centered approach as developed by Rogers, Carkhuff and Egan as a theoretical model, based on the hypothesis that when a psychological climate of safety and acceptance is created in a group, group members are able to use their own resources constructively. Prerequisite: ADNU 630. **3 credits**

* Under development

ADNU 633 Family Nursing – A Guided Learning course presenting theories from nursing and related disciplines which will provide the basis for the delivery of family-centered nursing care. Course content will focus on theory related to family assessment using the Friedman family assessment framework. Factors which influence family functioning and nursing interventions specific to family nursing are discussed. This course is primarily directed towards nurses working in acute care settings, however, the concepts presented are applicable to all areas of family nursing. **3 credits**

ADNU 640 Physical Status Assessment – For nurses who provide care to adult patients where they are expected to assess the client's physical status in cooperation with a physician. This is a practical hands-on course and students will need to practice assessment skills with peers or clients. **3 credits**

ADNU 641 Mental Status Assessment – For nurses who provide care to psychiatric clients in various settings. Focuses on skills for assessing the client's mental status. **3 credits**

ADNU 650 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. **2 credits**

ADNU 651 Multicultural Nursing – Introduces the importance of conceptualizing the inherent worth of different cultural values and lifestyles. Applies this knowledge to a health care setting. **3 credits**

ADNU 660 Legal Issues in Nursing – Addresses legal concerns arising in consent, negligence and nursing records, and presents an overview of Canadian law and legal principles applicable to nursing practice and administration. Appropriate for nurses employed in hospitals and community settings. **3 credits**

ADNU 670 Patient Care Technology – Medical instrumentation for nurses. Covers the most common medical equipment found in critical care areas and its safe and effective use. **2 credits**

ADNU 671 Introduction to Radiation Risks in Medical Imaging – Surveys the radiologic literature on patient doses and risks of medical radiation exposure and places the potential risks in perspective relative to the clinical use of radiation. Emphasis will be placed on issues related to x-ray, ultrasound and magnetic resonance imaging procedures. Finally, the course will conclude with a discussion of public health aspects of radiation. **3 credits**

BASIC HEALTH SCIENCES

BHCE 601 Sectional Anatomy of the Abdomen and 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 emphasized. CAMRT AC credit 0.5. **3 credits**

BHCE 602 Cross 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 RT Certification. **3 credits**

BHCE 610 Pathology – An introduction to pathology based on a traditional systems approach. This is a wide-ranging course which nevertheless emphasizes some unifying themes. Disease is considered as a disturbance of normal homeostatic mechanisms, a concept which builds upon the student's understanding of normal anatomy and physiology. The course begins with the mechanisms of the disease process and continues with the pathology of organ systems, focusing on the origin, pathogenesis and diagnosis of the more common disorders. **2 credits**

BHCE 914 Anatomy and Physiology: Review and Update – For health professionals who have had a course in anatomy and physiology, but want to review and update their knowledge. **non credit**

BIOMEDICAL ENGINEERING

BMET 903 Introduction to Radiation Imaging Systems – Provides a general understanding of the physical principles employed in producing a radiographic image and the basic components of a general radiographic imaging system. Throughout the course consideration will be given to both the electrical safety and radiation protection aspects related to working with or around radiographic imaging systems.

The course will include a brief historical review, the atomic basis of x-rays, the production of x-rays, and the interaction between x-rays and other matter. Further, the course examines the x-ray system and highlights basic components and some specific circuits. Finally, the photographic processes involved in radiographic imaging will be discussed to help in understanding the radiographic imaging process. A laboratory component will be included to allow for hands-on experience and to provide practical experience with many of the concepts presented in lectures. Prerequisite: The student must have a diploma or degree in the health sciences field. **non credit**

BMET 904 Introduction to Computed Tomography (CT) Systems – Provides a general understanding of the image build-up techniques used to produce a tomographic image from data obtained using x-radiation. The focus throughout the course will be on identifying the differences and similarities between general radiographic and CT imaging systems.

The course will include a brief historical review, a look at the differences in room lay-out when compared to a general radiographic room, and a discussion of the design and function of the three major systems which make up a CT imaging system. In addition the course will discuss the principles employed by the computer in obtaining, analyzing and displaying the data which make up the image. A laboratory session will be included to allow for demonstration of some of the concepts presented in the course. As a prerequisite, the student should have completed BMET 603 or have experience with general radiographic imaging systems. **non credit**

BMET 905 Digital Image Acquisition and Processing – For engineers, technologists, clinical and scientific users of imaging equipment, this 4-day workshop covers fundamentals of digital acquisition and processing: components of the imaging system, image analysis, design considerations and parameters, performance criteria, experimentation with image processing algorithms, and case study. Prerequisite: Diploma of Technology or degree in health or engineering. **non credit**

BMET 906 Medical Lasers: Fundamentals, Safety and Service – A 3-day intensive course for application specialists, technologists, engineers, and others who are new to the field of lasers. Hardware demonstrations and

hands-on practice are included to reinforce lecture principles and familiarize participants with laser/optics equipment. The first day includes laser principles and operational procedures, laser types and their medical and clinical applications; delivery optics and tissue interaction. The second day is devoted to laser safety. Standards and control measures for safe operating practice and procedures are included. On the third day, workshops will be conducted to practice laser measurement, performance assurance testing, maintenance, trouble-shooting and minor repairs/adjustments. Prerequisite: Diploma of Technology or degree in health or engineering. **non credit**

CREDIT COURSES FOR NURSING

CTCR 101 Anatomy and Physiology – A survey of the basic structure and function of human body systems. An introduction to the basic principles of genetics is also included. This is a guided learning course and is equivalent to BHSC 105 in the BCIT General Nursing program. **3.5 credits**

CTCR 102 Writing for Nurses – Teaches general writing skills and their specific application to professional writing tasks in the clinical area. This is a guided learning course and is equivalent to HCOM 107 in the BCIT General Nursing program. **3.5 credits**

CTCR 103 Personal Fitness Management – A combined theory and practice course designed to emphasize the relationship of physical fitness to lifestyle patterns. Focuses on the student's own activity pattern. A guided learning course equivalent to BHSC 118 in the BCIT General Nursing program. **2 credits**

CTCR 104 Physiology – A study of physiological regulation and control in the normal individual based on the fundamentals established in CTCR 101 Anatomy and Physiology, (same text as CTCR 101). A guided learning course equivalent to BHSC 205 in the BCIT General Nursing program. Prerequisite: CTCR 101 or 105. **3.5 credits**

CTCR 105 Human Development 1 – Provides students with an introduction to the theories, methods, concepts and research findings relevant to normal human development from prenatal, through adolescence, with particular attention to the social and familial context in which development occurs. The importance of individual differences, the effects of heredity and environment, and the ethical issues involved in research and treatment are discussed. The topics of death, dying and loss are also covered. **3.5 credits**

CTCR 106 Human Development 2 – A continuation of CTCR 105. This course focuses on growth and development from young adulthood through aging adult. Prerequisite: CTCR 105 or 140. **1.5 credits**

CTCR 107 Sociology – An introduction to those concepts and methods of sociology which are most pertinent to the nurse's observation and understanding of human behavior in a social context. The internal and external components of the human environment are investigated. Social and epidemiological factors related to health and illness will be reviewed. A guided learning course equivalent to BHSC 239 in the BCIT General Nursing program. **1.5 credits**

CTCR 108 Microbiology – An introduction to basic microbiological concepts including the distinguishing characteristics of micro-organisms, methods of controlling infectious disease and host-parasite relationships. A guided learning course equivalent to BHSC 227 in the BCIT General Nursing program. Prerequisite: CTCR 101 or 105. **2 credits**

CTCR 109 Immunology – Provides an understanding of the immune response as it is applied to immunity, surveillance, homeostasis, hypersensitivity, autoimmunity and immunohematology. The course progresses from discussions on the components and biological activities of the immune response to the immune response role in protective as well as disease conditions. Equivalent to BHSC 227. Prerequisite: CTCR 101 or BHSC 105 and CTCR 108/BHSC 328. A guided learning course. **2 credits**

EDUCATIONAL SKILLS

EDUC 601 Human Learning – For nurses and technologists where patient education is a component of the clinical program. Focuses on the processes of learning and strategies to help oneself, patients and peers learn more effectively. **2 credits**

EDUC 610 Clinical Teaching – Orientation to clinical teaching: covers the role of clinical teacher, coaching, and adult education principles. Modules on specific skills include assessing learning needs, developing critical thinking, clinical questioning and giving verbal and written feedback. A 1-day workshop allows practice of communication, questioning and problem-solving skills. **3 credits**

ENVIRONMENTAL HEALTH

ADEH 601 Hydrogeology – Examines the nature and characteristics of ground water. Topics include ground water movement, velocity, direction of flow plus variation in ground water composition through chemical interactions and contamination related to ground water exploitation. **3 credits**

ADEH 604 Epidemiology and Biostatistics – Application of epidemiology principles to assess distribution and causes of diseases in the population, and the use of biostatistical methods to critically evaluate data and study conclusions. **3 credits**

ENVIRONMENTAL MANAGEMENT OF REAL ESTATE

EHCE 101 Introduction to Environmental Management – Provides an overview of environmental issues, laws and terminology. Introductory concepts in preparation for the other program courses will be discussed. **3 credits**

EHCE 102 Environmental Legal and Liability Issues – Covers legal and liability issues related to toxic real estate: Liability in the real estate transaction; respective liabilities of parties involved in the development process; basic common law principles most relevant to real estate management, eg negligence law, private nuisance; federal and provincial statutes relevant for professional managers of real estate. **3 credits**

EHCE 103 Environmental Land Use Research – Historical review of previous land uses will be presented as well as problems associated with particular industries. For example, pulp mills, mines, smelting operations, and refineries will be examined through theory and case histories. Each student will be guided through a land use research project. Students will learn the uses of old maps, survey charts, municipal records, etc. Prerequisites: EHCE 101, 102. **3 credits**

EHCE 104 Environmental Site Investigation and Remediation – Describes aspects of contaminated site assessment, investigation, and remediation from initial identification through project completion. Selected case studies will be present to illustrate the topics discussed. Prerequisites EHCE 101, 102. **3 credits**

EHCE 105 Environmental Assessment of Buildings and Facilities – The following topics will be discussed: basic environment law; consultant-client relationships, construction of an environmental risk inventory; evaluation of environmental risk; toxicology studies; inspection techniques, sampling and laboratory techniques; report preparation and presentation including reporting formats. Prerequisite: EHCE 101, 102. **3 credits**

EHCE 106 Environmental Finance – Techniques familiar to the appraiser, lender, or property finance specialist will be extended to the case of properties (real or personal) involving environmental laws, rules, and regulations on property value, finance, and financial institution exposure will be dealt with, including both the risks and opportunities presented by the existence of environmental risk. Prerequisite: EHCE 103, 104, 105. **3 credits**

EHCE 107 Environmental Management – This course will introduce and use modern management techniques to deal with environmental risks. Techniques for the management, analysis, strategic and tactical planning, record-keeping and reporting of environmental risks will be covered along with cost and benefit estimation and tracking techniques. Prerequisite: EHCE 103, 104, 105. **3 credits**

EHCE 108 Managing an Environmental Audit – Environmental auditing as a management tool for reviewing deficiencies in an operating facility will be the focus of the course. The scope, design, implementation, and interpretation of audits are covered through theory and case studies. **3 credits**

EHCE 109 Emergency Preparedness/Emergency Response – Focuses on the reduction of the effects of disaster through established and understood emergency procedures. The course will cover the time periods prior, during, and immediately following an emergency as well as the long-range recovery following an emergency. **3 credits**

EHCE 110 Future Trends in Environmental Management – International (particularly US) trends will be discussed with attention to their potential future impact on Canada and B.C. **3 credits**

HEALTH CARE SYSTEMS

HCSY 610 Health Care Systems 1 – Examines issues related to the development of health care systems in Canada including the roles of various levels of government, health care finance, manpower planning, impact of new health technology. **1.5 credits**

HCSY 620 Health Care Systems 2 – Continues the examination of Health Care Systems in Canada. Prerequisite: Completion of Health Care Management Program Level 1 or approval of the Program Head. **1.5 credits**

HEALTH CARE MANAGEMENT

HMG 600 Health Care Supervisory Skills – A Guided Learning course. May be used as an elective course in the Level 1 Program, but is not a preferred elective. Students should consider this course only if they are unable to attend class. If the course is approved as an elective by the Program Head, it must be completed before HMG 601 & 602. Introduces the basics of supervision: problem-solving and decision-making, selecting and motivating people, performance appraisal, leadership and communication. A guided learning course. **3 credits**

HMG 601 Health Care Organizational Behavior – Examines components influencing individual behavior in organizational settings including attitudes, values and theories of leadership. Text: Robbins, Organizational Behavior 4th ed. (36 hours) NOTE: Early registration required to allow mailing of prereading. **3 credits**

HMG 602 Health Care Principles of Management – Reviews the roles and functions of management. Identifies and practices skills required for planning, organization and control in health care agencies. Text: Stoner, Management 4th ed. (36 hours) NOTE: Early registration required to allow mailing of prereading. **3 credits**

HMG 603 Health Care Operations Management – Identifies practical skills necessary for systems analysis, method study and productivity improvement. NOTE: Early registration required to allow mailing of prereading. Final assignment due 2 weeks after last day of course. (18 hours) **1.5 credits**

HMG 604 Budgeting in Health Care – Introduces the principles and role of budgeting as part of the financial and health care objectives of the organization. NOTE: Early registration required to allow mailing of prereading prior to course. (18 hours) **1.5 credits**

HMG 605 Human Resource Management – Examines total staffing process including job analysis and description, interviewing, training and performance appraisal. (36 hours) **3 credits**

HMG 606 Health Labor Relations 1 – Explores the development of labor relations in health care. Emphasizes the interpretation and application of negotiated contracts and reviews grievance and arbitration. (18 hours). **1.5 credits**

HMG 607 Long Term Care Labor Relations – For long term care personnel. Examines labor relations in the long term care setting. Emphasizes negotiation, interpretation, application of negotiated contracts, grievances and arbitration. **1.5 credits**

HMG 611 Organizational Behavior for Occupational Health Nurses – Examines components influencing individual behavior in organizational settings including attitudes, values and theories of leadership. Note: Credit will not be given for both HMG 601 and HMG 611. Text: Robbins, Organizational Behavior, 3rd ed. **3 credits**

HMG 701 Information Systems in Health Care 1 – Reviews manual and computer information systems and their terminology. Examines information systems in health care. NOTE: Early registration required to allow mailing of prereading. (18 hours) **1.5 credits**

HMG 702 Health Care Law – Introduces origins and principles of law, legal role of health paraprofessionals and significant legal themes. NOTE: Early registration required to allow mailing of prereading. (18 hours) **1.5 credits**

HMG 703 Financial Administration for Health Care Managers – Introduces accounting tools and concepts of health care systems. Examines cost accounting, program accounting and management reporting. (18' hours) To be offered January 1992. **1.5 credits**

HMG 751 Information Systems in Health Care 2 – Continues MIS/HIS project management, needs assessment and specifications, cost benefit analysis, implementation. Prerequisite: HMG 701 or equivalent. (18 hours) To be offered January 1992. **1.5 credits**

HMG 752 Health Labor Relations 2 – In-depth examination of grievance handling. Introduces arbitration process. Prerequisite: HMG 606 or equivalent. **1.5 credits**

HMG 753 Application of Theory to Selected Health Care Problems – Applies theory presented in earlier courses. Concentrates on real life problems encountered in health care systems. Prerequisite: All mandatory courses in Level 1 and Level 2 programs and approval of Program Head. (18 hours) **1.5 credits**

MEDICAL LABORATORY

MLCE 604 Medical Laboratory Clinical Chemistry – A series of lectures in advanced clinical chemistry. BCSMT in cooperation with BCIT. This course will be submitted to CSLT for credits. Register through BCSMT. **1.5 credits**

MLCE 605 Medical Laboratory Hematology – Lectures and group discussion pursue advanced topics in hematology. BCSMT in cooperation with BCIT. This course will be submitted to CSLT for credit. Register through BCSMT. **1.5 credits**

MLCE 606 Medical Laboratory Histochemistry – This is a series of eight lectures which deal with histochemistry. BCSMT in cooperation with BCIT. This course will be submitted to CSLT for credit. Register through BCSMT. **1.5 credits**

MLCE 607 Medical Laboratory Immunohematology – A lecture series by recognized experts in advanced immunohematology. BCSMT in cooperation with BCIT. This course will be submitted to CSLT for credit. Register through BCSMT. **1.5 credits**

MLCE 608 Medical Laboratory Clinical Microbiology – Advanced course in microbiology for medical laboratory technologists through an evening lecture series. BCSMT in cooperation with BCIT. This course will be submitted to CSLT for credit. Register through BCSMT. **1.5 credits**

MLCE 610 Advanced Hematology (The Red Cell) Part 1 – A correspondence course to prepare R.T.'s for the advanced Registered Technologist examination. Acquaints students with new and advanced theories of hematology. Submitted to the Canadian Society of Laboratory Technologists (CSLT) for credit. **3 credits**

MLCE 611 Advanced Hematology (The Red Cell) Part 2 – A continuation of MLCE 610. Prerequisite: MLCE 610. Submitted to the CSLT for credit. **3 credits**

MLCE 612 Medical Laboratory Hematology and Immunology – Advanced course in evening lecture series on hematology and immunology for medical laboratory technologists. BCSMT in cooperation with BCIT. This course will be submitted to CSLT for credit. **1.5 credits**

MLCE 613 Medical Laboratory Management – Lecture series on lab management includes recruitment, interviewing skills, contract interpretation, laboratory safety (universal precautions), creation of a positive work environment, confidentiality, and working with difficult employees. This course will be submitted to CSLT for credit. Register through BCSMT. **1.5 credits**

***MLCE 905 Clinical Chemistry Refresher** – A course specifically designed for former registered Medical Laboratory Technologists (out of the work force for at least five years) to refresh and update themselves in clinical chemistry. Methodology, instrumentation, interpretation of results and quality control will be covered. Prerequisite: RT general. **non credit**

***MLCE 906 Hematology Refresher** – A course specifically designed for former registered Laboratory Technologists (out of the work force for at least five years) to refresh and update themselves in hematology. Blood cell morphology, instrumentation and coagulation will be covered. Prerequisite: RT general. **non credit**

***MLCE 907 Immunohematology Refresher** – A course specifically designed for former registered Laboratory Technologists (out of the work force for at least five years) to refresh and update themselves in immunohematology. Grouping and cross-match procedures as applied to the safe transfusion of blood and blood components will be covered. Prerequisite: RT general. **non credit**

MLCE 908 Clinical Microbiology Refresher – A course specifically designed for former Registered Medical Laboratory Technologists (out of the work force for at least five years) to refresh and update them in microbiology. On completion of the course students should be able to function as Junior Technologists. For further information, please contact the Medical Laboratory Technology department. Telephone 432-8831. **non credit**

MEDICAL IMAGING

MRCE 611 Computed Tomography – 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. .5 AC credit, 45 ECE credits. **3 credits**

***MRCE 612 Technological Advances in X-ray Imaging** – Reviews the fundamental radiographic and fluoroscopic imaging schemes. Describes changes with each component of the imaging scheme with emphasis on the x-ray tube, scattered radiation grids, geometric tomography, filtration, image intensification and the impact of computer technology on x-ray imaging methods. 45 ECE credits. **3 credits**

MRCE 614 Understanding Radiation Risks in Medical Imaging – Examines various topics in radiation: physics, radiobiology, dose, radiation protection criteria and standards, dose response models, pregnancy and radiation, risks in medical imaging, and risk reduction technology. Focuses on issues related to X-ray, ultrasound and magnetic resonance imaging. Includes a discussion of public health aspects of radiation. .5 AC credit. **3 credits**

MRCE 615 Magnetic Resonance Imaging Part 1: Physical Principles and Instrumentation – 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. .5 AC credit. **3 credits**

***MRCE 617 Medical Radiation Protection** – Through readings and assignments, this course will address: general radiation protection considerations, sources of radiation exposure, objectives of radiation protection and public health agencies, units used in radiation protection, radiation detectors, survey instruments and personnel monitors, bio effects and maximum permissible dose equivalent, and practical means of radiation protection. In addition, other topics such as protection principles governing diagnostic examinations, shielding from external radiation, radiation dose estimates, radiation dose and quality control and protection in Magnetic Resonance Imaging will be discussed. The course concludes with a discussion of radiation protection issues of the 1990's. **3 credits**

MRCE 902 BCAMRT Refresher Program for Radiographers – This joint program offered by BCIT and BCAMRT is designed for those technologists who wish to be recertified and rejoin the work force. It consists of a 3-month prereading session followed by a 2-week didactic period at BCIT and concludes with a 1-month clinical practicum. Courses in the didactic session include:

radiographic positioning, physics, imaging, radiobiology and protection, patient care and quality assurance. Successful candidates will receive a certificate of achievement from the BCAMRT and a BCIT official transcript. Prerequisite: Previous CAMRT certification and CPR - Level "C". **non credit**

MEDICAL/SURGICAL SUPPLY CONSULTANTS

MSSC 104 General Instrumentation – Identification of medical surgical instruments, quality analysis, and the use of instruments in selected operative procedures. **1.5 credits**

MSSC 105 Biomedical Electronic Safety – The basic concepts of electricity and their applications in typical electrical wiring systems, electrical safety hazards created by biomedical equipment in hospitals, and electrical safety standards required for hospital equipment. Course work will be related to specific biomedical equipment found in a typical hospital. **1.5 credits**

MSSC 106 Human Anatomy and Physiology – A survey of the basic structure and function of human body systems and an introduction to related medical terminology. The course is offered in guided learning format, plus three optional tutorials. **4.5 credits**

MSSC 107 Medical Surgical Procedures – An overview of common operative techniques used to provide patient care within the medical surgical setting to include principles of asepsis and perioperative procedures. Topics will be presented with an emphasis on product knowledge. **3.5 credits**

OCCUPATIONAL HEALTH & SAFETY

OHCE 101 Accident Prevention 1: Job Safety Analysis – Reviews the history of the safety movement, accident investigation, job safety analysis, inspections and observations. **3 credits**

OHCE 102 Accident Prevention 2: Employee Motivation – Deals with how to maintain interest in safety, safety talks, how to deal with problem employees, off-the-job safety, incident recall techniques, and job pride development. **3 credits**

OHCE 103 Accident Prevention 3: Safety Design and Equipment – Examines accident prevention for industrial operations, the engineering and technology involved in the various operations and safety standards for buildings, equipment and operations. **3 credits**

OHCE 104 Accident Prevention 4: Industrial Applications – Includes accident prevention for industrial operations – the engineering and technology involved in the various operations, safety standards for buildings, equipment and operations, personal protective equipment and machine guarding. Prerequisite: OHCE 103. **3 credits**

OHCE 201 Industrial Health and Safety 1: Legislation – Examines legislation relevant to safety and the agencies enforcing this legislation. **3 credits**

OHCE 202 Industrial Health and Safety 2: Policy Application – Examines various types of safety programs, risk management, emergency planning, transportation and storage of hazardous materials. **3 credits**

OHCE 203 Industrial Health and Safety 3: Loss Control and Auditing – Deals with the total loss control concept. Covers audits and measurements of safety performance. Also looks at office safety and safety in B.C. industries such as forestry, transportation, food processing and general manufacturing. Prerequisite: OHCE 101, 102, 103, 104, 201, and 202. **3 credits**

OHCE 204 Industrial Health and Safety 4: Chemical Safety – Covers the transportation, handling and storage of chemicals and other hazardous materials, transportation of hazardous goods legislation, the WHMIS legislation, and the requirements for disaster planning. **3 credits**

OHCE 301 Fire Protection 1: Fire Prevention – Examines heating hazards, electrical hazards, chemistry of fire, flammable liquids, fire detection, portable fire extinguishers and sprinkler systems. **3 credits**

OHCE 302 Fire Protection 2: Gases and Flammable Materials – Includes fire causes and statistics, flammable gases, storage, combustible gases, chemical hazards, fumigants, plastics, fire alarms. Prerequisite: OHCE 301. **3 credits**

OHCE 401 Industrial Hygiene 1: Toxicology – Examines health concerns related to the use of chemicals in the workplace. Permissible levels of toxicity and hazard assessment reviewed. Prerequisite: Math 12, Chemistry 11 or permission of instructor. **3 credits**

OHCE 402 Industrial Hygiene 2: Noise – Includes acoustics and noise control, use of sound level meters and noise dosimeters. Prerequisite: Math 12, Physics 11 or permission of instructors. **3 Credits**

OHCE 403 Industrial Hygiene 3: Radiation Protection – Examines radiation and includes detection, evaluation and control of radiation, and extremes of temperature and pressure. Prerequisite: Math 12, Physics 11, Chemistry 11 or permission of instructor. **3 credits**

RESEARCH

RESH 601 Understanding Research in Health Sciences
Through readings and assignments, this course will deal with the components of the research process. These components will be discussed through the following topics; the scientific method, sources of ideas for research, variables, issues of reliability and validity, relationships among variables and a distinction between correlational and experimental methods. Descriptive methods, field observation, archival research, case histories and survey research will also be covered. In addition, the purposes and pitfalls of experimental design, practical aspects of conducting research, understanding research results, issues generalization and ethics will be discussed. The course concludes with an introduction to statistics and a discussion of guidelines for critiquing both quantitative and qualitative research reports. **3 credits**

RESH 602 Preparing a Health Science Research Proposal – Builds on the knowledge and skills of RESH 601. Students will be expected to select an appropriate research question or problem, plan a research project, write a research proposal and evaluate the proposal. Prerequisite: RESH 601. **3 credits**

School of Trades Training

Office of the Dean

Ray Walton, B.A.Sc., M.Sc., N.Eng., Dean

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Bill Foyle, Associate Dean

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Women in Trades

Kate Pelletier, B.Ed., M.R.E., Coordinator

AVIATION TRADES

Aircraft Maintenance

Avionics

Aircraft Structures

Bill Foyle, Associate Dean

Course Information: Tel. 432-8467

Sharyl Brown, Program Coordinator:

Tel. 278-4831

AVIA 900 Aircraft Electricity (30 hours) – Introduces students to the fundamentals of aircraft electricity. The focus is on the basic concepts of electricity: principles, units of measurement, production, distribution, industry standards and aircraft applications.

AVIA 901 Troubleshooting Aircraft Electrical Snags (30 hours) – Troubleshooting techniques for electrical problems are the main focus of this course. The proper tools, where and when to use them, are covered. The fundamentals of how electricity works are reviewed when analyzing problems and interpreting wiring diagrams.

AVIA 902 Aviation Transportation of Dangerous Goods (30 hours) – Rules and regulations for the transportation of dangerous goods are taught. Anyone in the business of transporting goods will find this course useful.

AVIA 903 Aircraft Instruments (30 hours) – An introductory course focusing on instrument elements and mechanisms, properties of the atmosphere, pilot-static systems, gyroscopic and remote sensing instruments. Suitable for aircraft maintenance engineers, pilots and novices. Complements AVIA 900/925.

AVIA 904 Aviation In-house Training (30 hours) – Recurrent training is now becoming a Transport Canada requirement for maintenance organizations. Learn how to train and how to evaluate training requirements, courses and programs. The Airline Technical Instructors course uses the systematic competency-based approach to training. A 3" binder and blank video tape are required. This course has been developed by an industry specialist catering specifically to aviation training. Keeping current and proper training are important to a growing organization. Any Aircraft Maintenance Engineer who works/has worked with apprentices will find this course beneficial.

AVIA 905 Air Regulations (30 hours) – This course is an in-depth study of the Air Regulations, required knowledge for Aircraft Maintenance Engineers. It presents the new Airworthiness Manual changes as well as the old Engineering and Inspection Manual. Mechanics wanting to write the D.O.T. exam and engineers wanting to learn about the new Air Regulation changes will find this course beneficial.

AVIA 906 Computer Introduction for the Aviation Industry (30 hours) – The Sea Island Campus has just been equipped with a new computer lab. This course is designed as an introduction to computers and their applications. The first half of the course is devoted to computer terminology and basic practical working knowledge. The second half focuses on specific software and information systems for aviation companies.

AVIA 909 Aircraft Pressure and Environmental Systems (30 hours) – Aircraft Maintenance Engineers wanting to write the D.O.T. exam for their pressurization endorsement will find this course beneficial. Any aircraft owner or pilot wanting to know how environmental systems work will find this course informative and fun.

AVIA 912 Aircraft Reciprocating Engines (30 hours) – An introduction to the construction and operating principles of aircraft reciprocating engines. The course covers engine classifications, operating principles, inspection, lubricating systems, engine components, and more.

AVIA 917 Aircraft Sheet Metal Introduction (30 hours) – Introduces the theoretical and practical fundamentals of aircraft sheet metal repair. The student is introduced to aircraft structures, structural materials, lay-out, bend allowances, hand tools, fasteners and rivets. Hands-on instruction for the proper use of equipment, techniques and safe practices is provided. Further, this course has been designed to complement AVIA 965. This course can be used as a primer to the full-time day program or the equivalent part-time certificate program.

AVIA 920 Aircraft Sheet Metal Advanced (30 Hours) – A continuation of AVIA 917. Emphasizes increased shop time and more complex practical tasks such as forming and patch repairs. Prerequisite: AVIA 917.

AVIA 922 Aviation Storesperson (30 hours) – Persons currently involved with aviation parts and equipment receive advanced instruction about the operations of a stores department and the handling of sophisticated aerospace equipment. Manual and computerized inventory control systems are covered.

AVIA 923 Helicopter Maintenance (30 hours) – Presents a theoretical introduction as to how the helicopter flies (achieves lift), how to steer (control direction) and basic maintenance responsibilities. The theory component introduces the student to acceptable maintenance practices by performing a Daily Inspection as prescribed by a helicopter manufacturer. This course is designed to suit a novice interested in helicopters, a person on the full-time program waiting list or the pilot who wants a mechanical introduction.

AVIA 924 Helicopter Maintenance Advanced (30 hours) – AVIA 923 presents theoretical principles about the helicopter and maintenance practices. AVIA 924, the advanced level, focuses on hands-on practical training. Labs include general inspection techniques, gas turbine engine and transmission inspection, and rotor blade balancing. Prerequisite: AVIA 923 or equivalent work experience.

AVIA 925 Avionics (30 hours) – An introductory course designed for persons considering a career in Avionics as well as those who have already completed an electronics course and are considering a career change. No prerequisites other than a desire to learn are required. This course has been designed to complement AVIA 900, 903, 901.

AVIA 926 History of Aviation in British Columbia (30 hours) – Fun, entertaining and informative, this course provides the opportunity to explore the West Coast's aviation history, the people, the facilities, the aircraft and the industry development.

AVIA 927 Aircraft Composite Repair (28 hours) – An introduction to wet lay-up repairs for aircraft composite components. The course stresses safety requirements during the handling of aircraft parts, chemicals and precision portioning of resins and hardeners. Interim and time-limited repairs are carried out on aircraft-like structures using methods as required by the Boeing Aircraft Company. Due to the critically time-sensitive practical assignments it is imperative that students be punctual. Protective clothing, gloves, eye and ear protection are supplied by the Institute. Students must wear solid leather footwear. Sneakers are not permitted. Persons allergic to solvents and resins should not attempt this course.

AVIA 930 Aircraft Drafting and Blueprint (28 hours) – Designed as a hands-on drafting course, will enable you to read blueprints through practical assignments. Terminology, standards, views, lettering, scales and techniques are introduced.

AVIA 933 Aviation Trade Mathematics (30 hours) – Math upgrading, refresher for aviation applications are easily understood with this course. Persons awaiting entry to the full-time day programs and working in the aviation industry will find this course beneficial. Trigonometry for sheet metal layout, fuel consumption, aircraft weight and balance, compression ratios and much more are introduced.

AVIA 934 Survival Techniques and First Aid (30 Hours) – The aviation industry strives for an accident free shop, however, sometimes accidents happen. Many times pilots and Aircraft Maintenance Engineers work in remote areas. Don't be caught in the bush unprepared.

AVIA 935 Aircraft Maintenance Introduction (30 hours) – Provides a theoretical introduction to elementary aircraft maintenance fundamentals. Terminology, how an aircraft flies (achieves lift), how an aircraft is constructed and of what materials, how the aircraft is controlled, and basic inspection principles are discussed in the lectures. The training is designed for the aircraft mechanic, potential maintenance engineer, pilot/owners and, in particular, individuals considering a career in maintenance or awaiting entry to the Institute's full-time maintenance program. This course has been designed to complement AVIA 938.

AVIA 936 Aircraft Maintenance Management Introduction (30 hours) – Provides individuals with the opportunity to develop managerial, organizational and communication skills required to manage maintenance functions effectively. Topics include: creating an effective maintenance organization; basic management concepts; elements of motivation; effective communications; time management; legal responsibilities, AME and foreman. The set focuses on fundamental working knowledge and skills, followed by a team approach using the techniques covered in the introduction. This course is intensive and students should be prepared to spend a minimum of 20 hours per week devoted to class time and homework.

AVIA 938 Aircraft Maintenance Advanced (30 hours) – A continuation of AVIA 935. Topics include flight control, hydraulic, landing gear, wheels and brakes, and other associated aircraft systems. Prerequisite: AVIA 935 or equivalent.

AVIA 939 Aviation Maintenance Management Advanced (30 hours) – A continuation of AVIA 936. This course is divided into two modules. The first covers the fundamentals of training, techniques and in-house programs. The second uses the team approach and case studies to apply the techniques covered in AVIA 936. The team approach is used to develop strategies for managerial improvement. Prerequisite: AVIA 936.

AVIA 940 Gas Turbine Engines (30 hours) – A theoretical understanding of the gas turbine engine is presented in technical language understood by all students. In-depth knowledge of engine development, operating principles, classification and terminology is gained through this course. Any individual who wishes to know how a gas turbine engine works will find this course rewarding. A field trip to Canadian Airlines International engine overhaul facility is incorporated in the curriculum.

AVIA 942 Ultralight Aircraft Maintenance (30 hours) – Instruction includes the airframe structure, metallurgy of alloys used in the construction of ultralights, nondestructive testing, shop practice and tools, flight control systems and theory of flight.

AVIA 950 Introduction to Aviation (12 hours) – Find out about the aviation industry. Anyone considering the industry as a career can find out about the cost of training, what training is available, what fields are available and those that are in particular demand. A tour is incorporated in the curriculum.

AVIA 960 Aircraft Painting (30 hours) – Aircraft painting, refinishing, corrosion control and prevention are the major topics discussed in the lectures: paint types, strippers, equipment, purposes and metal preparation. The course is designed to suit anyone interested in aircraft painting. The potential student may have prior painting experience in automotive or general industry or no painting background at all.

AVIA 965 Aircraft Manufacturing and Production Processes (30 hours) – Introduces production and manufacturing processes involved in aircraft production and assembly: techniques, technologies and cost and time considerations _ from blueprint, to shop floor, to final product. Ideal for persons already engaged in production, sheet metal work, planning or other related fields. Prerequisite: Must have experience in the aviation field, preferably in aircraft sheet metal work or maintenance.

AVIA 970 Aircraft Maintenance for the Pilot/Owner (12 hours) – This course uses the Ministry of Transport Guidelines to the maintenance a pilot/owner can perform on his/her aircraft. From these guidelines this short course provides hands-on instruction for the tasks set out by the Ministry. Some students may wish to use their own aircraft for the training exercise. Due to the nature of the course the supplies for the training exercise will be the responsibility of the owner. Scheduling of the aircraft for the exercise will be subject to the operating considerations of the Institute and the availability of space. Arrangements can be made by contacting the Sea Island Campus and asking for Sharyl Brown, Tel. 278-4831.

AVIA 975 Nondestructive Testing for Aircraft Introduction (30 hours) – Nondestructive testing techniques are introduced and practised. Whether you are working with aging fleets or brand new aircraft, these new and old inspection techniques are critical to your work.

CONSTRUCTION AND METAL TRADES

Carpentry
Computer Aided Construction
Joinery
Painting and Decorating
Piping, Plumbing and Gas
Steel Fabrication
Welding

Mike Cannell, Associate Dean
Course Information: Tel. 432-8467
Nancy Naylor, Program Assistant:
Tel. 432-8556

CARPENTRY

CARP 905 Blueprint Reading for Construction (36 hours) – Designed for persons working in the construction trades who wish to read blueprints. Some related building trade experience is desirable, although it is not mandatory. Students learn to complete projects and problem-solve in the classroom. All aspects of building specifications, including metric conversion, foundations, millwork and scheduling, are covered. Upon completion, students will understand the structural principles of buildings and be able to read blueprints for architectural construction and related electrical, plumbing and interior finishing.

CARP 906 Custom Cabinet Construction and Installation (42 hours) – Designed for carpenters and kitchen cabinet installers who must build on-site and install to specifications. Cabinet making, basic joinery, construction methods, use of glues and countertop installation are taught in a carpentry shop setting. Prerequisite: Students must have experience in the use of carpentry hand and power tools, and a working knowledge of framing methods.

CARP 907 Residential Renovations (42 hours) – This course is designed for homeowners, realtors, carpenters and contractors who wish to learn professional renovation skills. Focus will be on the initial concept/design process, permit requirements, feasibility, site management, subcontracts, scheduling, building systems and problem-solving. Upon successful completion, students will acquire skills that are necessary to oversee a typical residential renovation project and a good understanding of the complete residential renovation process. Students should bring any proposed project designs for in-class assignments.

CARP 909 Carpentry TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Carpentry Trade Qualification Examination, and for those wanting a current review. Instruction is provided in mathematics, foundations, concrete form construction, framing, boarding, sheathing and scaffolds, roof construction, exterior finish, interior wall covering, interior finish, stair building, heavy timber construction, and carpentry in masonry construction. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enrol.

CARP 911 Stair Construction (36 hours) – Construction mathematics, building codes, stair layout and assembly are taught for carpenters, renovators and related tradespersons. Students build typical straight, split landing and circular stairs in accordance with current municipal building code requirements (1987).

CARP 913 Concrete Formwork Design (30 hours) – For carpenters, contractors and those working in residential, industrial and heavy construction. Instruction is provided in construction of footings, wall formwork, column formwork, concrete stairs, beams, girders, slabs and concrete technology. Suitable for related trades and service persons involved in concrete placing.

CARP 915 Construction Supervision and Project Management (48 hours) – Provides instruction in project planning, scheduling, contract development, tendering, quotations, start-up, records, cost control, supervisory skills and communications. Upon successful completion, students have a theoretical foundation in residential, multi-residential and light industrial project supervision, scheduling, contract administration and cost control. Includes an introduction to computerized project management and scheduling. A certificate of completion in "Construction Supervision and Project Management" is issued to students who complete the course successfully.

CARP 917 Construction Estimating Basic (36 hours) – Designed for tradespersons involved with cost estimating and bidding. Unit pricing, account codes, project scheduling, quantity survey and contract preparation are covered in detail. Students learn how to estimate multi-residential, light commercial and renovation construction using proven principles and practices.

CARP 919 Building Code for Carpenters (42 hours) – This course is designed especially for carpenters, foremen, superintendents and designers. Some of the areas the course covers are: Classification of buildings, construction types; fire alarm, emergency lighting and exit signage requirements; stairs, ramps, handrails, and guards; sound control in residential buildings; security package in residential buildings; footings, and foundations; ventilation requirements. Students are encouraged to discuss specific construction projects.

CARP 921 Platform Framing, Roofing and Layout (48 hours) – Students will learn platform framing (West Coast) techniques and the application of the B.C. Building Code to residential wood frame construction. Course covers site and building layout, framing ponywalls, floor systems, interior partitions, exterior walls and stairs. Roof systems will cover construction and installation of typical trusses only.

CARP 922 Basic Roof Framing (30 hours) – This course is designed to cover basic roofs: gable, hip and intersecting. Theory, calculations and layout will be described for the following rafters: common hip, hip jack, supporting valley, supported valley, valley jack, and cripple. Students will lay out and cut different rafters for roofing projects and sheath roofs ready for shingles. Prerequisite: Practical experience in framing and working with electric circular saws and radial arm saws or CARP 921.

CARP 924 Advanced Framing Practices (30 hours) – Not an R2000 course, this is a theoretical overview of recent changes in residential framing techniques, particularly dealing with new products and increased energy efficiency. Minimum of 2 years experience recommended.

CARP 927 Interior Finishing Carpentry (30 hours) – Designed for carpenters, apprentices and builders with limited experience in residential construction. Course will cover all aspects of final interior finishing as required to meet professional standards. Includes installation of interior and exterior doors, windows; moulding, panelling, track hardware and detailing.

CARP 935 Residential Building Procedures (30 hours) – Focuses on the planning, estimating and construction of new single or multi-residential units. Designed for owners, realtors, bankers, first-time builders and carpenters. The

course reviews all phases of wood frame construction: permit procedures, project scheduling, cost control, municipal inspection requirements, site supervision and preparation. On-site visits to residential building projects with local building inspectors are included. Students are encouraged to utilize a proposed residential building or renovation project for learning purposes.

CARP 937 Builders Level (16 hours) – This course is designed for general construction, carpenters, site foremen and contractors. Students will learn proper levelling procedures applicable to excavation, formwork, pipe grades and design elevations.

CARP 939 Transit For Construction Layout (24 hours) – This course will include review of basic trigonometry for transit layout purposes. Students will receive hands-on training using transit, chaining, note keeping and related on-site procedures. Beginners and advanced students will benefit from this intensive course.

COMPUTER AIDED CONSTRUCTION

CARP 914 Homebuilder: Computer Systems (28 hours) – The TIMBERLINE: HOMEBUILDER software program is an integrated construction accounting system designed for multi-residential builders and contractors. Learn basic computer skills to enter, track and pay invoices; monitor jobs, track change orders; monitor sub-contracts, post general ledger entries and produce financial statements; maintain project information for future estimates. Ideal for carpenters and builders with a minimum of 2 years experience. No computer experience required.

CARP 918 Project Estimating and Control (42 hours) – An intermediate course for project management and control, up to maximum \$1 billion value. This TIMBERLINE, industry-specific database software system is easy to learn and apply. Relate database to estimates, use spreadsheets, coordinate activities, control costs, change orders, monitor budgets, produce reports and financial statements, monitor labor, materials and equipment. Prerequisite: A hands-on course for persons with a minimum of 3 years construction experience. No computer experience required.

JOINERY

JOIN 901 Woodwork Basic (42 hours) – Includes benchwork and joinery; how to use hand tools, power tools, routers and templates; layout; basic joints used in wood construction; construction methods; assembling with glue; preparations for finishing. Furniture design principles, furniture joinery and professional finishing methods are reviewed. Suitable for entry-level training and general interest students.

JOIN 923 Furniture Finishing and Refinishing (24 hours) – Designed for general interest as well as furniture finishers, upholsterers and cabinet builders. Stripping, surface preparation, repair and refinishing of traditional and modern wood furniture is examined in detail. Students learn staining, oil applications and french polishing techniques, including spray painting, in an industrial shop setting. Students are required to supply their own training projects.

PAINTING AND DECORATING

PDEC 931 Steel Stud Construction (30 hours) – Introductory course designed to provide the basic skills and knowledge required to install metal studs and drywall board. Students will learn the proper use of hand tools, layout, cutting and assembling methods for metal studs, gypsum wallboard, corner beads and moulding, as well as product theory.

PDEC 933 Painting and Decorating TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Painting and Decorating Trade Qualification Examination, and for those wanting a current review. Theoretical instruction is given in basic components of paint and color mixing; basic tools and equipment; interior and exterior surface preparation; procedures for applying coatings by brush and roller; safety regulations; paint failures; natural wood finishing including staining and graining; wall coverings; spray painting and related equipment; corrosion control and industrial coatings; trade mathematics. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enrol. Prerequisite: Minimum five years experience in the trade.

PDEC 934 Drywall Taping and Finishing (30 hours) – Introductory course designed to provide the basic skills and knowledge required to tape and fill gypsum wallboard to professional standards. Participants will learn the proper use of hand tools, cutting and installation methods for gypsum wallboard, application of corner beads, dry and wet taping methods, as well as filling/finishing with hand tools.

PDEC 945 Wall Covering Application (24 hours) – Introduces experienced painters to professional wall covering techniques and procedures. The course reviews surface preparation, material selection, application procedures and production methods for commercial projects. Students practice hanging wall coverings in shop assignments. Prerequisite: Minimum one year related trade experience.

PIPING, PLUMBING AND GAS

PPGS 905 Cross Connection Control (42 hours) – Designed for those who install and maintain backflow prevention devices in domestic, commercial, industrial and public service water supply systems. Upon successful completion, students may challenge both the theoretical and practical certification exams of the B.C. section of the American Water Works Association. The examination is conducted during the last session of the course. Prerequisite: Journeyman plumber, engineer, manufacturer's agent, owner of a device or employee of same.

PPGS 908 R.V. Propane Appliance Installation and Servicing (60 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for students wishing to write the examination to qualify for the Recreational Vehicle License. Topics include propane gas, laws and regulations, piping materials and methods, sizing, burners and pilots, combustion, flame safety and valves.

PPGS 909 Gas Fitter B License (81 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for students wishing to write the examination to qualify for the Gas Fitter B License. Comprehensive instruction is provided in the history and types of gas; laws; piping materials, methods and sizing; atmospheric and other burners and pilots; combustion; flame safety; venting; regulations; valves; electricity; domestic and commercial appliances. Instruction is both theoretical and practical. To become eligible to write the exam, approval from the Gas Safety Branch of the Ministry of Municipal Affairs is required, and recommended before you enrol. Prerequisite: Minimum four years experience in the trade.

PPGS 910 Gas Fitter A License (132 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for students wishing to write the examination to qualify for the Gas Fitter A License. Comprehensive instruction is provided in pipe and valve sizing; purging and cleaning; pressure regulations and meters; manifolds; flame safety; control systems; all types of burners; appliances; venting; combustion air and ventilation; start-up procedures;

standby fuels; direct fired make-up air and regulations; combustion analysis; cathodic protection and input calculations on high-pressure meters. Instruction is both theoretical and practical. To become eligible to write the exam, approval from the Gas Safety Branch of the Ministry of Municipal Affairs is required, and recommended before you enrol. Prerequisite: Possession of a valid Gas Fitter B License for two years.

PPGS 911 Gas Fitter A License: Math and Science (36 hours) – Designed for those needing a review of the mathematics and science requirements necessary for the Gas Fitter A License. The course covers algebra, formulas, electricity and chemistry. Students should complete this course before taking PPGS 910.

PPGS 914 Class C Appliance Service (78 hours) – A comprehensive course for persons requiring licensing to service gas appliances for residential or light commercial applications; up to 400,000 BTU. Covers safety, code, theory, gas utilization, and knowledge required for testing by the Provincial Gas Safety Branch.

PPGS 917 Plumbing: Residential (24 hours) – This general interest course will appeal to homeowners with do-it-yourself aptitude and provides sufficient skills for students to make simple repairs and renovations to their house plumbing. Topics include drainage systems, water systems, fixture selection and installation. The course is primarily hands-on training.

PPGS 918 Gas Venting License (24 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for those wishing to write the examination for the Gas Venting License. The course reviews the necessary requirements for sizing and installing gas vents.

PPGS 922 Piping Trades Math (30 hours) – Designed for those needing a review of the mathematics and science necessary for apprenticeship training or those preparing for the Provincial Plumbing Trade Qualification Examination. The course covers, fractions, decimals, areas, volumes, pressures, offsets, grades, slopes, Boyle's Law, Charles' Law, Specific Heat, lineal expansion as well as specific weights and densities.

PPGS 926 NFPA 13D Sprinkler Systems (27 hours) – Designed for those who install and maintain sprinkler systems in one and two family dwellings or mobile homes. This course covers code requirements for installation, layout and design of systems (including NFPA 13D sizing method). An examination will be conducted at the end of this course.

PPGS 930 BC Plumbing Code Refresher (60 hours) – For tradespersons preparing for the Provincial Plumbing Trade Qualification Examination, and for those wanting a current review. Theoretical instruction is given in Plumbing Code. Additional information may be required by those wishing to write the Provincial Plumbing Trade Qualification examination. This pertinent material may be obtained at BCIT Bookstore. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enrol. Prerequisite: Minimum five years experience in the trade.

STEEL FABRICATION

STEL 900 Steel Fabrication TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Steel Fabrication Trade Qualification Examination and those wanting a current review. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enrol. Prerequisite: Minimum five years experience in the trade.

STEL 909 Steel Fabrication (42 hours) – Reviews basic theoretical and practical requirements of steel fabrication. The course focuses on mathematics, pattern development, blueprint reading, welding, and the proper use of industrial machines. It also provides students with the opportunity to follow a typical steel fabrication project from initial design to shop production. After completing this course, students are eligible to apply for credit transfer approval to the Steel Fabrication Entry Level Trades Training Program.

STEL 913 Steel Fabrication: Plate and Pipe Development (36 hours) – Designed to upgrade tradespersons' skills for advanced projects and pattern layout. The course covers the various methods of plate and pipe development for steel fabrication, focusing on fabricating and using templates to shear, burn, form and tack plates together (to make an elbow and a square to round). Prerequisite: STEL 909 or equivalent.

STEL 920 Sheet Metal (35 hours) – An introductory sheet metal fabrication course for individuals currently working in sheet metal shops, or for those interested in working in this field. The course includes basic blueprint reading, simple layout, shop calculations, soldering and brazing.

STWD 901 Blueprint Reading for Welders and Basic Steel Fabrication (30 hours) – Designed to upgrade tradespersons' skills and job opportunities. Training covers all aspects of blueprint reading as it applies to fabrication, from learning how to read fairly complicated structural drawings to selecting appropriate layout techniques for materials used to complete a structure. Prerequisite: Some knowledge of steel fabrication.

WELDING

WELD 903 Oxyacetylene Welding: Braze Welding (35 hours) – A basic fuel gas welding course for beginners. The course includes safety, shop practices, procedures and operation of related equipment. After completing this course, students will be eligible to apply for credit transfer approval to P3 Module (gas welding and braze welding) of the Level C Welding Program.

WELD 915 Shielded Metal Arc Welding Basic (40 hours) – A basic arc welding course for the individual who wishes to learn S.M.A.W. to trade standards. The course deals with the use of stick electrodes to weld multi-positional fillet and groove welds. After completing this course, students will be eligible to apply for credit transfer approval to P4 Module (SMAW) of the Level C Welding Program.

WELD 941 Gas Tungsten Arc Welding Basic (30 hours) – An introductory course covering the shielding gases, electrodes, equipment, procedures and practical applications (in the flat, horizontal and vertical positions) of G.T.A.W.

WELD 944 Flux-Cored Arc Welding (24 hours) – (Self-Shielding) This process is used by structural steel fabricators and by iron workers in field site work. The course will cover all basic weld joints in all positions.

WELD 953 Submerged Arc Welding (18 hours) – Shop-related welding using the Submerged Arc Welding process.

WELD 957 Gas Metal Arc Welding (30 hours) – This process is used by most metal fabricators in the province. The course will cover basic weld joints in the flat, horizontal and vertical positions. Successful completion of this course may meet credit transferability to the G.M.A.W. Section of P6 Module, Level C. Instruction is shop sessions.

ELECTRICAL/ELECTRONICS TRADES

Drafting Electrical Electronics Technician Industrial Computing and Control Power Engineering

Dennis Duffey, Associate Dean
Ron Bushell, Program Coordinator:
Tel. 432-8728
Elayne Anderson, Program Assistant:
Tel. 432-8637
Course Information: Tel. 432-8467

DRAFTING

DRFT 901 Drafting: Basic (42 hours) – An introductory course in fundamental architectural, mechanical and civil drafting. Provides a foundation in basic drafting including the use of standard equipment and tools, line work, lettering, applied mathematics, plane geometry, orthographic projection, dimensioning, sections, charts and graphs. Prepares students for careers in drafting or further drafting studies. Students receive an introduction to computer-assisted drafting (CAD) with limited hands-on experience. Projects are self paced.

DRFT 903 Drafting: Advanced (42 hours) – Expands on the basic drafting course and allows students to progress into their drafting specialty: architectural, civil, mechanical or structural, which they pursue in-depth, touching on the others as they interrelate. Part of the required project for this course will be produced on a computer. After successfully completing DRFT 901 and 903, students have an overview of the parameters affecting building design and construction. A Certificate of Completion in Drafting is issued. Prerequisite: DRFT 901 or equivalent.

DRFT 910 Drafting Specialization: Electrical 1 (48 hours) – Graduates of the four levels are qualified for employment in the high-tech, high-demand field of Electrical Drafting. The course includes distribution systems, single-line diagrams, motor lists and data, grounding and bonding, lighting, and the inter-relationship with other plans. Negotiations are presently underway for ASTT Certification. Prerequisite: DRFT 903 or equivalent.

DRFT 911 Drafting Specialization: Electrical 2 (30 hours) – Includes power and branch circuit layout, conduit and runway systems, and cable trays. Prerequisite: DRFT 910.

DRFT 912 Drafting Specialization: Electrical 3 (30 hours) – Includes cable schedules, instrumentation and heat tracing. Prerequisite: DRFT 911.

DRFT 913 Drafting Specialization: Electrical 4 (96 hours) – Includes motor schematics, wiring diagrams, controls, CADD systems, specifications, and the Canadian Electrical Code. Prerequisite: DRFT 912.

DRFT 915 Drafting Specialization: Process Piping 1 (42 hours) – The student will be responsible for producing shop drawings and will be introduced to subjects such as fittings, pipes, valves and welding symbols, including the basics of isometric drawings. Prerequisite: DRFT 901 or equivalent.

DRFT 916 Drafting Specialization: Process Piping 2 (42 hours) – This course is a follow-up course to DRFT 915. It will involve work in process piping, flow diagrams, heat exchangers, instrumentation, compressors and pumps. The student will be responsible for producing working drawings using advanced drafting techniques. Prerequisite: DRFT 915.

ELECTRICAL

TELC 905 Electrical Code 1 (60 hours) – Gives students a good working knowledge of the current Canadian Electrical Code (except for high voltage). Training is designed to ensure that installation work will meet Canadian standards. Coverage includes the Electrical Safety Act, inspection authorities, contractor responsibilities, approval agencies, examination regulations and requirements. Prepares Journeymen Electricians to write the Class C or Class B Contractors Exam. Eligibility to write the Contractors exam includes necessary approved work experience. Approval should be obtained from the B.C. Ministry of Municipal Affairs, Electrical Safety Branch prior to enrollment. Prerequisite: Knowledge of wiring methods and terminology.

TELC 907 Electrical Code 2 (60 hours) – Provides students with a good working knowledge of the current Canadian Electrical Code, with particular emphasis on High Voltage. In addition to the material in TELC 905, the course examines circuit conductors (types, construction, shielding); termination (splicing, stress control, hazardous locations); switch gears (OCB, ACB, load break, horn gap, metal clad, metal enclosed); control and protection (HV fuses, fault current, current relays, ground detection); grounding (high pot test, ground mat, testing methods, equipment); maintenance (substation, vault, transformer, switches); pole construction (overhead line regulations, rigging methods, clearance requirements). Prepares Journeymen Electricians to write the Class A Contractors Exam. Eligibility to write the Class A Contractors Exam includes approved work experience. Approval should be obtained from the Municipal Affairs, Electrical Safety Branch prior to enrollment. Prerequisite: High Voltage or 3-phase experience recommended.

TELC 913 Electrical Trade Qualification 1 (30 hours) – The first of a two-part program for tradespersons preparing for the Electrical Trade Qualification Examination, and for those wanting a current review. General trade knowledge: meggers, hydrometers, magnetic flux, series parallel circuits, transformers, motors, generators, alternators, motor control, are covered. Eligibility to write the Electrical TQ Certificate Exam includes approved electrical work experience. It is recommended that approval be obtained from the Ministry of Advanced Education area office nearest the participant's residence prior to enrollment. Prerequisite: Minimum five years experience in the trade.

TELC 915 Electrical Trade Qualification 2 (30 hours) – A continuation of TELC 913, this course completes the refresher program for the electrical trade. Eligibility to write the Electrical TQ Certificate Exam includes approved electrical work experience. It is recommended that approval be obtained from the Ministry of Advanced Education area office nearest the participant's residence prior to enrollment. Prerequisite: TELC 913 or equivalent.

TELC 917 Fire Alarm Systems (12 hours) – Will give students an overview of the codes and regulations that govern fire alarm systems. A and B class, supervised and unsupervised, single stage and two stage systems, initiating devices smoke and heat detector, alarm devices, annunciators and typical panels will be covered. Discussions on various types of systems.

TELC 920 Lighting (12 hours) – Examines lighting principles, lighting units; incandescent, fluorescent, HID lamp types and their characteristics and operation; recent developments in lighting, energy efficient ballasts, lighting controls and Canadian Electrical Code.

TELC 921 Math for Electricians 1 (60 hours) – Prepares students for a career in electrical work. This mathematics upgrade course strengthens students' understanding of basic electrical concepts. Especially recommended to

electrical students about to enter their first year of apprenticeship studies in the electrical trade. Coverage includes the fundamental electrical laws and their mathematical expression, algebra refresher, DC electricity and resistive circuit analysis. Prerequisite: Grade 10 Mathematics.

TELC 923 Math for Electricians 2 (60 hours) – Provides students with the mathematical background they need to understand AC electricity. The course is recommended for students about to enter their second year of apprenticeship studies in the electrical trade, and to others who are seeking a thorough understanding of AC principles. Prerequisite: TELC 921 or equivalent.

TELC 924 DC Motors (12 hours) – Examines the principles of DC motor operation and construction and operating characteristics of different types of DC motors.

TELC 925 Math for Electricians 3 (60 hours) – Recommended for students about to enter their third year of apprenticeship studies in the electrical trade, and to others interested in understanding three-phase circuits and equipment. Topics include Wye and Delta systems, alternators, transformers and power factor correction. Prerequisite: TELC 923 or equivalent.

TELC 926 AC Motors (12 hours) – Covers the principles of AC motor operation, construction and operation characteristics of the different types of single-phase and three-phase motors.

TELC 937 Heating, Ventilating, Air Conditioning Systems for Electricians (12 hours) – Includes terminology and regulations for use, different types of systems for various occupancies and associated air handling and control units. Also covers controlling mixed air, supply air, humidification, heating cooling, individual space control and zone valves.

TELC 938 AC Systems, Transformers and Distribution (12 hours) – Covers theory, construction and applications of single-phase and three-phase transformers and connections. Secondary distribution discussions will include; values, switchboards, unit substations and other types of distribution systems.

TELC 939 Blueprint Reading for Electricians (12 hours) – Gives students an overview of architectural, mechanical and plumbing drawings leading to electrical blueprints and specifications. Includes shop, plan, elevation, sectional and detail drawings. Blueprints of several projects will be analyzed.

TELC 960 High Voltage 1 (30 hours) – Introduces basic high voltage theory leading to gradients, electric stress. High voltage cables, terminators, fuses, switches and CB's are also covered. Eligibility to write the Class A Contractors Exam includes approved work experience. Approval should be obtained from the Municipal Affairs, Electrical Safety Branch prior to enrollment. Prerequisite: Journeyman level of experience and knowledge.

TELC 961 High Voltage 2 (30 hours) – A continuation of TELC 960, examines practical applications for concentric neutral cables, wrapped cone terminators and capacitive grading principles. Prerequisite: TELC 960. Eligibility to write the Class A Contractors Exam includes approved work experience. Approval should be obtained from the Municipal Affairs, Electrical Safety Branch prior to enrollment.

TELC 966 Security Alarms 1 (18 hours) – This course is not intended as an entry level course, but as an upgrade course for those persons working in the Security Alarm industry, wishing to write Trade Qualification Exam for Security Alarm Installer. Covers Attorney General's regulation, alarm input/output devices, alarm control panels including programming. The exam may not be written by anyone with less than three years experience. The course is restricted,

due to security considerations, to existing employees of security alarm installation companies. A photocopy of the applicant's Security License (through the Attorney General's Security Programs Division) will be required as proof of security clearance.

TELC 967 Security Alarms 2 (18 hours) – A follow-up to TELC 966. This includes UIC regulations, central station monitoring equipment and operation, and documentation regarding monitoring. This course is restricted, due to security considerations, to existing employees of security alarm installation companies.

ELECTRONICS TECHNICIAN

TCMP 911 Microcomputer Systems Maintenance 1 (30 hours) – The first of a two-part advanced course for those who have some background in electronics, the ability to use test instruments and to read electronic schematics. TCMP 911 reviews analog/digital electronics, basic microcomputer architecture, troubleshooting methodology for sophisticated systems, and hands-on training in advanced uses of test instruments. Students also practice soldering and desoldering of electronic components. Prerequisite: TELX 950 or equivalent.

TCMP 913 Microcomputer Systems Maintenance 2 (30 hours) – The knowledge and skill developed in TCMP 911 are applied to the repair of the Apple II computer system series. This course teaches maintenance skills with hands-on instruction in the repair of keyboards, disk drives, controllers and monitors. Software diagnostic programs are demonstrated. After successfully completing TCMP 911 and 913, students will have the necessary repair skills for IBM and related computers. After successfully completing TCMP 911 and 913, students receive a Certificate of Completion in Microcomputer Systems Maintenance. Prerequisite: TCMP 911 or equivalent.

TELX 949 Introduction to Electronics: DC (30 hours) – Designed for those with little or no understanding of electrical terms and conventions. Covers theory of resistance, capacitance, inductance, Ohm's Law, Kirchhoff's Law, voltage, direct current and power. Students will apply theory to construct circuits and make electrical measurements to prove the theory. Prerequisite: Grade 10 Mathematics recommended.

TELX 950 Introduction to Electronics: AC (30 hours) – Continuing from TELX 949 concepts of alternating current are covered. Theory includes frequency, reactance, impedance, phase shift, power factor, resonance. Students will use oscilloscopes to make AC measurements on basic AC circuits. Prerequisite: Successful completion of TELX 949.

TELX 951 Solid State Devices (30 hours) – Focuses on semi-conductor theory diodes, bi-polar transistors, FETs, zenier, LEDs, rectification and power supplies. Students will prove the theory by building and testing basic solid state circuits. Prerequisite: Successful completion of TELX 950.

TELX 952 Digital Techniques 1 (30 hours) – An introduction to binary and BCD number systems and codes, logic gates, truth tables, Boolean algebra, flip flops, counters, shift registers, IC timers and troubleshooting techniques. Students build and test a circuit, then find and correct a fault inserted by the instructor. Prerequisite: TELX 949, 950 or equivalent.

TELX 953 Digital Techniques 2 (30 hours) – The sequel to TELX 952, this course deals with logic parameters (speed, current drive capabilities, etc.), comparison of types of TTL logic (74S, 74LS, 74ALS, etc.), CMOS, tri-state logic, binary and BCD arithmetic, memory chips and circuits. Prerequisite: TELX 952 or equivalent.

TELX 954 Microprocessors 1 (30 hours) – Based on the 6800 microprocessor, the course covers microcomputer basics, architecture, addressing modes, branching, computer arithmetic and simple programming in machine language. Prerequisite: TELX 953 or equivalent.

TELX 955 Microprocessors 2 (30 hours) – A continuation of TELX 954. The course focuses on stack operations, subroutines, input/output (I/O) operations, interrupts and interfacing simple circuits (displays and switches). A Certificate of Attendance in Microprocessors is issued to students who successfully complete this course and TELX 949/950/951/952/953/954/965. Prerequisite: TELX 954 or equivalent.

TELX 965 Solid State Devices and Applications (30 hours) – Pulls together the theory and practical skills obtained in the previous programs to build and analyze amplifier and oscillator circuits. Includes common amplifier circuits, amplifier parameters such as input/output impedance, phasing, bandwidth, gain, as well as regulators. Prerequisite: Successful completion of TELX 951.

INDUSTRIAL COMPUTING AND CONTROL

TCMP 903 Introduction to Computers for Electricians (24 hours) – This is an introduction to the personal computer. Allows the student to become familiar with the use of the microcomputer (IBM and compatible) and its MS-DOS operating system, including basic DOS commands to manage disks and files.

TCMP 904 Programming in BASIC for Tradespersons (30 hours) – Designed for the tradesperson involved in the design, installation and maintenance of systems which include, as part of a greater system, modules which require to be programmed in BASIC computer language.

TELC 927 Motor Control 1 (30 hours) – A practical, hands-on course covering the basic principles of conventional motor control for those working in industrial settings. Topics include fractional horsepower, starters, magnetic line voltage starters, pilot devices, circuit layout, interpretation and application of schematics, and wiring diagrams. Prerequisite: Familiarity with wiring methods and terminology.

TELC 946 DC Variable Speed Drives (12 hours) – Covers an area of growing importance, service and maintenance. Concentrates on the most common types of electronic drive units and uses of solid state components.

TELC 947 AC Variable Frequency Drives (12 hours) – Concentrates on the most common types of electronic drive units and the use of solid state drive components. Theory of circuitry, static drive systems and speed control are covered.

TELX 903 Digital Electronics for Trades (30 hours) – A practical hands-on course designed to instruct the tradesperson responsible for maintenance of electronic control equipment. Includes a review of discrete devices with extensive instruction on digital devices at the chip level.

TELX 904 Introduction to Microprocessors for Trades (30 hours) – Hands-on training involving 8 bit and 16 bit microprocessors. Designed for the tradesperson who intends to continue in the industrial computing environment.

TELX 926 Fibre Optics 1 (12 hours) – The theory of optics, light sources, detectors and systems. LED transmitters and receivers will be demonstrated and tested. Fibre optic slicing techniques will be introduced.

TELX 966 Digital Communications for Trades (30 hours) – A continuation of TELX 952 involving serial and parallel communications at the microprocessor level. Designed as a prerequisite to the Programmable Logic Controller courses.

TELX 970 Operational Amplifiers (30 hours) – Basic linear amplifier circuits (inverting circuits, non-inverting circuits, summing amplifiers, etc.); non-linear signal processing circuits (comparators, Schmidt triggers, etc.); differentiators and integrators; voltage and current circuits; Norton op-amps and instrumentation amps. Prerequisite: TELX 951 or equivalent.

TELX 981 Programmable Controllers 1 (30 hours) – Provides an introduction to programmable controllers as they are utilized in industry today. The course concentrates on the basic structure of PLC's and how they handle data. An overview of hardware and installation methods is discussed. Programming exercises emphasize hands-on training and are designed to introduce the student to safe programming techniques and techniques commonly used in industry. A Certificate of Completion in Programmable Controllers is issued to students who successfully complete TELX 981, 982 and 983. Prerequisite: Industrial wiring experience and familiarity with motor control schematics.

TELX 982 Programmable Controllers 2 (30 hours) – A continuation of TELX 981 in which PLC theory is explored through hands-on programming exercises that investigate the power of the PLC which may be realized through the use of data manipulation, math, data comparison, and logical comparison instructions. During this course, dedicated software run on personal computers is used and the documentation power of this software is explored. Prerequisite: TELX 981.

TELX 983 Programmable Controllers 3 (30 hours) – Continues to explore the power of the PLC by expanding on the file and data manipulation routines including, serial and parallel shift registers, logical comparison instructions and sequencing functions. Prerequisite: TELX 982.

TELX 984 Programmable Controllers 4 (30 hours) – Provides an introduction to data communications, use of "smart cards", e.g. analog, ASCII, etc., report generation and subroutines. All programs concentrate on safe installation and programming techniques. Prerequisite: TELX 983.

TELX 988 Programmable Controllers 1S (30 hours) – Provides an introduction to programmable controllers as they are utilized in industry today. The course concentrates on the basic structure of PLC's and how they handle data. An overview of hardware and installation methods is discussed. Programming exercises emphasize hands-on training and are designed to introduce the student to safe programming techniques and techniques commonly used in industry. A Certificate of Attendance for the Programmable Controllers Seminar is issued to students who successfully complete TELX 988, 989 and 990. Prerequisite: Industrial wiring experience and familiarity with motor control schematics.

TELX 989 Programmable Controllers 2S (30 hours) – This course is a continuation of the theme followed by TELX 988 in that the theory of the PLC is explored through hands-on programming exercises that investigate the power of the PLC which may be realized through the use of data manipulation, math, data comparison, and logical comparison instructions. During this course, dedicated software, run on personal computers, is used and the documentation power of this software is explored. Prerequisite: TELX 988.

TELX 990 Programmable Controllers 3S (30 hours) – Deals with the use of "smart cards", e.g. analog, ASCII, etc., and an introduction to data communications as related to PLC's. Various communication protocols are explored and programming techniques are used to make the communication between various PLC's safe and effective. All of these courses emphasize safe programming techniques and installation practices. Various types of equipment are avail-

able to the student: Modicon 984X and 98431; Telemecanique; GE; and Allan Bradley 215 and PLC 5. As equipment changes continuously due to the upgrading of facilities, enquiries may be made prior to registration, if training is required on a specific type. Prerequisite: TELX 989.

POWER ENGINEERING

Programs in all levels of Power Engineering Certification are being offered through Correspondence/Tutorial methods. The programs are directed primarily at persons currently employed in industrial plants and interested in obtaining higher levels of certification. They provide the necessary knowledge to sit for the B.C. Government or Interprovincial Power Engineering Certification Examinations. Instruction is provided through home study (Correspondence) or in-class study (Tutorial).

Important aspects of the programs include:

- Assignments which are closely based upon the curriculum of the Government examinations;
- Telephone or drop-in assistance with an experienced tutor;
- Supplemental information to augment or clarify the Interprovincial Standardized course materials where necessary;
- Rapid correction of assignments and examinations.

To qualify to write the B.C. Government Examinations, a candidate must have a specified number of months of practical qualifying experience as outlined in the B.C. Power Engineer's and Boiler and Pressure Vessel Safety Act. Details may be obtained from your nearest office of the B.C. Ministry of Municipal Affairs, Recreation and Culture, Safety Engineering Services Divisions, Boiler and Pressure Vessel Safety Branch, or by contacting the Chief Engineer Examiner in Vancouver at (604) 660-6252.

Persons wishing to enrol in all programs must have a good command of written English. Additionally, First, Second and Third Class applicants must be in possession of the next lower certificate, unless exempted by the Boilers Branch. Classroom attendance in these programs is flexible to accommodate persons working shifts. Classroom hours are from 0800 to 1515 Monday to Friday. From mid-October to mid-May, evening instruction is available Monday through Thursday until 1930.

Participants use self-study learning materials to complete written assignments. Direct instructor assistance is provided as necessary to aid in learning. Classroom reference library and instructional videotapes are available to supplement written course materials.

Registration in Fourth, Third, Second and First Class Programs is done as a group of two or three courses as indicated. The allowable time period to complete a group is one year from date of registration.

Courses are available in:

PENG 910	Boiler Operator
PENG 913	Fourth Class Level 1
PENG 914	Fourth Class Level 2
PENG 915	Third Class Part A Paper 1
PENG 916	Third Class Part A Paper 2
PENG 917	Third Class Part B Paper 1
PENG 918	Third Class Part B Paper 2
PENG 919	Second Class Part A Paper 1
PENG 920	Second Class Part A Paper 2
PENG 921	Second Class Part A Paper 3

PENG 922	Second Class Part B Paper 1
PENG 923	Second Class Part B Paper 2
PENG 924	Second Class Part B Paper 3
PENG 925	First Class Part A Paper 1
PENG 926	First Class Part A Paper 2
PENG 927	First Class Part A Paper 3
PENG 928	First Class Part A Paper 4
PENG 929	First Class Part B Paper 1
PENG 930	First Class Part B Paper 2
PENG 931	First Class Part B Paper 3
PENG 932	First Class Part B Paper 4

Further information and a detailed brochure may be obtained by contacting the BCIT Power Engineering Department. Tel. 432-8390.

MECHANICAL INDUSTRIES TRAINING

Automotive Electronics Technician
Automotive Mechanic
Heavy Duty Mechanic
Machinist/CNC
Mathematics for Trades
Millwright
Motorcycle/Marine/Small Engine Mechanic
Refrigeration (Commercial)

Course Information:

Tel. 432-8467

Rose Kunkel, Program Assistant:

Tel. 432-8205

Ron Evans, Associate Dean

AUTOMOTIVE ELECTRONICS TECHNICIAN

Terry Fletcher, Chief Instructor: Tel. 432-8240

Rose Kunkel, Program Assistant: Tel. 432-8205

The Program

Today's Automotive Industry is experiencing a radical change in technology. Automotive electronics are now in almost all areas of a vehicle controlling or operating some mechanical device: Anti-lock brakes, torque converters, automatic transmissions, air conditioning dash instrumentation, in addition to engine management electronics. This technology, in conjunction with on-board diagnostics, has created a demand for electronic diagnostic equipment and technicians who know both how vehicle electronics can be tested and repaired and how to utilize the new diagnostic equipment to its fullest capacity.

The Automotive Electronics Technician Program first establishes a basic grounding in electrical practices and then, throughout the program, utilizes current electronic diagnostic equipment and late model vehicles to explore the theory and application of computer technology to today's automobile. As this part-time studies program parallels the full-time 17-week program, graduates of this 492-hour program will receive a Certificate in Trades Training.

Program Content

Introduction to Electrical Testing (30 hours)
Automotive Batteries and Starter Systems (18 hours)
Automotive Charging Systems (36 hours)
Automotive Carburetion and Related Fuel Delivery (30 hours)
Automotive Tune-up and Emission Controls (42 hours)
Electronic Engine Control Fuel Injection (30 hours)
General Motors Throttle Body Injection (24 hours)
General Motors Port Fuel Injection (24 hours)
Ford Computer Control Systems (30 hours)
Chrysler Computer Control Systems (30 hours)
Import Computer Control Systems (30 hours)
Bosch Fuel Injection (30 hours)
Alternate Fuels Update (12 hours)
Automotive Automatic Transmission Computer Controls (30 hours)
Automotive A.B.S. Anti-lock Brakes (30 hours)
Automotive Electronic Accessories (42 hours)
Electronic Suspension Controls and Steering (12 hours)
Air Conditioning Electronic Controls (12 hours)

Prerequisite: Students are required to seek part-time studies program approval to ensure their course of study is mapped out in advance, and that admission prerequisites for certification are checked.

One of the following prerequisites is acceptable:

1. Apprentice with a minimum of 2 years in the trade; or
2. Journeyman mechanic; or
3. Successful completion of ELTT Automotive Mechanic; or
4. Pre-test - available in the Mechanical Resource Centre (Monday to Friday, between 0830 and 1400).

AUTO 902 Introduction to Electrical Testing (30 hours) – This course is designed for the professional technician who has limited experience in electrical/electronic testing. Topics include: Electrical theory, circuits, diagnosing, testing and maintenance. Course text: Chek-Chart Automotive Series Automotive Electrical and Electronic Systems.

AUTO 903 Automotive Batteries and Starter Systems (18 hours) – This course is designed for the professional technician who has limited experience or wishes to update skills on batteries and starter systems. Course text: Chek-Chart Auto Series Automotive Electrical and Electronics Systems.

AUTO 904 Automotive Charging Systems (36 hours) – This course is designed for the professional technician who wishes to update his skills on charging systems. Topics include: Charging theory of operation, A and B circuits, computer regulation, diagnosis, and repair. Course text: Chek-Chart Auto Series Automotive Electrical and Electronic Systems.

AUTO 913 Automotive Carburetion and Related Fuel Delivery (30 hours) – This course is designed to refresh the professional technician on carburetion and fuel delivery. Topics include: Carburetion circuits, operation, fuel tanks, lines, pumps, service and diagnosis.

AUTO 908 Automotive Tune-up and Emission Controls (42 hours) – This course is designed for professional automotive mechanics who wish to specialize in fuel system service, ignition tune-up and electrical circuit testing. It gives specialized instruction in electrical/electronic ignition systems, carburetion. Fuel management of on-board computers and emission control devices in automobiles is also explored. Upon completion of this course, students will be specialized in advanced automotive engine diagnosis, troubleshooting and repair.

AUTO 909 Electronic Engine Control/Fuel Injection (30 hours) – This advanced course gives experience automotive mechanics specialized instruction in servicing a late model, microprocessor-controlled engine and fuel injection systems. Students use test equipment ranging from simple hand-held scan tools to the latest "state of the art" diagnostic analyzers and computers. Topics include theory, operation and testing of on-board microprocessors, computer management, sensor designs and function, actuator control, E.C.U. control of major emission devices, data retrieval from computer memory, O2 system operation, feedback carburetion. Fuel injection topics include Bosch Jetronic "K" continuous injection, Bosch "L" and "LH" including Lambda control, domestic single and multi-point electronic fuel injection systems. Textbook: Students must purchase Computerized Engine Control by D.H. King.

AUTO 910 General Motors Throttle Body Injection (24 hours) – This course is designed for the professional technician who wishes to specialize in GM throttle body injection. Topics include: Section 6E, code retrieval, trouble code diagnosis, driveability diagnosis and repair.

AUTO 911 General Motors Port Fuel Injection (24 hours) – This course is designed for the professional technician who wishes to upgrade his/her skills on GM PFI systems. Topics include: Block learn/integrator interpretation/diagnosis, DIS system operation/diagnosis, EST/ESC operation/diagnosis. Course text: Computerized Engine Controls by D.H. King.

AUTO 914 Ford Computer Control Systems (30 hours) – This advanced course covers all facets of Ford computerized systems. Topics are TFI ignition systems, EEC4 fuel, engine and emission injection, central and multi-point fuel injection, on-board diagnostics and data retrieval, Ford "Star" tester and breakout box operation.

AUTO 916 Chrysler Computer Control Systems (30 hours) – This advanced course covers all facets of Chrysler computerized systems. Topics are computerized systems, EFI fuel, engine and emission controls, single and multi-point fuel injection, on-board diagnostics and data retrieval.

AUTO 918 Import Computer Control Systems (30 hours) – Covers all facets of the major Japanese and European computerized systems needed by students who wish to be qualified to perform advanced diagnosis and repair of imported vehicles. Topics are computerized ignition systems, fuel, engine and emission controls, throttle body and multi-point fuel injection, on-board diagnostics and data retrieval.

AUTO 917 Bosch Fuel Injection (30 hours) – This course is designed for the professional technician who wishes to upgrade his/her skills with Bosch fuel injection. Topics include: K-jet, L-jet, D-jet systems operation/diagnosis, testing, and repair. Handouts will be provided to students.

AUTO 952 Alternate Fuel Systems Update (12 hours) – An advanced course designed for licensed LPG/NGV mechanics who want an upgrade on the latest equipment and developments in the industry. Includes the latest European and domestic mixer and regulators, computer-controlled feedback LPG systems, installation procedures on late model microprocessor fuel injected vehicles, and advanced troubleshooting techniques. Prerequisite: LPG/NGV License.

AUTO 930 Automotive Automatic Transmission Computer Controls (30 hours) – An advanced course for students who wish to diagnose and repair electronic automatic transmissions for domestic and imported cars. This course was developed for the professional technician who has limited experience in electrical/electronic testing. Electronic topics include: Electrical circuits, Ohm's Law, use of analog and D.V.O.M. meters, an overview of automotive computer operation, wiring schematics, use of hand held "scan tools", basic do's and don'ts of circuit testing. Transmission topics include review: of A/T fundamentals, lock-up converter controls, electronic shift controls and electronic overdrive.

AUTO 947 Automotive A.B.S. Anti-lock Brakes (30 hours) – An upgrading course designed for professional technicians who wish to repair electronic A.B.S. brake systems but have limited experience in electrical and electronic testing. Topics include: Electrical circuits, Ohm's Law, use of analog and D.V.O.M. meters, an overview of automotive computer operation, wiring schematics, use of hand held "scan tools", basic do's and don'ts of circuit testing. Brake topics cover the operation and diagnosing of Bosch, Delco-Moraine, Bendix and Teves Anti-lock Brake systems.

AUTO 919 Automotive Electronic Accessories (42 hours) – An advanced course for students who wish to diagnose and repair body electronic support systems. Topics include electronic displays, power seats with memory, keyless entry systems, photo-diode controlled systems and electronic accessories. This is an ideal course for both automotive mechanics and body shop technicians.

AUTO 927 Electronic Suspension Controls and Steering (12 hours) – For professional technicians who want to diagnose and repair computerized active suspension and electronic steering systems. Topics include Ford active suspensions, Ford programmed ride control, computerized 4-wheel steering, electronic rack and pinion steering gear, import active suspension design, electronic ride height control.

AUTO 921 Air Conditioning Electronic Controls (1 hours) – An advanced course designed for professional technicians. It gives an overview of basic A/C controls leading to various electronic climate control systems. Emphasis on diagnosing computer controlled features.

AUTOMOTIVE MECHANIC

AUTO 900 Automotive Mechanical Repair TQ Refresher (60 hours) – This refresher course provides assistance for tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Automotive Mechanic Trade Qualification Examination or for those wishing to refresh their theoretical knowledge of the Automotive Trade. Topics include safety, shop equipment, air conditioning, internal combustion engines (gas and diesel), cooling systems, fuel delivery systems, emission control systems, electrical systems, power train, suspensions, steering and brakes. T.Q. examinations are conducted by the Ministry of Advanced Education and Job Training. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Students must purchase Auto Mechanics Fundamentals textbook by Stockel.

AUTO 920 Automotive Air Conditioning (42 hours) – For mechanics who want to increase their job opportunities by acquiring a specialized skill, this course gives a thorough understanding of automotive air conditioning systems and the training to service and install these systems according to manufacturers' specifications. The course includes theory of operation; system operation and adjustments; performance tests, repairs and diagnosis; compressor service; introduction to automatic temperature and climate controls. Prerequisite: Students should have completed a substantial portion of an apprenticeship or have experience with automotive mechanics. Textbooks: Student must purchase Auto Air Conditioning by Mitchell.

AUTO 922 Automotive Brake Servicing (30 hours) – For mechanics who require upgrading in brake servicing. The course provides intensive training in hydraulics, friction, dual-piston master cylinders, hoses, quick take-up master cylinders, wheel cylinders, valves, tubing, fluids, brake drums, brake drum assemblies, disc/rotor, disc brake assemblies, parking brakes, power brake boosters and basic A.B.S. operation. After successfully completing this course, students will be able to perform almost any inspection/repair necessary on disc/drum brake assemblies. Prerequisite: Minimum two years mechanical experience. Textbook: Students must purchase Automotive Brake Systems by Harper & Row.

AUTO 924 Automotive Front End Alignment (42 hours) – For automotive mechanics who require upgrading in suspension and alignment work. The course takes you through basic angles, to the latest front wheel and 4 x 4 alignment techniques. Topics include front and rear suspension service, the operation/repair of conventional and rack and pinion steering. After successfully completing this course, students will be able to diagnose/service suspension and steering systems, and perform front wheel alignments.

AUTO 925 Automotive 4 Wheel Alignment (6 hours) – A one-day intensive course on late model steering and alignment techniques. Topics include 4 wheel steering and 4 wheel alignment using the latest computer alignment equipment. The course is scheduled for Saturdays to permit extended shop time.

AUTO 928 Automotive Automatic Transmissions (42 hours) – An ideal course for automotive mechanics who require upgrading in automatic transmissions, apprentices and mechanics seeking employment in this field. Classroom and shop sessions cover: torque converter design and construction, including centrifugal and hydraulic lockup; planetary gear operation; valve bodies; hydraulic circuits; three- and four-speed transmission operation and overhaul procedures. Basic operation of computer-controlled electronic automatic transmissions is also discussed. Upon successful completion of the course, students will be able to trace paths of power in transmissions, diagnose problems and prescribe repair procedures. Textbook: Students must purchase Automatic Transmissions and Transaxles by Harper & Row.

AUTO 950 Natural Gas Fuel Systems for Vehicles (NGV) (18 hours) – Designed to prepare mechanics with a minimum of 3rd year apprentice mechanics level to install and service NGV conversions. Provides the necessary theoretical instruction to enable them to write the Provincial Gas Safety Branch Licensing Examination. Successful students may seek employment with NGV conversion centres, service stations, automobile manufacturers, accessories stores, or be self-employed. Topics include safety, basic test equipment, characteristics of NGV, engine and ignition requirements, NGV components, installation, refuelling, tune-ups and troubleshooting. Prerequisite: Successful completion of AUTO 957 - LPG Fuel Systems or technicians holding a current automotive LPG license. A photocopy of your license will be required on the first day of class.

AUTO 957 Propane Fuel Systems for Vehicles (LPG) (30 hours) – Designed to prepare mechanics with a minimum of 3rd year apprentice level to install and service LPG conversions. Provides the necessary theoretical instruction to enable them to write the Provincial Gas Safety Branch Licensing Examination. Successful students may seek employment with LPG conversion centres, service stations, automobile manufacturers, accessories stores, or be self-employed. Topics include: Safety, basic test equipment, characteristics of LPG, engine and ignition requirements, LPG components, installation, refuelling, tune-ups and troubleshooting. Successful completion allows students to take AUTO 950 Natural Gas Fuel Systems for Vehicles.

HEAVY DUTY MECHANIC

HDMX 902 Mobile Hydraulics (48 hours) – For heavy equipment mechanics/operators wanting to upgrade their knowledge of hydraulics for forklifts, front-end loaders and stationary equipment. Students are taught to understand hydraulics, fluids, reservoirs, pumps, motors, valves, hoses and fittings; cylinder accumulators; coolers and schematics; analyze component failures, troubleshoot and perform maintenance diagnostics and testing. Topics include hydraulic principles, fluids and accessories; piping and fittings; pump operation; principles of actuator and valve operations; mobile circuits and schematics; power steering; hydrostatic drives, leaks and seals. Students will be able to analyze component requirements, diagnose failures and prescribe solutions.

HDMX 905 Heavy Duty Mechanic TQ Refresher (60 hours) – This refresher course provides assistance for tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Heavy Duty Mechanic Trade

Qualification Examination or for those wishing to refresh their theoretical knowledge of the Heavy Duty Trade. Instruction is given in various types of engines, engine tune-up, electrical systems, hydraulics, brakes, running gear, clutches and torque, transmissions, rear end and winches. T.Q. examinations are conducted by the Ministry of Advanced Education and Job Training. Contact the area office nearest your residence to determine your eligibility and schedule an examination.

HDMX 925 Air Brakes for Mechanics (30 hours) – An ideal refresher course for mechanics who have limited experience servicing air brakes, and for owners/operators of trucks/fleets who wish to know more about this braking system. The course includes principles of air brakes; purpose and function of system components; existing air brake schedules and current dual air systems for truck and tractor/trailer units; maintenance, repair and troubleshooting.

HDMX 930 Commercial Transport Mechanic TQ Refresher (60 hours) – This refresher course provides assistance for tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Commercial Transport Mechanic Trade Qualification Examination or for those wishing to refresh their theoretical knowledge of the Commercial Transport Trade. T.Q. examinations are conducted by the Ministry of Advanced Education and Job Training. Contact the area office nearest your residence to determine your eligibility and schedule an examination.

HDMX 950 Commercial Vehicle Inspector (30 hours) – Prepares students to write the "Examination for Authorization of Inspectors of Vehicles." The course includes guidelines on the administration of the: Motor Vehicle Act, Motor Vehicle Act Regulations, Duties and Responsibilities of Inspectors, Requirements of Inspection Facilities and Facility Operators, Procedures Necessary in the Documentation and Reporting of Inspections. Prerequisite: Automotive, Heavy Duty or Commercial Transport T.Q. Those with Automotive T.Q. require completion of an Air Brake Maintenance course (HDMX 925, or equivalent) to test Air Brake equipped vehicles. Students are required to purchase a Commercial Vehicle Inspection Manual, available at any Motor Vehicle Branch Office (required on first night of course).

MACHINIST/CNC

MACH 900 Machinist TQ Refresher (60 hours) – This refresher course provides assistance for tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Machinist Trade Qualification Examination or for those wishing to refresh their theoretical knowledge of the Machinist Trade. Topics include: Safety; regulations for the use of hand tools; instruments and equipment; blueprint reading; grinders; lathers; milling machines; vertical and horizontal boring mills; shaper, planers and slotters; drill presses and cutoff and contour saws. Prerequisite: Machine shop background. T.Q. examinations are conducted by the Ministry of Advanced Education and Job Training. Contact the area office nearest your residence to determine your eligibility and schedule an examination.

MACH 905 Lathe Operator (36 hours) – Provides a basic understanding and practical experience of engine lathe operations. Safety is of primary concern throughout the course. Training is hands-on and theory work is kept to a minimum. Shop projects are competency based and are presented in a manner that allows the understanding of one concept before the next is introduced. For students without previous or with only limited machining experience it is recommended that this course be completed before enrolling in MACH 906.

MACH 906 Milling Machine Operator (36 hours) – Provides a basic understanding and practical experience of milling machine operations. Safety is of primary concern throughout the course. Training is hands-on and theory work is kept to a minimum. Shop projects are competency based and are presented in a manner that allows the understanding of one concept before the next is introduced. For students without previous or with only limited machining experience it is recommended that MACH 905 be completed before enrolling in MACH 906.

MACH 907 Lathe and Milling Operations (36 hours) – A continuation of MACH 905 and 906. It is designed to allow the student to gain more experience on machine tools. The projects used in this course are more difficult and challenging than those encountered in the first courses. The concept of competency learning is still used in this program and care is taken to ensure that selected projects are within the student's capabilities. Prerequisite: MACH 905 and 906.

MACH 909 Introduction to Computers for Machinists (18 hours) – For the tradesperson who wishes to gain basic knowledge of microcomputers. This course or equivalent knowledge is a prerequisite for MACH 910, 911 and 914. Although general in nature, it is designed to prepare a person to enter the Computer Numerical Control courses. Topics include: Parts of a microcomputer, basic operations required to get you up and running, along with an introduction to some application programs. You will learn how to use a simple word processing program to create and edit a CNC program.

MACH 910 Introduction to Computer Numerical Control (48 hours) – An entry level course to introduce the concepts of Computer Numerical Control (CNC) to those with little or no prior CNC experience. It is a prerequisite course to both MACH 911 and MACH 914. This course makes extensive use of CNC training lathes and mills. All work and programming is explained relative to full-size industrial machines. This course has approximately 30% theory and 70% hands-on. The hands-on includes program entering and editing as well as tool setting and machine operation. Prerequisite: MACH 909, MS/PC DOS experience or permission of Chief Instructor.

MACH 911 Computer Numerical Control Milling Operations (42 hours) – Deals with basic programming, editing and setting up of a CNC vertical machining centre. The machine used will be an OKK vertical machining centre. All programming in this course will be compatible with the Fanuc/General Numeric CNC controls commonly found on a variety of machining centres. This course has approximately 40% theory and 60% hands-on. The hands-on includes program entering and editing as well as tool setting and machine operation. Prerequisite: MACH 910 or equivalent.

MACH 914 Computer Numerical Control Lathe Operations (42 hours) – Deals with basic programming, editing and setting up of a CNC lathe. The machine used will be a Mori Seiki SL#H, 2-axis lathe. All programming in this course will be compatible with the Fanuc/General Numeric CNC controls commonly found on a variety of CNC lathes. This course has approximately 40% theory and 60% hands-on. The hands-on includes program entering and editing as well as tool setting and machine operation. Prerequisite: MACH 910 or equivalent.

MATHEMATICS FOR TRADES

These courses are specifically for apprentices, pre-apprentices and journeymen in the construction, mechanical and steel trades.

TMAT 935 Industrial Mathematics 1 (30 hours) – Arithmetic operations, fractions, decimals, metric system, ratio and proportion, percentages, area and volume. Prerequisite: Grade 8 Mathematics.

TMAT 936 Industrial Mathematics 2 (24 hours) – Algebra operations, equations and formulas, exponents, graphs, trigonometry, trade applications. Use of scientific calculators. Prerequisite: TMAT 935 or equivalent.

MILLWRIGHT

MILL 900 Millwright TQ Refresher (60 hours) – This theoretical course provides assistance for tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Millwright Trade Qualification Examination or for those wishing to refresh their theoretical knowledge of the Millwright Trade. Topics include general theoretical knowledge of the Millwright Trade: General fitting practices; hydraulics, pneumatics and lubrication; material handling; machine components and installation. Prerequisite: Students must obtain the "Millwright Manual of Instruction" prior to the course. T.Q. exams are conducted by the Ministry of Advanced Education and Job Training. Contact the area office nearest your residence to determine your eligibility and schedule an examination.

MILL 902 Industrial Hydraulics Stationary (42 hours) – Designed to assist maintenance personnel at industrial sites in the testing, repair, examination and troubleshooting of basic fluid power circuits and component parts. Explains and identifies basic fluid power circuitry, components and hydraulic theory. Students are taught principles and practices of reservoirs; fluids and fluid conditioners; conductors and pumps; directional, pressure and flow control valves; actuators and seals; types of symbols and graphics; circuitry identification and interpretation. Practical, hands-on work on typical circuits is also included. Successful students become conversant with fluid power and hydraulic theory, and capable of examining, testing and adjusting basic fluid power components. Prerequisite: Students must obtain Vicker's "Industrial Hydraulics Manual" prior to the course.

MILL 910 Machine and Coupling Alignment (42 hours) – Designed to cover the theory and practice of coupling alignment using state-of-the-art devices including laser optical devices. Specific methods covered are: face and rim alignment, reverse dialing, face-to-face and laser aligning methods. Analysis and corrections are performed by calculations, graphical solutions and the use of computers. Prerequisite: A working knowledge of basic machinery and components.

MOTORCYCLE/MARINE/SMALL ENGINE MECHANIC

SENG 900 Small Engine Powered Equipment Maintenance (48 hours) – The maintenance and general repair of engines and allied equipment for lawn mowers, chain saws, generator units and other utilities powered by air cooled two and four-stroke engines. Hands-on practical shop training is emphasized.

SENG 901 Introduction to Small Engine Maintenance (24 hours) – Introduces small engine operators to the basic principles of mechanical technology for small engines. This gives an understanding of how they operate. Preventive maintenance and basic repair procedures will be examined. This is a reasonable look at protecting your investment in your lawnmower, etc. Students will learn how carry out basic preventive maintenance and repairs.

SENG 910 Owner/Operator Motorcycle Maintenance (48 hours) – Provides motorcycle owners and enthusiasts with basic tune-up and preventive maintenance techniques. Theory includes basic engine operation and design, ignition and carburetion systems. Maintenance and tune-up procedures involve timing and carburetion adjustment, brakes, tires, final drives, lubrication, chassis and electrical system service. Course content is divided equally between theory, demonstration and shop practice. Prerequisite: Students must be familiar with correct hand tool operation and shop safety.

SENG 911 Introduction to Motorcycle Maintenance (24 hours) – Introduces motorcycle owners and enthusiasts to the basic principles of motorcycle maintenance, service and diagnostic procedures.

REFRIGERATION (COMMERCIAL)

TREF 913 Commercial Air Conditioning 1 (48 hours) – The first of a four-part program in commercial air conditioning. This course enables students to identify the components of a refrigeration system, explain its function, join copper tubing with flares, sedge, and soft solder/hard solder connections. Upon completion of TREF 913, 915, 916 and 921, a certificate of completion in "Commercial Air Conditioning" is issued.

TREF 915 Commercial Air Conditioning 2 (48 hours) – Enables students to identify and explain the components of a domestic gas furnace and its function, basic electrical wiring diagram symbols, and circuit component functions. Prerequisite: TREF 913 or permission of instructor.

TREF 916 Commercial Air Conditioning 3 (48 hours) – Students will be able to troubleshoot electrical control systems, install and adjust thermostats, remove, replace and start up compressors, clean systems. Prerequisite: TREF 915 or permission of instructor.

TREF 917 Refrigeration TQ Refresher (66 hours) – This refresher course provides assistance for tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Refrigeration Trade Qualification Examination or for those wishing to refresh their theoretical knowledge of the Refrigeration Trade. Topics include refrigeration theory, reciprocating compressors, condensers, evaporators, flow control devices and accessories. T.Q. examinations are conducted by the Ministry of Advanced Education and Job Training. Contact the area office nearest your residence to determine your eligibility and schedule an examination.

TREF 921 Commercial Air Conditioning: Shop (36 hours) – Students troubleshoot A/C systems for malfunctions and carry out preventive maintenance. The course covers aligning motor and blower pulleys, installing L V controls (TD relays, thermostats, NSB and override controls), lock out relays, identifying and replacing faulty components in A/C units up to five-ton capacity. A certificate of completion in "Commercial Air Conditioning" is issued to students who successfully complete this course and TREF 913/915/916. Prerequisite: TREF 916 or permission of instructor.

TREF 922 Basic Refrigeration System Design (36 hours) – Familiarizes the refrigeration journeyman on design techniques for the appropriate selection, application and installation of refrigeration equipment to ensure peak performance, while ensuring federal and provincial codes are followed.

TREF 924 Heating, Ventilating, Air Conditioning Systems Upgrading (15 hours) – Familiarizes the journeyman on heating, ventilating and air conditioning systems, components and their operation in reaction to each other including cooling coils, heating coils and terminal air distribution devices, humidification/dehumidification systems, and damper operation. Duct design will be covered briefly. How to read psychrometric charts for cooling and heating coil performance will also be addressed. Prerequisite: A minimum of five years experience in the trade.

WOMEN IN TRADES

Kate Pelletier, Coordinator: Tel. 432-8233

TEXP 900 Trades Exploratory Program for Women (30 hours) – This course is designed to help women make an informed choice about entering a skilled trade as a career. Several trades will be explored in terms of working conditions, physical requirements, labour market conditions, wage rates and support services. Hands-on projects in shop areas will give you an appreciation for the type of work the trades offer. You will have ample opportunity to meet and talk with women working in the trades. To find out which trades will be included in the next offering of this course, contact the Coordinator, Women in Trades. Funding may be available for those requiring assistance.

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BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

3700 Willingdon Avenue, Burnaby, British Columbia, Canada V5G 3H2 Tel (604) 434-5734