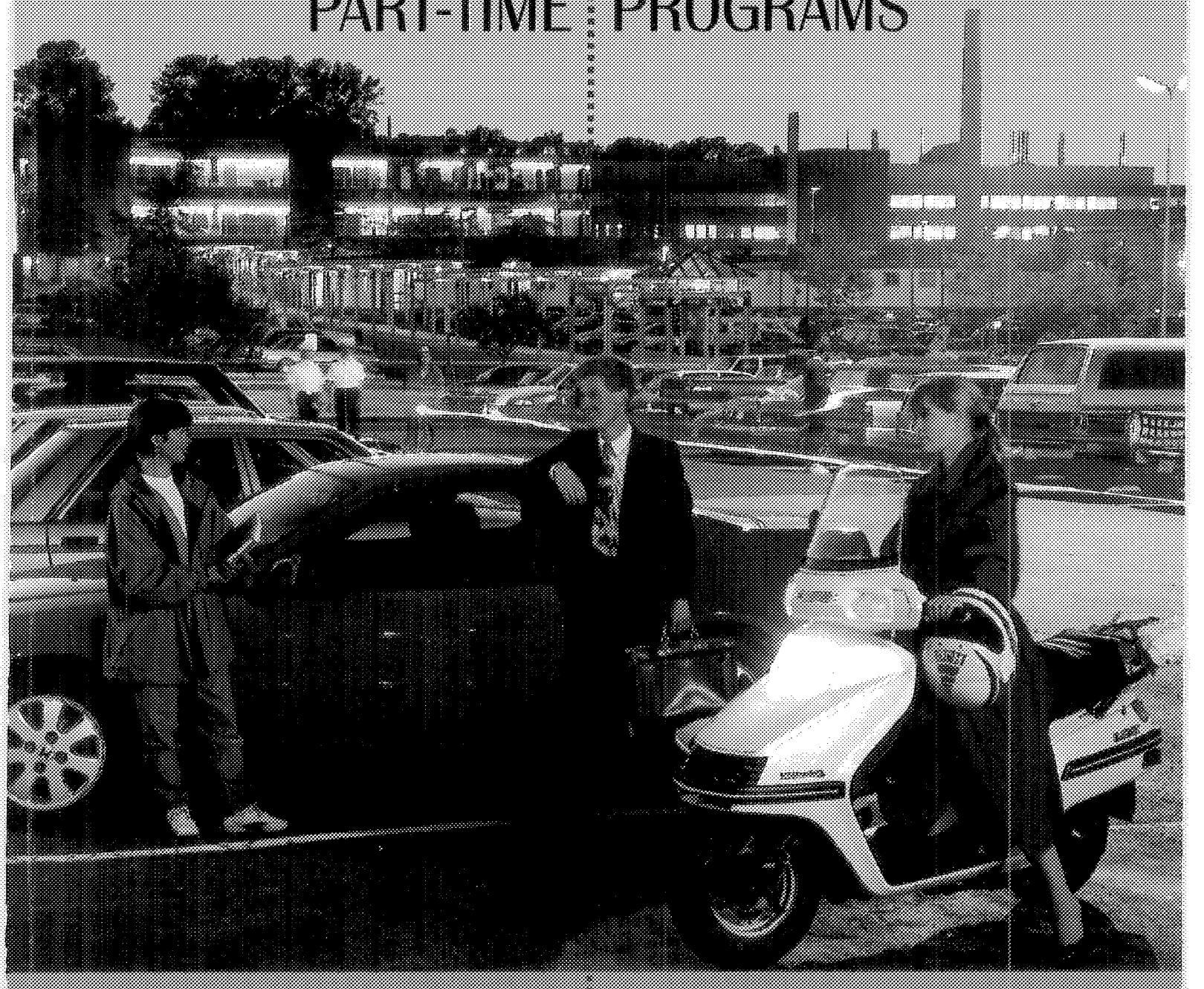
BCIT

PART-TIME PROGRAMS



CALENDAR 1994

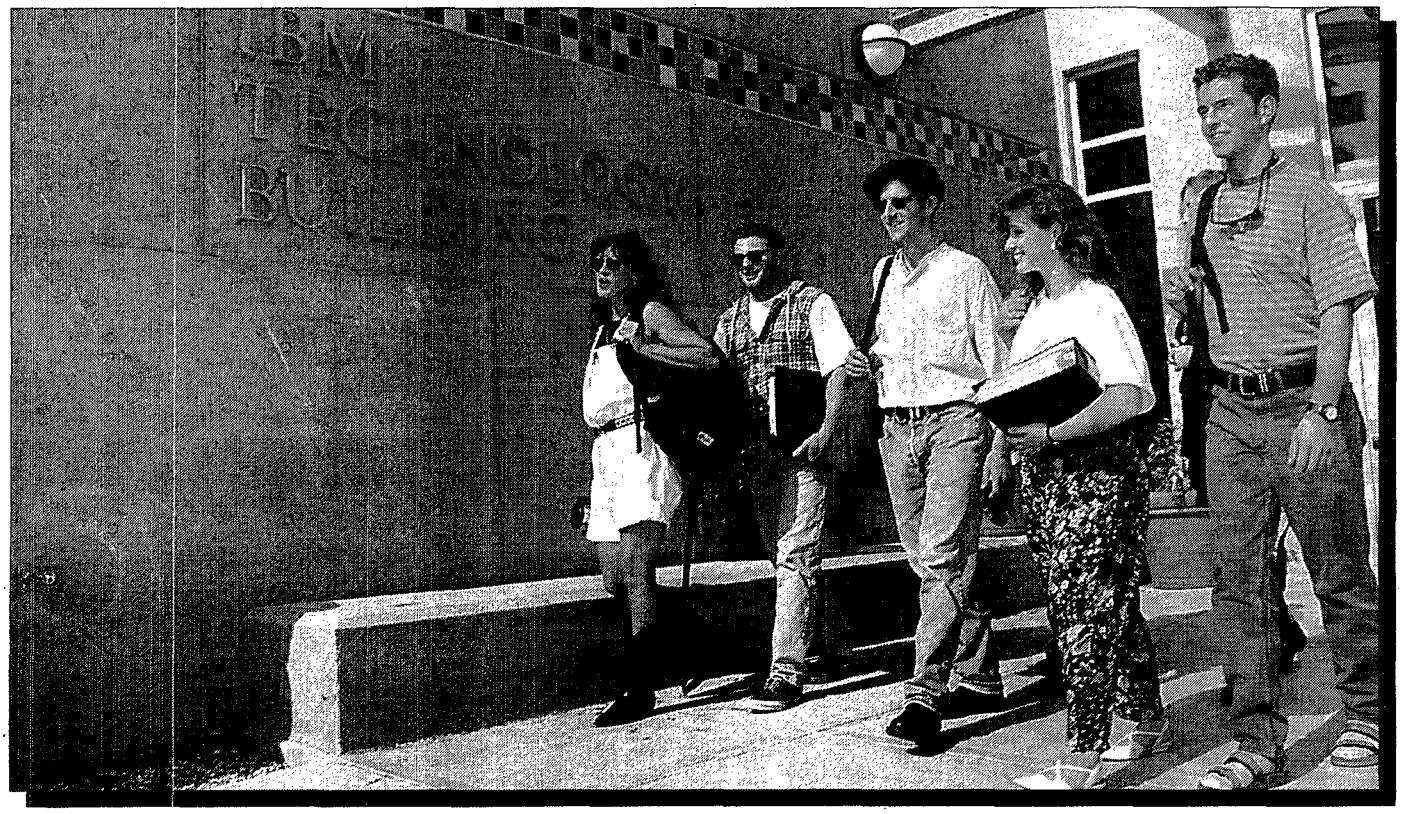
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

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 workforce vital to the establishment and continuance of advanced technology in British Columbia.



THE BCIT MISSION

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

CHANGES TO CURRICULA, REGULATIONS AND SERVICES

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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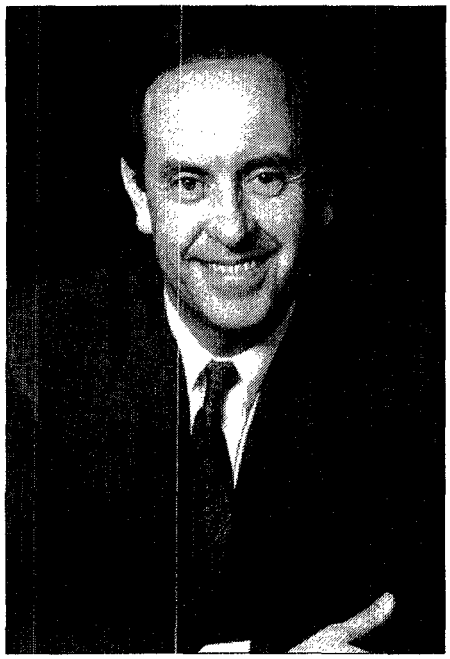

MESSAGE FROM THE PRESIDENT

At BCIT we are proud of our success in preparing first-class graduates for B.C.'s leading industries. The reputation of our job-ready grads is a trademark that prevails whatever program or individual courses you decide to choose.

At BCIT we focus on quality. In your review of the calendar you will find current programs taught by highly motivated educators who are also up-to-date in their fields. Our successful formula blends a traditional focus on theory with an emphasis on practical career-oriented instruction, to ensure you have the tools to succeed.

Keeping current in your field is so important these days and that's why so many are taking part-time courses such as those found in this calendar. Our faculty, support staff and management are committed to ensuring that these courses are both challenging and rewarding. I wish you every success in the part-time studies courses you choose.

John Watson
President

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ADMISSIONS / REGISTRATION

PART-TIME STUDIES CALENDAR

This publication contains details of all Part-time Studies programs, courses and workshops offered in Business, Electrical and Electronic Technology, Engineering Technology, Health Sciences and Trades Training at the British Columbia Institute of Technology.

Program plans leading to Certificates and Diplomas are described which offer the student both an educational goal and a valuable credential for employment and career advancement.

COURSE ADMISSION AND PROGRAM APPROVAL

Part-time Studies courses are taught at a level which assumes students have completed Senior Secondary School (Grade 12) or equivalent. The admission process is straightforward, simply complete the registration form for your first course and then register by fax, mail or in person. After you have taken a course at BCIT, subsequent course registrations can be made by phone as well. Some courses have specific prerequisites or special conditions for entry; these prerequisites or conditions are presented with each course description in this calendar or in flyer publications. Students should ensure they have completed the prerequisites prior to registering.

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.

Part-time Studies programs are designed to enhance career aspirations. If you are interested in pursuing a Certificate Program, program advisors are available to assist you in course selection and program planning appropriate to your career needs.

If you are beginning Part-time Studies in Engineering Technology you are advised to confer with a program advisor before you start. It is recommended that proposed programs be submitted to a program advisor for approval. Business students usually complete some courses before consulting a program advisor.

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

CLASS LOCATIONS/OFFICE HOURS

The Burnaby main campus and Downtown Education Centre offer year-round registration service for part-time studies courses. The Surrey, Maple Ridge and Sea Island locations have limited registration services.

1. BURNABY, MAIN CAMPUS /BBY

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

Full-time and part-time courses and programs.

Registration: Part-time	**434-1610**
Fax Registration: Part-time	**430-1331**
Admission:	
Full-time programs	432-8419
Records/Transcripts	432-8498
Payments	432-8732
Refunds	432-8212

Office Hours
Admission/Registration/General Enquiries

Mid-August to the first week in July the following year:
0830 - 1900, Monday to Thursday
0830 - 1630, Friday
0830 - 1230, Saturday
closed on holiday weekends.

July 13 to August 15:
0830 - 1630, Monday to Friday
Closed Saturday.

Registration hours of operation are currently under review, and are subject to change. Please confirm the hours with the part-time studies flyer throughout the year.

2. DOWNTOWN EDUCATION CENTRE /DEC

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

Part-time technology courses only.

Office Hours
When school is in session:
0830 - 1830, Monday to Thursday
0830 - 1630, Friday

Otherwise:
0830 - 1730, Monday to Thursday.

3. KASLO CAMPUS

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

Health part-time classroom courses only.

4. SURREY /SRY

594-2000
Princess Margaret Senior Secondary School
12870-72nd Avenue
Surrey, B.C. V3W 2N1

Part-time Business courses only.

5. SEA ISLAND /SEA

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

Full-time and part-time Aviation courses and programs only.

6. KINGSTON COLLEGE /HOL

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

Part-time Computer Systems courses only.

7. VANCOUVER /VCR/ANO

Ano Office Automation
380 West 2nd Avenue
Vancouver, B.C.

Part-time Computer Systems courses only.

8. LANGLEY /LLY

534-5470
#97 - 21405 56th Avenue
Langley, B.C. V3A 4R3

Electrical and Electronics courses and programs only.

9. MAPLE RIDGE /THC /MRC

463-8884
Thomas Haney Centre
23000 116th Avenue
Maple Ridge, B.C.

Maple Ridge Secondary School
21911C - 122nd Avenue
Maple Ridge, B.C.

Registration at Maple Ridge is limited to courses offered at that site.

ADMISSIONS / REGISTRATION

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	

CLASS TIMES

Classes at all sites run for three hours per night, one or two nights a week, Monday through Thursday, **unless otherwise noted** in the Part-time Studies flyer or at Registration.

BURNABY (BBY) TRADES	1900-2200
BURNABY (BBY) TECHNOLOGY	1845-2145
DOWNTOWN EDUCATION CENTRE (DEC)	1730-2030
HOLDOM AVENUE (HOL)	1845-2145
LANGLEY (LLY)	1900-2200
MAPLE RIDGE (MRC)	
SEA ISLAND (SEA)	1900-2200
SURREY (SRY)	1900-2200
VANCOUVER (VCR)	1845-2145

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 the other locations listed. The most common course formats are:

Total Hours	Course Format
18	6 wks, 1 night/wk
	Weekend, 2.5 days
36	6 wks, 2 nights or 1 day/wk
	12 wks, 1 night/wk
	1 wk (5 days)
54	18 wks, 1 night/wk
	9 wks, 2 nights/wk
72	12 wks, 2 nights/wk
	24 wks, 1 night/wk
	2 wks (10 days)
90	30 wks

DIRECTED STUDY/ CORRESPONDENCE/ GUIDED LEARNING

If you can't get to any of our classroom sites... BCIT 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.

Please call:

Transportation Systems	432-8784
Engineering Technology	432-8784
Health Sciences	439-4100
Business	432-8581
Academic Studies	432-8784
Trades Training	432-8277
Industry Services	432-8234

Note: Students with out-of-country addresses who are registering in correspondence courses will be charged double the assessed course fee(s).

CERTIFICATES AND DIPLOMAS

CERTIFICATE PROGRAM APPROVAL

BCIT offers certificates through many of its programs in Business, Electrical and Electronic Technology, 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 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 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 detailing the proposed courses and programs. Forward submissions to Student Records or the appropriate program department, Business, Electrical and Electronics, Engineering, Health Sciences or Trades Training (as applicable). Please allow four to six weeks for processing.

BUSINESS, ELECTRICAL AND ELECTRONIC TECHNOLOGY, ENGINEERING TECHNOLOGY, HEALTH SCIENCES AND TRADES TRAINING CERTIFICATES AND DIPLOMAS

Outlines of certificate and diploma programs are located in the individual program 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.

ADMISSIONS / REGISTRATION

<table>
<tr><th>Levels of Certification</th><th>Business</th><th>Engineering Technologies</th><th>Health Sciences</th><th>Trades Training</th></tr>
<tr><td>Advanced Diploma</td><td>Advanced Diploma in Business</td><td>Advanced Diploma in Engineering Technology</td><td>Advanced Diploma in Health Science</td><td rowspan="2">Diploma of Trades Training
Minimum 1900 hrs</td></tr>
<tr><td>Advanced Certification</td><td></td><td></td><td>Advanced Specialty Certificate</td></tr>
<tr><td rowspan="2">Diploma</td><td rowspan="2">Diploma of Technology</td><td>Industrial Education Dip.</td><td rowspan="2">Diploma of Technology</td><td>Advanced Certificate of Trades Training
Minimum 400 hrs</td></tr>
<tr><td>Diploma of Technology</td><td>Certificate of Trades Training
Minimum 600 hrs</td></tr>
<tr><td>Certification Level 3</td><td>Senior Management Certificate</td><td>Industrial Education Cert.
Certificate of Technology</td><td>Certificate of Technology</td><td rowspan="3"></td></tr>
<tr><td>Certification Level 2</td><td>Management Certificate</td><td>Intermediate Certificate of Technology</td><td>Certificate & Health Care Mgmt Level 2</td></tr>
<tr><td>Certification Level 1</td><td>Associate Certificate</td><td>Associate Certificate</td><td>Health Care Mgmt Certification Level 1 & Associate Certificate</td></tr>
<tr><td colspan="5">Statement of Completion & Attendance</td></tr>
</table>

- 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 page 13 "Program Advising."

Applications are available in this calendar, from Registration or 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 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 completed academic course work. Students must confer with a program advisor and obtain program approval before beginning a diploma program.

INDUSTRY SERVICES 432-8234

Ron Isaak, Dipl.T., A.Sc.T., Manager, 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.

All of the 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.

ADMISSIONS / REGISTRATION

COMPUTERIZED MAINTENANCE PROGRAM
432-8638

Eric Morse, Program Head, 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 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.

ENTREPRENEURIAL CENTRE

The Entrepreneurial Centre offers two programs. The first, The Venture Program, is targeted to individuals who contemplate starting a new business. The second, The Venture Growth Program, targets companies in business that are looking toward growth, increased profitability and risk reduction.

VENTURE PROGRAM
432-8767

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 business start-up program called The Venture Program was initiated as a major pilot project followed by two regular intakes each school year since 1989. The ideal candidate has been an individual seeking an opportunity to develop a viable business related to a technology or trade program focus and has a definite career preference to set up and manage an independent business.

The Venture 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. Programs start in September and February of each year.

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

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.

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 networking in the 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: Call the Entrepreneurial Centre to set up an appointment to view the video and to meet the Manager.

OFFICE OF THE REGISTRAR

The office of the Registrar is located in building SW1 on the first floor, facing Willingdon Avenue.

Mario Mazziotti, Registrar
Jeri Fostvelt, Associate Registrar
Dawna MacKay, Systems Assistant
Michelle Philippe, Systems Assistant

ADMISSIONS/REGISTRATION

434-1610 (Part-time Registration)
432-8419 (Full-time Admission)
Admissions/Registration receives and processes all applications for full-time programs and part-time courses. Registration for part-time courses can be made in person, by fax or mail. Students who have previously taken a course or program at BCIT may register by phone.

ADMISSIONS / REGISTRATION

Enquiries for program information and application requests should be directed to Student Services at 434-3304. Enquiries from outside the greater Vancouver area may use the Toll Free Number 1-800-667-0676.

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
Closed on holiday weekends

First week in July to mid August
0830 - 1630, Monday to Friday
Closed Saturday

Between Christmas and New Year's Day
0830 - 1630, Monday to Friday
Closed Saturday

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

Lois Nightingale, Supervisor
Rory Kine, Senior Registration Assistant
General enquiries:

Part-time Registration	434-1610
Application requests:	434-3304
Admissions:	
Full-time Programs	432-8419

STUDENT RECORDS 432-8498

The following services are provided by the Student Records Department:
1. Transcript requests
2. Verification of attendance
3. Course credit evaluation
4. Graduation eligibility
5. Certificate/Diploma processing

Susan Morphet, Supervisor
Rosa Kajic, Part-time Studies Marks Assistant: 432-8276

TIMETABLING 432-8451

The Timetabling Department produces the Institute's master timetables for all full-time and part-time programs and full-time technology examinations. External groups wishing to book rooms should enquire at this office.

George Brown, Supervisor

REGISTRATION AND FEES 434-1610, FAX: 430-1331

Registration is course-by-course on a first-come, first-served basis. First-time students must complete a registration form and return it by fax, mail or in person. Registering by phone is not available for first-time students. If you are paying by Visa or MasterCard, the registration form may be returned by mail or by fax. Mail registration should be forwarded to Registration. Once you have registered at BCIT, you may register by phone or fax for your next courses if paying by Visa or MasterCard.

The recommended deadline for registration in person is two months before classes commence, the earlier you register, the more likely you are to get your preferred course(s). Expect delays of 10 - 30 minutes if you wait until just before classes start.

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 your fees are to be paid by your employer, written authorization on company letterhead must accompany your registration form.

Late Registration

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

Cancellation and Restricted Enrolment

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

Part-time Day Course-by-Course Registration

You may register in courses offered in full-time programs subject to the approval of the Registrar and program head, if space is available, and if you have official proof that you have met the prerequisites.

Students 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. Tuition fees are due and payable at time of registration. The late fee policy for full-time day students applies also to part-time day students. First-time applicants to part-time day courses must meet the Institute's general admission requirements of English 12 and citizenship status.

FEES

Fees must be paid in full 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 Part-time Studies flyer available at registration locations. 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 14 for information on financial assistance for part-time students.

MISCELLANEOUS FEES

Please note the following miscellaneous fees for the academic year 1993/94.

NSF/returned cheques	$15
Duplicate diploma/certificate	$50
Duplicate tax receipt (T2202A)	$10
Challenge exam	Cost of course
Reinstatement/late fee payment, after first week	$50
Reinstatement/late fee payment, after 30 days	$150
Reassessment of marks, per course	$25
Appeal, per course	$50
Transcript of marks, first copy	$5
each additional copy	$1
Course transfer/change, Part-time Studies courses only	$15
Refund processing, Part-time Studies courses only	$25

ADMISSIONS / REGISTRATION

CASHIER'S HOURS

The Cashier's Office is open during the same hours as registration. 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 enrolments are insufficient and regret any inconvenience this may cause.

COURSE TRANSFER/CHANGE — $15 FEE

A $15 fee is 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 following 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

It is the student's responsibility to check the refund deadline dates. This information can also be obtained from Registration or the Cashier, ground floor SW1 Building.

Full refund, less 15% if within the following guidelines:

Course Duration	Deadline Dates
Over 4 weeks	1 day prior to the 2nd 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. Fifteen percent 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 (1994) (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.

TRANSFER FROM FULL-TIME TO PART-TIME STUDIES

A student transferring to part-time studies from a full-time program may be granted credit exemption for courses successfully completed prior to withdrawal from full-time studies. A student who wishes to discontinue one or more subjects in 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, 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 as 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 of CH EXAM will appear beside course name, and a grade "CCR" is recorded as of January 1994.

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 contact their Associate Dean.

KEY TO GRADES AND STANDING CODES

BCIT's grading system is based on a percentage grade for most courses, with some courses issuing separate theory and practical marks for a single course. Course passing grades vary, and courses may be assigned a standing code instead of a percentage grade. Following are the approved grades and standing codes.

Grade	Description	Calculate in GPA?
0% - 100%	Depending on the program, the minimum passing grade for courses could be 50%, 60%, 65%, 70% or 80%	Yes
%A	Aegrotat pass standing granted to a student who has a good term record but has an incomplete evaluation due to illness or other extenuating circumstances.	Yes
%T	Provisional Pass standing — this is a temporary grade standing granted on the basis that the student will reach a pass standing in a continuing course. The %T will be changed to a '%P' (pass) or '%F' (fail) depending on the outcome in the continuing course.	Yes
%P	Pass standing granted whereby conditions of provisional pass are satisfied. The minimum pass standing for the course is awarded.	Yes
%J	Adjudicated pass standing for course marks raised to a pass based upon overall program performance, permitting the student to continue in the program or to graduate. The minimum pass standing for the course is awarded.	Yes
%F	Minimum passing requirements not satisfied.	Yes
0F	Course abandonment	Yes zero (0) value
W	Approved withdrawal within the withdrawal deadline.	No
F	Approved withdrawal after the withdrawal deadline. Grade standing to be discontinued effective September 1995.	No
S	Satisfactory standing, course requirements fulfilled, no % mark assigned.	No
U	Unsatisfactory standing, course requirements not fulfilled, no % mark assigned.	No
CCR	Credit granted by successful completion of a challenge exam.	No
ECR	Exempt credit granted for a similar course taken at BCIT.	No
TCR	Transfer credit for recognition of approved equivalent studies outside of BCIT.	No
AUD	Audited Course, no credit given.	No
ATT	Non-credit course, only attendance is required, no evaluation process.	No
CIP	Course in progress.	No
EXT	Refer to outside source for grade (e.g. Apprenticeship Programs).	No
INC	Course requirements not complete and must be satisfied by a specific date.	Yes zero (0) value

NEW COURSE NUMBERING

Effective January 1, 1994, BCIT introduced a new course numbering system. Courses are assigned a four-character subject code representing the teaching department responsible for course content, and a four-digit number with the first digit used to indicate the level of difficulty. Course numbers prior to 1994 will remain unchanged on academic history.

Non-credit	Entry Level: Certificate and Diploma Level	Advanced Studies: Advanced Diploma Level
0XXX	1XXX	5XXX
	2XXX	6XXX
	3XXX	7XXX
	4XXX	8XXX

NEW GRADING SYSTEM

Effective January 1, 1994, BCIT implemented a new grade management and reporting system. Grades from 1964 and onwards were combined onto one system and printed on a common transcript. However, due to some system incompatibilities, grades from courses taken prior to 1984 will not be calculated in the GPA, and will not show in the earned or GPA course credit hours.

Grade Point Average (GPA)

The GPA is a percentage value from 0-100, which is calculated by accumulating the product of course credit hours and percentage grades (Pts), and dividing by the total course credit hours (GPA-Hrs). The GPA values are rounded up or down to the nearest whole percentage value.

GPA = (Pts/GPA-Hrs) Rounded

The GPA is not computed for those programs that did not use grade point averages prior to 1994. Those courses not included in the GPA calculation have an asterisk (*) beside the earned grade value. Total earned credit hours (Ehrs) is the accumulation of credit hours of all passed courses and transfer credit granted. Earned credit hours (Ehrs) appears on the transcript, but is not used in the GPA calculation. The table to the left clarifies which grades are used in the GPA calculation.

Continued on page 8

ADMISSIONS / REGISTRATION

New Grading System continued from page 7

Term Grade Point Average (TGPA)

The TGPA is calculated from courses taken in the term.

Credential Grade Point Average (CGPA)

CGPA is calculated for those students graduating in or after 1994. Only those courses used towards the credential are used in the calculation.

Overall Grade Point Average (OGPA)

Student records prior to 1994 will have the OGPA showing on their transcript, and will only include those courses belonging to the program in the OGPA calculation.

Awards and Honours GPA

Refer to the published full-time calendar 1994/95, page 34, for explanation.

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 Registrar's Office. All other students will receive a Statement of Marks for the term.

OFFICIAL TRANSCRIPTS

These are prepared on written request, by mail, by fax or in person. Faxed requests will require original signature of requestee, MasterCard or Visa number, and current phone number. There is a $5 charge for the first copy and $1 for each additional copy. Please submit your request to Student Records and allow at least two weeks for preparation time.

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 REASSESSMENT AND APPEAL

Registrar's Office 432-8848

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.

The Institute Marks Reassessment and Appeal Procedures are available at the Office of the Registrar. Strict timelines are in effect and it is the student's responsibility to initiate appropriate action. Contact the Registrar's Office for more information.

COURSE AUDIT

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

ATTENDANCE

See Conduct and Attendance, page 9.

COURSE CREDIT

A credit is defined as one 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, and whether the course is a lab (clinical or practicum).

TRANSFER CREDIT

Transfer credit is a means whereby students 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 students request transfer of credit must be related to the students' 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 program.

Transfer Credit Application Procedure

Students must apply in writing and must provide the following:

1. 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.
2. Official transcripts from the institutions where the courses were taken, (photocopies are not acceptable).
3. A course description which outlines:
   (a) the topics 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.

It is the student's responsibility 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 four to six 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.

The Part-time Studies Registration form, the Application for Certification form, and the Part-time Studies Application for Program Approval/Transfer Credit form can be found in the back of this calendar.

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 creditworthy 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 unless otherwise stated.

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 program. 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 for courses other than Advanced Nursing. When a course is successfully challenged, the number of credits required to complete a program is reduced. (See page 6, "Challenge Exams for Credit.")

"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.

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. Submissions should include course content, duration, qualifications of the instructor and any pertinent data.

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.

POLICIES

PERSONAL DATA

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

AIDS POLICY

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

DISABLED ACCESS

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

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. The Institute is committed to create and maintain an environment that is conducive to learning. In doing so, students are expected to conduct themselves appropriately at all times, respecting others' rights, property, environment, health and safety, and are held responsible for their individual and collective actions. An instructor who believes a student's conduct in the classroom is detrimental to the course goals, objectives and learning outcomes, may assign the student a failing grade for the course. For misconduct outside the classroom, the Dean may recommend to the President suspension from further attendance. The President has the final power to suspend or expel a student for disciplinary reasons. A student expelled or suspended for misconduct will not be permitted on Institute grounds or buildings.

2. Honesty is expected and required of all students. This implies fairness, straight forwardness of conduct, academic integrity, adherence to the facts and trustworthiness. Acts of cheating, plagiarism and dishonesty are not tolerated; the degree of punitive action may range from a written warning to expulsion from the Institute. These penalties may also be applied to students who knowingly contribute to the act of dishonesty, cheating and plagiarism.

Definitions

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

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

Continued on page 10

Conduct and Attendance continued from page 9

2.2 ***Plagiarism:*** means the presentation by a student of materials or work prepared by another person or persons, as the student's own work and without reference credits. It includes, but is not limited to:
(a) literary theft;
(b) presenting as new and original an idea or product derived from an existing source;
(c) failing to expressly acknowledge research or preparation conducted in whole or in part in respect of a term paper, project, report, or other form of assessment other than the student claiming authorship to the term paper, project report or other form of assessment.

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

3. The Institute is not responsible for debts incurred by student organizations.

4. If, through carelessness or negligence, a student damages Institute property, the student will be held responsible. If the damage is caused by students whose names are not known, the cost of repairing the damage may be assessed equally among all students enrolled at the Institute.

5. A student will not be permitted to borrow or remove any apparatus or tools except by written authority of the President or his delegate.

6. General supervision over all forms of entertainment given under the auspices of a student organization comes under the jurisdiction of the President.

7. It is the policy of BCIT to rely on the 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, students may be required to wear uniforms or otherwise dress themselves in the appropriate manner acceptable to the affiliating agency. Based on experience to date, BCIT faculty believe that there is a positive relationship between general dress standards and employment of graduates. Faculty are prepared to advise students in the area of acceptable attire.

FRAUDULENT DOCUMENTS

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

ATTENDANCE POLICY

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

Student Responsibility

1. In case of illness or other unavoidable cause of absence or lateness, students must communicate as soon as possible with their Program Head or Chief Instructor, indicating the reason for absence. Failing to give an acceptable reason for being absent or late will result in the student having an "unexcused absence" for that day.

2. Prolonged illness of three or more consecutive days must have a doctor's certificate sent to the Program Head or Chief Instructor substantiating the absence. Failure to provide a certificate will result in these absences being unexcused.

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

Trade Programs

1. Students who fail to report absences of three or more days to departments.

2. Students who are absent for any cause, for more than 10% of the course/program.

3. Students who are late for any cause on an average of more than once per month.

Technology Programs

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

Special Regulations

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

Appeals

Students may appeal the decision through the normal academic channels. For more details on appeal procedures, please contact the Registrar's Office at 432-8848.

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 users' passwords, or to use any password discovered by chance. Take all reasonable precautions to prevent anyone from discovering your password. Report immediately any suspected "leak" of a password so that it may be changed. (Where two or more persons use the same password, which may be necessary on group projects, all those persons share responsibility for that password.)

b) Do not attempt to read or copy any information stored on the computer system unless explicitly authorized to do so. This includes information which has been stored by Computer Resources, by other computer users, by a commercial vendor or by any other party.

c) Do not use institute computer facilities for non-institutional projects, or for personal or commercial purposes, unless written authorization has been received from the Information and Computing committee.

d) Do not move any computing equipment, and be extremely careful to avoid damage.

Users of the computer systems are cautioned that violation of the above rules may disrupt service to themselves and others. Furthermore, it could violate a copyright or other nondisclosure 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.

ADMINISTRATION

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Catherine Daminato, B.Sc., M.B.A., Director of Development

School of Business

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

School of Electrical & Electronic Technology

Dennis C. Duffey, Dean

Ron Bushell, Coordinator Part-time Studies, Electrical/Electronic Trades
Ernie Hancock, Coordinator Part-time Studies, Electronics Engineering Technology
Elayne Anderson, Program Assistant, Part-time Studies

School of Engineering Technology

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Ron Isaak, Dipl.T., A.Sc.T., Assistant Director, Industry Services

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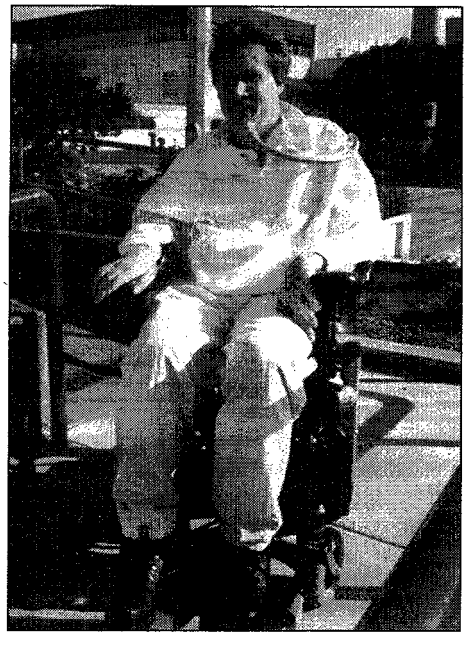
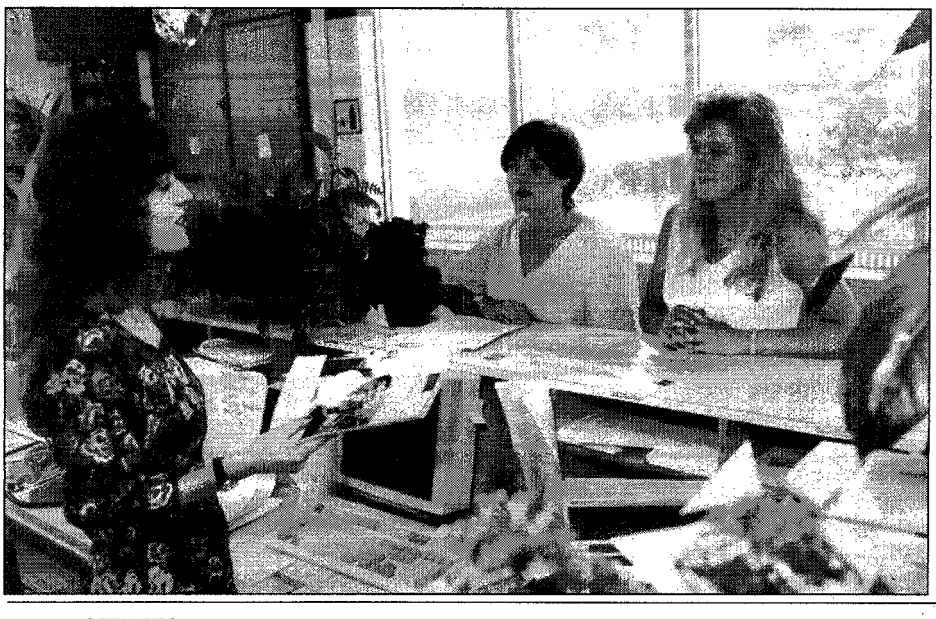
Sonia Williams, B.A. (Hons.), M.Ed., F.S.R., Program Coordinator

School of Trades Training

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

Bill Sheppard, Program Assistant, Aviation Programs
Nancy Naylor, Program Assistant, Construction and Metal Industries
Shirley Butler, Program Assistant, Mechanical Industries Training





SERVICES

STUDENT SERVICES
434-3304

The Student Services reception area for Program Advising, Counselling and Financial Aid and Awards is located at the northwest corner, 2nd floor, Building SW1. Normal hours of operation are 0830 to 1630, Monday to Friday. However, evening services are available at various times of the year.

Staff

Val Karpinsky, B.A.(Hons.), Director, Enrolment Management Project
Jim Mitchell, Acting Director, Student Services
Sandie Mooney, Office Administrator
Jan Wadsworth, Clerical Supervisor
Mariana Aussem, Clerical Support
Glenda Hopkins, Clerical Support
Lisa Lawley, Clerical Support
Darlene Napper, Clerical Support
Lisa Pedersen, Clerical Support
Muriel Shaw, Clerical Support
Joyce Davidson, Admin Assistant, Services for Students with Disabilities

PROGRAM ADVISING
434-3304

We can help you get the most out of your Part-time Studies.

At the Burnaby campus, program advisors for part-time studies are available throughout the year. To make an appointment, or for more information, please call us. Evening appointments are available during the fall, winter and spring terms.

Program Advisors

Raelene Christie, B.A., Coordinator
Linda Becerra
Katy Bobetsis, B.A., Dipl. T.
Chikako Fong, B.A.
Pat McCall, B.A.
Midge Mason, B.A., B.Ed.

Program Advisors - Part-time Studies
Sandra Arnott, School of Business
Ann McNaughton, Cert., Schools of Engineering Technology, Trades Training and Electrical & Electronic Technology
Chris Lloyd, Dipl.T., School of Business

Contact the School of Health Sciences Kaslo campus at 439-4113 for program advice on Health Part-time Studies.

COUNSELLING
434-3304

Our Counselling Department offers assistance in a variety of areas such as:

- educational support while attending BCIT
- personal counselling
- career planning
- services for students with disabilities
- orientation to BCIT
- student success workshops
- crisis counselling
- program information sessions
- student life and career resources
- career search workshops.

Counsellors assist you:

- to develop strategies to enhance your educational performance and to maximize your experience as a student
- with decision-making, problem-solving and achieving your career/educational goals
- with accessing resources and services and receiving support if you have a disability.

CAREER SEARCH WORKSHOP (HRMG 0315)
434-1610

A series of special workshops lead by professionally trained career counsellors is offered to help you set goals and plan your career based on your own personal interest, values and abilities.

BCIT's Career Search Workshop will help you:

- 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 12-hour course covers:

- interest testing
- aptitude testing
- values clarification
- decision-making
- goal setting and implementation.

Participation is limited to 15, so register early for either the four-session weekday evening or two-session Saturday workshop.

SERVICES FOR STUDENTS WITH DISABILITIES
434-3304

BCIT is committed to providing access and support to students with disabilities. We offer a variety of support services including:

- agency liaison
- tutoring
- taped books
- proof readers
- assistance with campus access
- interpreting services
- note taking
- enlarged print handouts
- exam adaptations
- learning strategies

It is recommended that three to four months lead time be given to access support services, particularly for taped books and visual language interpreting services. Content tutoring is available subject to the availability of peer tutors. We also require a current assessment from students with learning disabilities to determine learning strengths so appropriate support services can be identified. To arrange for an interpreter for a counselling appointment please contact the Western Institute for the Deaf and Hard of Hearing at 736-7391.

Counselling Staff

Our counsellors are professionally trained and committed to providing the highest level of service consistent with accepted ethical standards.

Shirley Coomber, B.Ed., M.Ed., A.R.W, Counsellor and Services for Students with Disabilities
Stu Gibbs, B.A., M.S.Ed., Counsellor, Trades Training Liaison
Heather Hyde, B.A., M.A., R.Psych., Counsellor, Health Sciences Liaison
Derek McLauchlan, M.A., Ph.D., Learning Specialist, Services for Students with Disabilities
Howard Peto, B.S.A., M.Ed., Counsellor, Business Liaison
Jean Spence, B.A., M.Ed., Counsellor, Engineering Technology Liaison
Linda Young-Jones, B.A., M.Ed., Counsellor, Services for Students with Disabilities
Joyce Davidson, B.A., Administrative Assistant, Services for Students with Disabilities

SERVICES

FINANCIAL AID FOR PART-TIME STUDENTS
432-8555

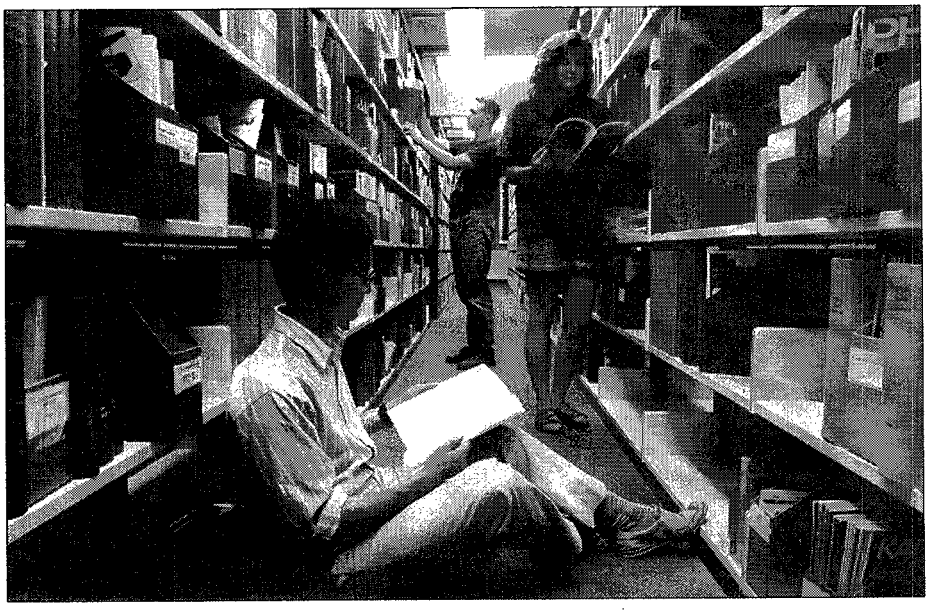
Limited financial assistance is available to students registering for part-time programs or programs of short duration. This assistance is based on financial need. Applicants submitting a completed "Part-time Student Assistance Application" form will be considered for the following types of assistance:

1. British Columbia Part-time Student Assistance Program

BCPTSAP is non-repayable grant funding to assist students with tuition costs. The emphasis is on aiding single parents and mature adults who can prove high financial need. To be eligible to apply, a student must normally be taking courses at least 12 weeks in length that represent up to 59% of a full program of studies. A student must be taking credit courses leading to their first certificate, first diploma or first degree. Part-time Student Assistance applications can be obtained from the Financial Aid Reception in Student Services. Application deadline: 21 days before classes start.

2. BCIT Part-time Bursaries

Part-time bursaries are non-repayable grants intended for BCIT students who have high financial need. 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. Students attending BCIT on a part-time basis can apply (as well as students attending full-time programs less than 12 weeks in duration). A student must be taking courses leading to their first certificate, first diploma or first degree. Part-time Student Assistance applications can be obtained from the Financial Aid Reception in Student Services. Application deadline: 21 days before classes start.



3. Adult Basic Education Student Assistance Program

ABESAP is non-repayable grant assistance for financially-needy students taking pre-entry or upgrading courses including:

Chemistry 0001, Communication 0004, 0005, 0008, 0020, 0021, 0022, Mathematics 0001, 0002, 0004, Mathematics for Business OPMT 0199, Physics 0304, 0309, Career Search Workshop HRMG 0315, Trades Exploratory Program for Women, TEXP 0110, 0111, 0112, 0113.

Part-time Student Assistance applications can be obtained from the Financial Aid Reception in Student Services. Application deadline: 21 days before classes start.

Further information on financial assistance for part-time students can be obtained from the Financial Aid Reception in Student Services, Building SW1, Room 2300. Office hours: 0830 - 1630, Monday to Friday.

Financial Aid and Awards Staff
Jennifer Orum, B.Ed., M.A., Coordinator
Jim Anderson, B.A., Senior Advisor
Siok Ang, B.A. (Hons.), D.P.M., EXD, Advisor
Heather Azar, Financial Aid Assistant
Angie Chan, Dipl. T., Advisor
Lisa Ho, Financial Aid Assistant
Hanne Logan, Senior Financial Aid Assistant
Cathy Schweers, Advisor
Avalon Tagami, Advisor

LIBRARY
432-8370

Did you know that as a part-time student you are entitled to the same library privileges as day school students? The library is open during the term seven days a week, evenings and weekends, especially to give part-time students ample opportunity to obtain the information and help they need.

From September to June hours are:
0730 - 2230, Monday-Thursday
0730 - 1700, Friday
0900 - 1700, Saturday and Sunday
For June, July and August hours, please call 432-8557

The library has a wide variety of books, periodicals, technical reports, videos, computer software, maps, etc. There are also specialized collections of legal materials, standards, Statistics Canada publications and much more. The library is wheelchair accessible and has special needs facilities such as a print-to-voice machine for the visually challenged. The library also has the latest in computerized information access including more than 20 CD-ROM packages. It's your library. Let us help you with your information needs.

SERVICES

Overdues, Fines, Replacement Policies

The purpose of fines is to protect the rights of all library users and provide an incentive to return books promptly. Overdue notices are mailed out. Overdue loans result in the blocking of further loan transactions. A non-refundable 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.

Library Staff

Brigitte Peter-Chernoff, B.A., P.D.P., 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
Robert A. Roy, B.A., M.A., B.L.S., Public/Technical Services Coordinator
Gerry Weeks, B.A., B.L.S., M.L.S., Reference Librarian - Business/Reference Services Coordinator

FIRST AID

432-8820 — EMERGENCY
432-8872 — NON EMERGENCY
451-6856 — SECURITY
911

First aid attendants are on call as follows:

0700 - 2200, Monday - Friday
0830 - 1530, Saturday
Attendants are located in Building NE16.

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 911 advising them to enter the campus via Willingdon/Goard Way;
  (iii) Call security at 451-6856 (24 hrs), 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 Building NE16.

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 911.

Sea Island campus

0800 - 1600, Monday - Friday

SPS
SAFETY • PROTECTION • SECURITY

SPS SAFETY TIPS
Familiarize yourself with campus services like phones, emergency exits and well-lit areas.

FOOD

There are many food outlets on campus for you to choose from. Hours of operation and locations are as follows. Please note that opening hours may vary at different times of the year.

Town Square Cafe (Building SE2)

Monday to Thursday	0630 - 2100
Friday	0630 - 1500
Saturday	Closed

Campus Cafe (Building SE12)

Monday to Thursday	0700 - 2100
Friday	0700 - 1530
Saturday	0800 - 1400

JW Inglis (Building NE1)

Monday to Thursday	0600 - 2100
Friday	0600 - 1500
Saturday	0800 - 1400

Electrical Training Centre (Building SE1)

Monday to Friday	0630 - 1430
Saturday	Closed

Roadrunner (Building SW1)

Monday to Thursday	0730 - 2100
Friday	0730 - 1430

Student Activity Centre (Building SE16)

The White Spot operates their "Legendary Grill" in the pub area of the SAC offering a varied menu ranging from salads and sandwiches to appetizers and the legendary burgers. Last orders for the grill are at 1830. The grill is open from Monday to Friday, 1100 - 1900.

SERVICES

HOUSING
432-8677

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 the 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 to Friday	0830 - 2200
June - August	
Monday to Friday	0830 - 1630

Address

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

Location

Southwest corner of Burnaby campus, Salish House, Maquinna Residence.

MEDICAL SERVICES
432-8608

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

Medical Services operates as a regular doctor's office as well as providing many additional services. These can include immunizations and allergy shots, some free medications, STD (sexually transmitted disease) information and testing, weekly wart clinics, pregnancy tests, pap test, ice bags and tensors, bandages, crutches and canes, blood pressure checks, literature and pamphlets on health issues and beds for resting.

A psychiatrist, physiotherapist and dermatologist are also available. All visits are strictly confidential. Referral to either the physiotherapist, psychiatrist or dermatologist is through Medical Services or your own physician. The physiotherapist's office is adjacent to the Medical Services facility.

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

TRANSIT
261-5100

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 number of zones travelled; passes are available from "This 'n That" stores on campus.

For information about bus routes, fares and schedules within the Vancouver Regional Transit System, call the Metro Transit Information line at 261-5100. You can also pick up bus schedules for Greater Vancouver at the Maquinna Residence.

PARKING
432-8719

The student parking fee for the Fall term 1993 is $12 (subject to change). All vehicles parking on the Burnaby campus, day or night, must display a valid Institute parking permit. Paid parking is in effect 24 hours a day, year-round.

Parking permits may be purchased from the cashier's office adjacent to the registration area, Building SW1. Permits are valid after 1700 in staff or student parking lots but not in visitors parking lots. Visitor parking is managed by a private company.

Cashier's hours

0830 - 1900, Monday to Friday
0830 - 1230, Saturday
Closed on Holiday weekends

These hours will be extended during peak registration times.

Payment can be made by Visa, MasterCard, cash or cheque. Please ensure that BCIT has your correct address on file as all receipts, transcripts, certificates will be mailed to that address.

Vehicles not displaying a valid parking permit are subject to impoundment. Vehicles should be kept locked at all times. BCIT does not accept liability for theft or damage to vehicles parked on campus.

Please note: *Night school parking permits are only valid in staff and student spaces after 1700. These permits are not valid in visitor spaces governed by the ticket dispensing machines. Vehicles parked in visitor spaces must display a valid ticket from the machines at the rate of one looney valid from 1800 to 0600 next morning.*

Parking for the Physically Challenged

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

SERVICES

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 451-6856

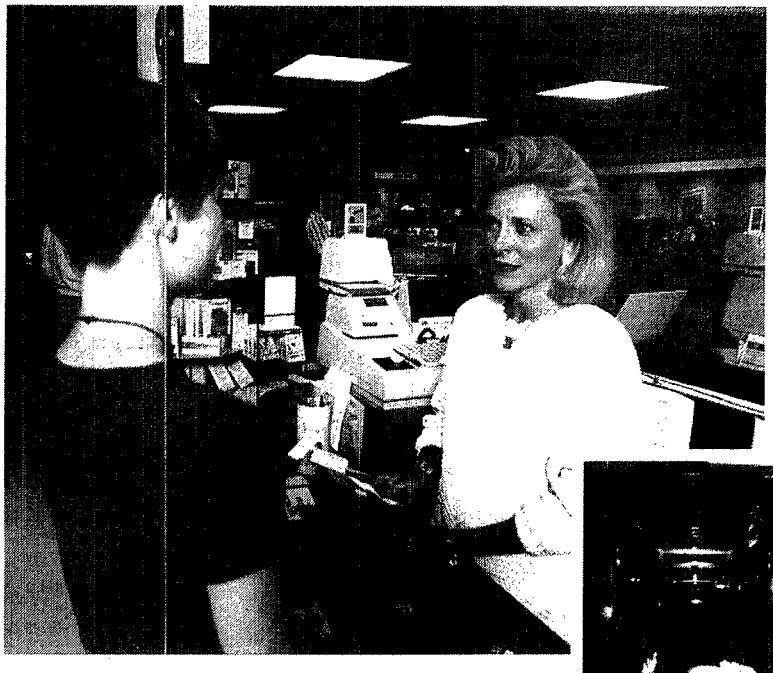
Vehicle breakdowns or other problems should be referred to security staff who will assist if possible.

EMPLOYMENT PLACEMENT SERVICES (EPS) 432-8666

Employment Placement Services assists BCIT students and alumni in finding part-time, summer, and career related full-time employment. The office is located in SW1, Room 2160 (down the hall from Student Services).

Hours of operation:
0930 - 1600, Monday-Thursday
0930 - 1500, Friday

Staff
Amanda Hill, B.A., Manager
Phillipa Dermott, Employment Officer



BOOKSTORE/TEXTBOOKS 432-8379, FAX: 432-7923

Get your books and school supplies at the BCIT bookstore located at the S.E. corner of the library in Building SE14. 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, engineering and drafting supplies as well as computer reference books are available.

Bookstore hours are under review, but generally 0800 - 1600, Monday to Friday, with many extended hours throughout the year. Please call 432-8379 to confirm.

BCIT Downtown, 549 Howe Street, course books are usually available the first day of class. Call 687-4666 for hours of operation.

The Burnaby location welcomes personal cheques, VISA, MasterCard, and Interac Direct. Students' course books may be invoiced if prior arrangements by letter of authorization have been made with the bookstore.

Not all satellite locations have facilities for selling course books, as complete duplication of retail services is not feasible. Please call 432-8379 to confirm availability.

The following locations only offer limited course book availability solely for their specific programs, usually at start of class:

Health Part-time Studies: Kaslo Campus
Avionics: Sea Island Campus
Computer Courses: Kingston College & ANO Office Systems
Correspondence Courses: Contact specific department for materials.

USED TEXTBOOKS

Limited quantities of used books are available at term start-up. Personal shopping only. Used book buybacks are in September, January, and May. Please call for exact dates and times.

SERVICES

RECREATION & ATHLETICS 432-8282/432-8287

BCIT offers a variety of indoor and outdoor recreational facilities designed to appeal to most students. These include four racquetball/handball courts 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, stair master, rowing machine, 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 available.

Hours of operation
September - May:
0645 - 2300, Monday - Thursday
0645 - 2100, Friday
0900 - 1700, Saturday
0900 - 1700, Sunday
TBA, June - August.

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

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. For Racquet Court bookings and after hours information call 432-8612.

Guests — Students and staff may bring one guest into the facility at any time.

STUDENT ASSOCIATION

The Student Association is the independent student union at BCIT. It provides most of the non-academic services, 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.

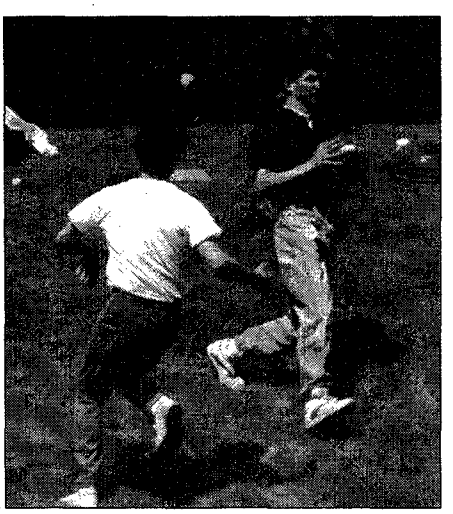
Another portion of the fee goes towards the proposed new Campus Centre, a multi-million dollar recreational and social complex organized and financed by the SA. Fundraising is currently underway for the Campus Centre.

LOST AND FOUND 451-6856

Please refer enquiries to Safety and Security. The Lost and Found is located in Building SW1, Room 1215. 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 programs with special requirements such as Forest Resources, Surveying and Building. Students should locate an unreserved locker near their program 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 SW1).

CHILDCARE 432-8919

The BCIT Childcare Centre opened September, 1990, and houses 25 children, ages 3-5, with the majority of seats being allocated to students' children.

Designed by Mineo Tanaka Architects using a premanufactured building, the centre 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.

The Institute and the Student Association are very pleased that this important service is available to our students. For more information on the Childcare Centre, please call Nora Lee Goodwin, the Coordinator of the facility.

ALUMNI ASSOCIATION 432-8847

The BCIT Alumni Association provides a vital communication link between graduates and the Institute. Graduates receive the Alumni Ambassador, published three times a year and have a membership in the Rix Staff Club on campus.

All BCIT graduates, Pacific Vocational Institute graduates (who have completed programs of at least six months duration), and holders of Part-time Studies Certificates are automatically members of the Alumni Association.

Priorities for the Alumni Association include involvement in the Campus Centre Campaign and the Alumni Fundraising Campaign; the presentation of Entrance Awards to first-year, full-time students; promoting professional recognition for BCIT graduates.

The Alumni Office is located in the Administration Building.

CALENDAR OF EVENTS 1994/95

Winter Term 1994

Tuesday	Jan 4	Registration for Spring & Summer 1994 opens. Health Sciences Guided Learning courses begin.
Monday	Jan 10	Most other courses begin.
Friday	Mar 4	Recommended registration deadline for most Health Sciences courses commencing April 1994.
Monday - Saturday	Mar 28 - Apl 2	Last week for most courses.

Spring Term 1994

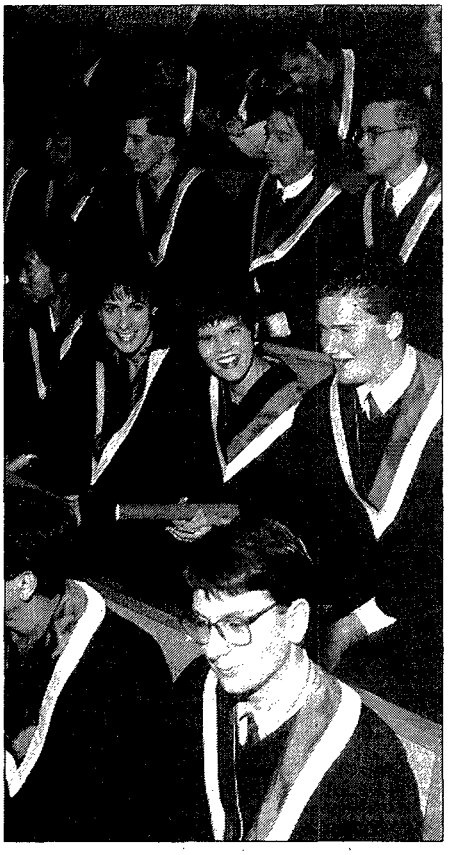
Friday	Apr 1	GOOD FRIDAY
Monday	Apr 4	EASTER MONDAY
Friday - Saturday	Apr 8, 9	OPEN HOUSE
Monday	Apr 11	Most courses begin.
Monday	May 23	VICTORIA DAY
Wednesday	June 1	Registration for Fall 1994 opens
Monday - Saturday	June 27 - July 2	Last week for most courses

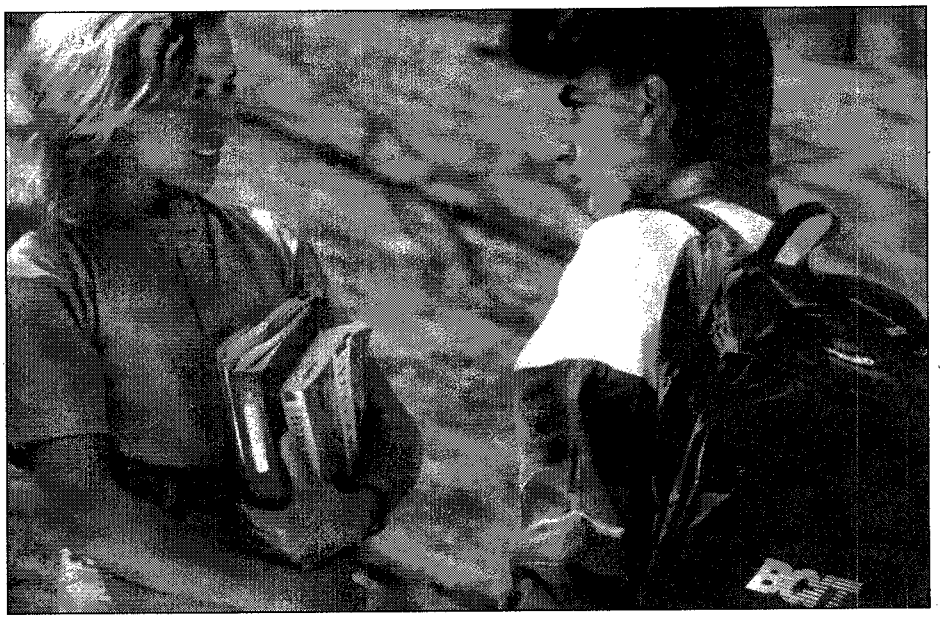
Summer Term 1994

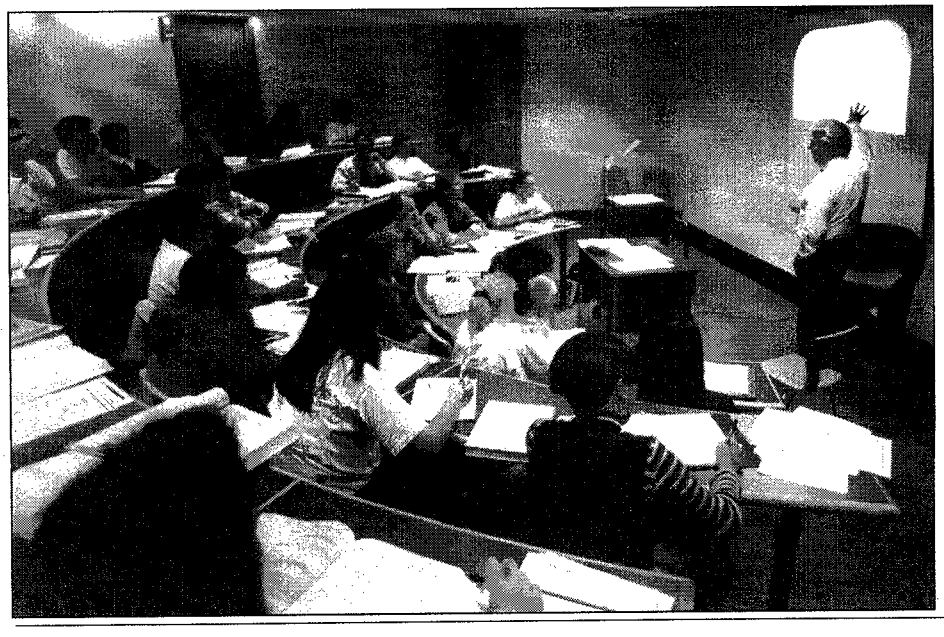
Friday	July 1	CANADA DAY
Monday	July 4	Start of Summer term courses.
Monday	Aug 1	B.C. DAY
Friday	Aug 5	Recommended registration deadline for Health Guided Learning courses starting September 1994.
Monday - Saturday	Aug 29 - Sep 3	Last week for most courses

Fall Term 1994

Monday	Sep 5	LABOUR DAY
Tuesday	Sep 6	Registration opens for Winter 1995. Health Guided Learning Courses begin.
Monday	Sep 12	Most classes begin.
Tueday	Oct 11	THANKSGIVING
Friday	Nov 11	REMEMBRANCE DAY
Friday	Dec 2	Recommended registration deadline for Health Guided Learning courses starting January 1995.
Mon - Sat	Nov 28 - Dec 3	Last week for most courses.







BUSINESS

SCHOOL OF BUSINESS

Michael Harrison, B.A.Sc., Dip. B.A., F.I.C.B., F.Inst.D., Dean
General Information: 432-8581

BUSINESS

CERTIFICATE PROGRAMS

This 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 completed within three to five years, depending on the student's desired pace. 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 a Senior Certificate and/or Diploma of Technology must be approved in advance.

For more information, see Course Descriptions and Credits section on page 34.

Administrative Systems

Management Certificate in Management Systems
Management Certificate in Human Resource Systems
Management Certificate in Media Techniques for Business

Broadcast Communications

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

Business Training

Cashier Training
Management Certificate in Interior Design
Legal Steno/Typist Certificate
Medical Office Assistant Certificate

Combined Business and Engineering Technology Certificate Programs

Industrial Management
Technical Marketing

Financial Management

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

Marketing Management

Management Certificate in Marketing Management
Management Certificate in Marketing Communications (with courses in Advertising, Sales Promotion and Public Relations)
Management Certificate in Technical Sales
Management in International Marketing
Special Industry - Based Programs
Advanced Technology Marketing
Customer Relationship Marketing
Tourism Marketing

Operations Management

Management Certificate in Operations Management
Industrial Engineering Option
Facilities Management Option
Management Engineering Option
Materials Management Option
Quality Management Option
Transportation Logistics Option

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 (CAHA)

Senior Certificate and Diploma of Technology

The Senior Certificate and the 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 432-8860

MANAGEMENT CERTIFICATE IN MANAGEMENT SYSTEMS

A. Complete the following

BUSA 1105 Management 1
BUSA 2105 Management 2
FMGT 1152 Accounting for the Manager
ORGB 2205 Organizational Behaviour 1

B. Complete at least one of the following

ECON 1150 Economic Issues
ECON 2100 Microeconomics
ECON 2200 Macroeconomics

C. Complete:

BLAW 3100 Business Law

D. Complete four of the following

HRMG 3100 Human Resource Management
HRMG 3205 Labour Relations 1
HRMG 3255 Labour Relations 2
MKTG 1102 Essentials of Marketing
ORGB 2505 Interpersonal Skills

E. Complete one of the following

Computer related course or courses with a value of three 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 1100 and 2100 be taken in lieu of FMGT 1152.

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

MANAGEMENT CERTIFICATE IN HUMAN RESOURCE MANAGEMENT

A. Complete the following

BUSA 1105 Management 1
BUSA 2105 Management 2
FMGT 1152 Accounting for the Manager
HRMG 3100 Human Resource Management
ORGB 2205 Organizational Behaviour 1
ORGB 3205 Organizational Behaviour 2

B. Complete at least one of the following

ECON 1150 Economic Issues
ECON 2100 Microeconomics
ECON 2200 Macroeconomics

C. Complete:

BLAW 3100 Business Law

D. Complete at least four of the following

HRMG 2805 Occupational Health and Safety
HRMG 3205 Labour Relations 1
HRMG 3255 Labour Relations 2
HRMG 3305 Selection Interviewing
HRMG 3315 Human Resource Measurement
HRMG 3500 Training and Development
HRMG 3505 Training Techniques
HRMG 4145 Human Resource Information Systems
HRMG 4405 Salary Administration
HRMG 4415 Strategic Performance Management
HRMG 4605 Human Resource Planning
ORGB 2505 Interpersonal Skills

E. Complete one of the following

Computer related course or courses with a value of three 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 advisor.

BUSA 3405 Problem-solving and Decision-making
BUSA 4405 Advanced Problem-solving and Decision-making
HRMG 2805 Occupational Health and Safety
HRMG 3100 Human Resource Management
HRMG 3205 Labour Relations 1
HRMG 3255 Labour Relations 2
HRMG 3305 Selection Interviewing
HRMG 3315 Human Resource Measurement
HRMG 3500 Training and Development
HRMG 3505 Training Techniques
HRMG 3705 Counselling 1
HRMG 4145 Human Resource Information Systems
HRMG 4415 Strategic Performance Management
HRMG 4605 Human Resource Planning
HRMG 4705 Counselling 2
MKTG 1102 Essentials of Marketing
MKTG 1323 Effective Public Speaking
MKTG 1324 Small Business Development
OCHS 1101 Accident Prevention 1: Job Safety Analysis
OCHS 2201 Industrial Health & Safety 1: Legislation
OPMT 1102 Basic Mathematics of Finance
OPMT 1117 Basic Quantitative Techniques in Administration
OPMT 1197 Statistics for Business and Industry
ORGB 2205 Organizational Behaviour 1
ORGB 2305 Organizational Behaviour 2
ORGB 2505 Interpersonal Skills

* See Advanced Studies Section for additional courses.

Faculty and Staff

Bill Hooker, Part-time Studies Coordinator
Tel. 451-6783

ADVANCED STUDIES IN BUSINESS 451-6786

The aim of this program is to provide BCIT's Diploma graduates with further management education to meet the needs of B.C.'s business, government and industry. The program leads to a Bachelor's degree or 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 the Bachelor of Administrative Studies degree offered by the Open Learning Agency through its Open University, 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 "... focuses 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.

Ongoing liaison will be maintained with the Open Learning Agency, the professional associations and industry to continuously articulate and monitor course requirements.

BUSINESS

BACHELOR OF ADMINISTRATIVE STUDIES DEGREE COMPLETION PROGRAM

The Open Learning Agency through its Open University grants BCIT Business Diploma graduates in Administrative Systems, Financial Management, Marketing Management and Operations Management, block transfer of up to 72 credits towards their degree of Bachelor of Administrative Studies.

The procedures below apply to BCIT business diploma graduates who wish to embark on the Open Learning Agency's Bachelor of Administrative Studies degree completion program offered in collaboration with BCIT. Please refer to the Open Learning Agency for their admission procedures as they are an integral part of your admission and registration into this program. OLA admission information can be obtained by requesting a Program Information Package from BCIT Student Services at 434-3304 or from Access Services at the OLA at 431-3300.

1. You must first establish your Program Plan with the Open Learning Agency

The Open Learning Agency is responsible for reviewing your academic record from BCIT and any other post-secondary institution you may have attended, to determine the amount of credit you will be awarded towards your degree. This critical first step tells you what courses you require to earn your degree.

2. Apply to BCIT

To apply, submit a full-time Application for Admission together with a copy of your Open Learning Agency approved Program Plan as soon as possible. You must state your intent to complete the program on a full-time or part-time studies basis on your application. You are not required to submit transcripts from other post-secondary institutions with your application. Admission is based on the following:

a. academic performance in your BCIT Diploma program
b. a 500-word statement indicating your reasons for choosing the program
c. evidence of computer fluency since graduation, eg: familiarity with microcomputers and software.

You will receive confirmation by letter that your admission has been approved.

3. Course Registration

Once your admission has been confirmed, you can register for Advanced Studies in Business Degree Completion courses offered at the BCIT Burnaby campus. Check the current Part-time Studies flyer to determine which courses are available. Courses are normally offered in the Fall, Winter and Spring/Summer Terms.

The required credits may be earned through arts and sciences elective courses approved by the Open Learning Agency and delivered at BCIT or through other accredited universities and colleges. The Advanced Business courses are offered at BCIT. Additional courses can usually be taken at BCIT to meet the requirements established in your program plan.

Advanced Business courses include:

BUSA	5200	Business and Society
BUSA	6800	Strategic Management
ECON	5200	Intermediate Macroeconomic Analysis
ECON	6500	Managerial Economics
OPMT	5740	Integrated Management Information Systems
OPMT	5751	Mathematical Models for Business
ORGB	5600	Management of Change

ADVANCED DIPLOMA IN BUSINESS

While the degree completion track is designed for the business generalist who wishes to obtain a Bachelor of Administrative Studies degree at OLA, 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 advanced 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 12 advanced business courses selected from the "generalist" courses listed above and the "specialist" courses in the four areas as follows:

BUSA	5200	Business and Society
BUSA	6800	Strategic Management
OPMT	5740	Integrated MIS
ORGB	5600	Management of Change

Advanced Technology Management (ATM)

FMGT	7520	Financial Planning
MKTG	720	Marketing Technological Proceeds and Services
OPMT	5710	Total Quality
OPMT	5730	Manufacturing Excellence
OPMT	5750	High-tech Processes
OPMT	5761	Evaluating Technology
OPMT	5762	Implementing Technology
OPMT	5799	Directed Studies

International Business

FMGT	____	International Finance/Capital Markets (under development)
MKTG	710	International Business Methods
MKTG	____	Foreign Language (under development)
MKTG	____	Intercultural Communications (under development)
MKTG	____	Multinational Markets (under development)

Human Resource Management

ADMN	____	Human Resource Planning (under development)
ADMN	____	Issues in Compensation and Benefits (under development)
ADMN	____	Issues in Human Resource Management (under development)
ADMN	____	Human Resource Information Systems (under development)
ADMN	____	Issues in Industrial Relations (under development)
ADMN	____	Strategic Performance Systems (under development)
ADMN	____	Employee Wellness (under development)
FMGT	____	Business Planning and Control (under development)

Accounting

FMGT	7120	Accounting Advanced
FMGT	____	Taxation (under development)
FMGT	____	Management Accounting (under development)
FMGT	____	Auditing (under development)
FMGT	____	Advanced Finance (under development)

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 Student Services at 434-3304.

Admission Requirements for Advanced Diploma Programs

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, Management Systems, Financial Management, Marketing Management, Operations Management or Transportation Logistics. Previous business experience is preferable but only mandatory for those entering the advanced diploma program.

BROADCAST COMMUNICATIONS 432-8863

Prospective applicants are advised to attend a counselling session prior to enrolling in any Broadcast Communications part-time courses. These sessions are held at 1730 in SE10 135 (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 12 weeks in length, running one night per week, three hours per night.

First Level Courses

BCST 1101 Technical Introduction
BCST 1140 Broadcast Industry Organization
BCST 1143 Music Business
BCST 1144 Writing for the Media
BCST 1145 Copywriting for Radio and TV
BCST 1148 Interviewing for Radio and TV
BCST 1150 Radio Broadcasting Introduction
BCST 1151 Radio and TV Announcing
BCST 1152 Music and Programming
BCST 1160 Television Broadcasting Introduction
BCST 1161 Film for Beginners
BCST 1162 Dramatic Writing for Film and TV
BCST 1167 Production Assistant for TV News
BCST 1168 The Writer/ Producer/ Director
BCST 1170 Broadcast Journalism Introduction
BCST 1172 Investigative Reporting
BCST 1177 Heartbeat of Film Production
BCST 1179 TV Production — Variety, Talk & Entertainment

Second Level Courses (requiring one or more prerequisites)

BCST 2222 Theory of Colour Television Systems
BCST 2223 Television Production Planning
BCST 2252 Radio: Commercial and Audio Production
BCST 2253 Radio Operations Lab
BCST 2260 Television Production Techniques
BCST 2263 Television Technical Production

MANAGEMENT CERTIFICATE IN BROADCAST COMMUNICATION

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 eight specific Broadcast Communications courses, two elective Broadcast Communications courses, and seven 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 1101 Technical Introduction
BCST 1140 Broadcast Industry Organization
BCST 1145 Copywriting for Radio and TV
BCST 1150 Radio Broadcasting Introduction
BCST 1151 Radio and Television Announcing
BCST 1170 Broadcast Journalism Introduction
BCST 2252 Radio: Commercial and Audio Production
BCST 2253 Radio Operations Lab
BCST ___ *** Electives

Television

BCST 1101 Technical Introduction
BCST 1140 Broadcast Industry Organization
BCST 1145 Copywriting for Radio and TV
BCST 1160 Television Broadcasting Introduction
BCST 1170 Broadcast Journalism Introduction
BCST 2222 Theory of Colour Television Systems
BCST 2223 Television Production Planning
BCST 2260 Television Production Techniques
BCST ___ ***Electives

Broadcast Journalism

BCST 1140 Broadcast Industry Organization
BCST 1144 Writing for the Media
BCST 1150 Radio Broadcasting Introduction
BCST 1151 Radio and TV Announcing
BCST 1160 Television Broadcasting Introduction
BCST 1167 Production Assistant for TV News
BCST 1170 Broadcast Journalism Introduction
BCST 1172 Investigative Reporting
BCST ___ ***Electives

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

BUSINESS

Business electives may be chosen from the following list:

BLAW 3100 Business Law
BUSA 1105 Management 1
BUSA 2105 Management 2
COMM 1103 Introduction to Business and Technical Communication
COMM 2202 Business/Technical Correspondence
ECON 2200 Macroeconomics
MKTG 1102 Essentials of Marketing
OPMT 1197 Statistics for Business and Industry
ORGB 2205 Organizational Behaviour 1

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 "intercessional" — an intensive full-time practical program operated five days a week for four 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

B. Antonson, Associate Dean
Tel. 432-8809
J. Ansell, Program Head, Radio
Tel. 432-8414
R. Riskin, Program Head, Television
Tel. 432-8844
R. Piercey, Program Head, Broadcast Journalism
Tel. 432-8667
M.K. Purkis, Part-time Studies Coordinator
Tel. 432-8668

BUSINESS TRAINING CENTRE 432-8658

BUSINESS TRAINING AND YOUR COMPANY — A TEAM EFFORT!

The School of Business provides in-house training to business and industry in all areas of business and management. We work with companies to 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 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 and seminars 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 four hours duration or longer, in time frames and locations to suit you.

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 courses and programs. Over 17,000 registrants attend each year. Business Training 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 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 management 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.

Our 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 15, 36-hour courses, include:

- 144 hours (about four courses) selected from BCIT's Business core curriculum
- 108 hours (about three courses) of in-house company training that may be "block credited" upon assessment and approval
- 288 hours (about eight 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.

BUSINESS

COMPUTER PROFICIENCY TRAINING

Do your employees need computer skills training? BCIT 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. Students learn theory in groups then practice it in class. Then, they are visited frequently on the 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 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 AND SEMINARS

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 four hours and we'll give you valuable training.

For more information on what Business Training can do for you, please call us.

CASHIER TRAINING

OFFC 0125 (OFFC 925) Cashier Training (18 hours) — Provides practical training in the operation of electronic cash registers. Course topics cover salesmanship, touch checking, taxable and nontaxable including GST, and public relations. Successful graduates will have marketable skills and may seek employment in cashier/clerk positions.

LEGAL STENOGRAPHER CERTIFICATE PROGRAM

CORT 0132 (CORT 932) Part 1 (30 hours)
CORT 0133 (CORT 933) Part 2 (54 hours)

This 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, labour, wills and estates, corporate and conveyancing. Graduates will be qualified as junior legal stenographers and may work in law firms, insurance companies, 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 0133. Shorthand is desirable.

MEDICAL OFFICE ASSISTANT CERTIFICATE PROGRAM

A medical office assistant (MOA) certificate is presented to students who successfully complete OFFC 0134, 0135, 0136, 0137, 0138, 0139 and 0152.

OFFC 0134 (OFFC 934) Medical Office Computer Literacy — This course provides those with little or no computer experience with basic computer literacy, word processing and computerized medical billing skills, using an MOA billing and management program.

OFFC 0135 (OFFC 935) Medical Transcription (36 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 0134 and keyboarding skills of 40 wpm.

OFFC 0136 (OFFC 936) 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 0137 (OFFC 937) Terminology (45 hours) — Successful completion of this course will enable students to use basic medical terms and 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 0136.

OFFC 0138 (OFFC 938) Office Practice (33 hours) — Students will learn to perform the clerical duties associated with medical office assistance. It incorporates medical office procedures, management and professional conduct, i.e. appointment scheduling, medical billing, records management, reception etc. Essential for students' understanding of the MOA's administrative role and the day-to-day operation of the medical office.

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Medical Office Assistant
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OFFC 0139 (OFFC 939) Clinical Procedures (36 hours) — Introduction to the basic clinical skills required for the M.O.A. in a medical setting. The theory that the students must acquire in order to perform selected skills is presented in a clear and concise manner. Students will acquire the knowledge necessary to assist the physician with routine patient examinations and to perform selected clinical duties. The clinical skills presented are based on the guidelines developed and approved by the Medical Office Assistants Association of B.C. in their Medical Office Assistants' handbook. Students will also be certified in basic C.P.R., according to the Canadian Red Cross Standard and become familiar with common medical emergencies that can occur in a doctor's office.

OFFC 0152 (OFFC 952) Medical Office Assistants Practicum — Provides the opportunity to apply MOA skills in the workplace. A great asset for students who have successfully completed all MOA courses and need experience prior to first job experiences. Includes classroom instruction at the beginning and the end of practicum placement. Students placement will be in a physician's office, or hospital department, or other medical clinic. Prerequisite: OFFC 0134, 0135, 0136, 0137, 0138 and 0139.

Staff
Laura Davie, Program Coordinator
432-8614

COMBINED MANAGEMENT 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.

FINANCIAL MANAGEMENT 432-8609

MANAGEMENT CERTIFICATE IN PROFESSIONAL ACCOUNTING

Required Courses

FMGT	1100	(or FMGT 1180) Accounting 1
FMGT	2100	(or FMGT 2180) Accounting 2
FMGT	3110	Financial Accounting 1
FMGT	3210	Cost and Managerial Accounting 1
FMGT	3420	Income Tax 1
FMGT	4110	Financial Accounting 2
FMGT	4210	Cost and Managerial Accounting 2
FMGT	4420	Income Tax 2
OPMT	1102	Basic Mathematics of Finance

Must Complete:

ECON	2200	Macroeconomics
OPMT	1197	Business Statistics
ORGB	2205	Organizational Behaviour 1

Must complete at least one of:
Computer related course or courses with a value of three credits.

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.

MANAGEMENT CERTIFICATE IN FINANCE

Required Courses

FMGT	1100	(or FMGT 1180) Accounting 1
FMGT	1620	Introduction to Investment
FMGT	2100	(or FMGT 2180) Accounting 2
FMGT	3110	Financial Accounting 1
FMGT	3510	Finance 1
FMGT	4110	Financial Accounting 2
FMGT	4510	Finance 2
OPMT	1102	Basic Mathematics of Finance

Must complete:

FMGT	3210	Cost and Managerial Accounting 1 and
FMGT	4210	Cost and Managerial Accounting 2 or
ECON	2100	Microeconomics and
ECON	2200	Macroeconomics or
FMGT	3420	Income Tax 1 and
FMGT	4420	Income Tax 2

Must complete at least one of:
Computer related course or courses with a value of three credits.

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 Certificate program or the Finance Certificate 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.

BUSINESS

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. No electives are required for this program.

BLAW 3100 Business Law
ECON 1150 Economic Issues
FMGT 1152 Accounting for the Manager (or FMGT 1100)
FMGT 1810 Personal Financial Planning 1
FMGT 2820 Investment and Risk Management
FMGT 3430 Taxation and Financial Planning (or FMGT 3420)
FMGT 4810 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 advisor.

BLAW 3100 Business Law
COMP 1601 Computers in Business
COMP 1615 Computer Systems Introduction 1
FMGT 1540 Credit and Collections
FMGT 1620 Introduction to Investment
FMGT 1810 Personal Financial Planning 1
FMGT 2820 Investment and Risk Management
FMGT 3310 Auditing 1
FMGT 3571 Money and Banking
FMGT 3610 Security Analysis 1
FMGT 4310 Auditing 2
FMGT 4551 Financing International Trade
FMGT 4610 Security Analysis 2
FMGT 4810 Personal Financial Planning 2
HRMG 3205 Labour Relations 1
HRMG 3255 Labour Relations 2
MKTG 1102 Essentials of Marketing
MKTG 1323 Effective Public Speaking
MKTG 1324 Small Business Development
ORGB 2205 Organizational Behaviour 1
ORGB 2305 Organizational Behaviour 2
TDMT 1409 Harmonized Systems FTA

Faculty and Staff
G. Farrell, Associate Dean
Tel. 432-8898
M. Briscall, Program Head
Tel. 432-8786
R. Dolan, Program Head, Finance
Tel. 451-6757
B. Yackness, Program Head, Professional Accounting
Tel. 451-6761
J. Covell, Program Assistant, Part-time Studies
Tel. 432-8609
R. MacKay, Correspondence
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INTERIOR DESIGN

MANAGEMENT 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 1000 Interior Design Basic
INTD 1010 History of Furniture
INTD 1020 Interior Design Drafting 1
INTD 2000 Colour and Lighting
INTD 2020 Interior Design Drafting 2
INTD 3010 Graphic Presentation
INTD 3020 Interior Design Drafting 3
INTD 3040 Space Planning 1
INTD 3050 Detailing/Construction Materials
INTD 3070 Materials
INTD 4000 Directed Study Project
INTD 4030 Business Practices for Interior Design
INTD 4040 Space Planning 2

MARKETING MANAGEMENT

MANAGEMENT CERTIFICATE IN 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. In this program, students who wish to specialize in Tourism, Advanced Technology or Customer Service can use the specialized course in those areas for their choice of electives.

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 1102 Essentials of Marketing
MKTG 1212 Principles of Customer Service
MKTG 1219 Professional Sales 1
MKTG 2202 Principles of Promotional Marketing
MKTG 2205 Marketing of Services
MKTG 2341 Introduction to Marketing Research
MKTG 3322 Advertising Strategies
MKTG 4340 Marketing Planning Fundamentals
MKTG 4501 Strategic Marketing Management Simulation

Complete four of the following:
MKTG 1112 Customer Relations
MKTG 1323 Effective Public Speaking
MKTG 1324 Small Business Development
MKTG 1342 Trade Show Marketing
MKTG 1365 Marketing Technological Products and Services
MKTG 3406 Product Development
TOUR 1250 Travel Agency Operations: An Introduction
TOUR 1261 B.C. Tourism Issues
TOUR 2301 Group Travel Charters & Tours
TOUR 2303 Conventions, Meetings & Travel
TOUR 2325 Tourism Product Development
TOUR 2330 Community Tourism Development

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Management Certificate in Marketing Management continued from page 29

Two electives
You may choose two electives which you feel will enhance your personal growth. Courses may be selected from the other marketing options or other business programs.

MANAGEMENT CERTIFICATE IN 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 1102 Essentials of Marketing
MKTG 1112 Customer Relations
MKTG 1219 Professional Sales 1
MKTG 2202 Principles of Promotional Marketing
MKTG 2341 Introduction to Marketing Research
MKTG 3218 Introduction to the Media
MKTG 3321 Public Relations
MKTG 3322 Advertising Strategies
MKTG 4318 Media Planning

Complete four of the following:
MKTG 1120 Event Marketing
MKTG 1323 Effective Public Speaking
MKTG 1342 Trade Show Marketing
MKTG 2427 Developing Creative Advertising
MKTG 3225 Consumer Behaviour
MKTG 3337 Corporate Communications

Two electives
You may choose two electives which you feel will enhance your personal growth. Courses may be selected from the other marketing options or other business programs.

MANAGEMENT CERTIFICATE IN 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 1102 Essentials of Marketing
MKTG 1112 Customer Relations
MKTG 1219 Professional Sales 1
MKTG 1323 Effective Public Speaking
MKTG 1342 Trade Show Marketing
MKTG 2202 Principles of Promotional Marketing
MKTG 2220 Managing the Sales Force
MKTG 2319 Professional Sales 2
MKTG 3307 Industrial Marketing

Complete four of the following:
COMM ____ Business Reports
MKTG 1212 Principles of Customer Service
MKTG 2341 Introduction to Marketing Research
MKTG 3332 Major Account Selling
MKTG 4340 Marketing Planning Fundamentals

Two electives
You may choose two electives which you feel will enhance your personal growth. Courses may be selected from the other marketing options or other business programs.

MANAGEMENT CERTIFICATE IN INTERNATIONAL MARKETING

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

Required
MKTG 1102 Essentials of Marketing
MKTG 1219 Professional Sales 1
MKTG 1325 Importing or MKTG 1327 Exporting
MKTG 1342 Trade Show Marketing
MKTG 2202 Principles of Promotional Marketing
MKTG 2341 Introduction to Marketing Research
MKTG 3322 Advertising Strategies
MKTG 4340 Marketing Planning Fundamentals
MKTG 4501 Strategic Marketing Management Simulation
TDMT 1304 Introduction to International Trading

Complete three of the following:
BLAW 3100 Business Law
MKTG 1324 Small Business Development
MKTG 1365 Marketing Technological Products & Services
MKTG 2319 Professional Sales 2
MKTG 3307 Industrial Marketing
MKTG 3406 Product Development

Two electives
You may choose two electives which you feel will enhance your personal growth. Courses may be selected from the other marketing options or other business programs.

SPECIAL INDUSTRY-BASED COURSES

Advanced Technology Marketing

A series of specialized courses for industry technologists who wish to move into Technical Marketing Sales and Marketing Support activities.

The objective is to provide a spectrum of courses that will focus on the importance and application of marketing in high-tech companies, particularly those in the small to medium size range.

Recommended Courses

MKTG 1327 Exporting
MKTG 1342 Trade Show Marketing
MKTG 1365 Marketing Technology Products and Services
MKTG 2341 Introduction to Marketing Research
MKTG 3406 Product Development
MKTG 4340 Marketing Planning Fundamentals

Customer Relationship Marketing

A series of specialized courses for people who work directly with customers, who are involved in customer relationships or in designing quality service programs. The courses in this program will provide hands-on training for those involved in providing service to the public.

Recommended Courses

MKTG 1112 Customer Relations
MKTG 1212 Principles of Customer Service
MKTG 1219 Professional Sales 1
MKTG 1323 Effective Public Speaking
MKTG 2205 Marketing of Services
MKTG 3225 Consumer Behaviour

Tourism Marketing

A series of specialized courses for those interested in development of tourism products and services. The focus is on the application of marketing strategies for developing community programs, major conventions and events, planning tours, and organizing trade shows.

Recommended Courses

MKTG 1120 Special Events Marketing
MKTG 1342 Trade Show Marketing
TOUR 1250 Travel Agency and Tour Operations: An Introduction
TOUR 1261 Tourism Issues
TOUR 2301 Group Travel Tours and Charters
TOUR 2303 Conventions, Meetings and Travel
TOUR 2330 Community Tourism Development
TOUR 3325 Tourism Product Development

Faculty and Staff

R. Vandermark, Associate Dean
Tel. 432-8382
M. Shacker, Part-time Studies 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
Vicki Forbes, Part-time Studies Program Assistant
Tel. 432-8611

MEDIA TECHNIQUES FOR BUSINESS

This 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 nine basic and a minimum of six elective courses totalling 18 credits.

Required Basic Courses

BCST 1160 Television Broadcasting Introduction
BCST 1161 Film for Beginners
COMM 1103 Introduction to Business/Technical Communication
MDIA 1010 Photography
MDIA 1040 Graphics 1
MDIA 1100 Introduction to Media Techniques for Business
MDIA 2040 Graphics 2
MDIA 2060 Effective Presentation Techniques
MDIA 2070 Business Video

Elective Courses

BCST 1144 Writing for the Media
BCST 1145 Copywriting for Radio and TV
BCST 2252 Commercial and Audio Production
BUSA 1305 Supervisory Skills
COMM 2202 Business/Technical Correspondence
COMM 2204 Technical Reports
FMGT 1152 Accounting for the Manager
MDIA 1050 PageMaker PC 1
MDIA 1090 PageMaker Macintosh 1
MDIA 1110 FreeHand Macintosh 1
MDIA 1120 FreeHand for Windows 1
MDIA 1130 CorelDraw PC 1
MDIA 1150 Quark X-Press Macintosh 1
MDIA 1180 Adobe Photoshop for Mac 1
MDIA 1190 Introduction to Cartooning/Animation
MDIA 1300 Multimedia Getting Started
MDIA 2020 Advanced Darkroom Techniques 2
MDIA 2050 PageMaker PC 2
MDIA 2090 PageMaker Macintosh 2
MDIA 2110 FreeHand Macintosh 2
MDIA 2130 CorelDraw 2
MDIA 2150 Quark X-Press Macintosh 2
MDIA 2160 Advanced Photography 1
MDIA 2170 Advanced Photography 2
MDIA 3010 Commercial Photography
MKTG 1102 Essentials of Marketing
MKTG 1219 Professional Sales 1
MKTG 1324 Small Business Development
MKTG 2202 Principles of Promotional Marketing
MKTG 3218 Introduction to Media
MKTG 3321 Public Relations
MKTG 3322 Advertising Strategies
MKTG 3427 Creative Advertising Design

Other elective courses are being developed. Check our flyers for additional choices. Not all courses are offered every term.

OPERATIONS MANAGEMENT 451-6743/432-8860

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 advancement.

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 your place of employment.

MANAGEMENT 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.

BUSA	1305	Supervisory Skills
COMM	2204	Technical Reports
FMGT	1152	Accounting for the Manager
OPMT	1102	Basic Mathematics of Finance
OPMT	1106	Manufacturing: Quality Assurance 1
OPMT	1187	Project Planning and Scheduling
OPMT	1188	Management Information Systems
OPMT	1191	Purchasing
OPMT	1192	Inventory Planning and Control
OPMT	1197	Statistics for Business and Industry
OPMT	1198	Productivity Engineering 1
OPMT	2290	Performance Measurement
OPMT	2298	Productivity Engineering 2

Plus two electives from:

OPMT	1105	Engineering Economics
OPMT	1142	Introduction to Quality Control Methods
OPMT	1175	Warehouse Management
OPMT	2206	Quality Assurance 2
OPMT	2242	Intermediate Quality Control Methods
OPMT	2287	Project Cost Estimating

MANAGEMENT CERTIFICATE IN FACILITIES MANAGEMENT

This program involves the management and development of the physical workplace to integrate people with the operation to achieve the objectives of the organization.

The Certificate in Facilities Management represents a collection of course offerings from Business, Engineering Technology and Health Science specifically developed to appeal to those wishing to enter the field of Facilities Management or those currently in the field who want to upgrade or formalize their knowledge. This program has been developed in conjunction with International Facilities Management Association (IFMA) B.C. Chapter.

The following courses are required to complete the Facilities Management Certificate:

BLDG	3870	Project Management: Introduction to Building Development
BLDG	3875	Construction Law in Project Management
BUSA	1105	Management 1 **or** BUSA 1305
BUSA	1305	Supervisory Skills
BUSA	3405	Problem-solving and Decision-making
COMP	1215	Lotus 1-2-3 level 1
COMP	1216	Lotus 1-2-3 level 2
COMP	1220	dBASE level 1
COMP	2203	Business Reports
FMGT	1152	Accounting for the Manager
HRMG	2805	Occupational Health & Safety
OPMT	1102	Basic Math of Finance
OPMT	1125	Facilities Space Planning
OPMT	1187	Project Planning and Scheduling
OPMT	1198	Productivity Engineering 1
OPMT	2125	Advanced Computer Aided Facility Management

Plus two electives from:

AICO	1000	Auto CAD 1
AICO	2000	Auto CAD 2
BLDG	2830	Architectural CADD (AUTO ARCH)
BUSA	2105	Management 2
MECH	7060	Graphic System Management
OPMT	1107	Quality Management for Service Industries
OPMT	3306	ISO 9000 Standards for Quality Systems

MANAGEMENT CERTIFICATE IN MANAGEMENT ENGINEERING

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

Courses

BUSA	1105	Management 1
BUSA	1305	Supervisory Skills **or** BUSA 1105
COMM	2204	Technical Reports
FMGT	1152	Accounting for the Manager
HRMG	2805	Occupational Health and Safety
OPMT	1102	Basic Mathematics of Finance
OPMT	1106	Manufacturing Quality Assurance 1
OPMT	1187	Project Planning and Scheduling
OPMT	1188	Management Information Systems
OPMT	1191	Purchasing
OPMT	1197	Statistics for Business and Industry
OPMT	1198	Productivity Engineering 1
OPMT	2290	Performance Measurement
OPMT	2298	Productivity Engineering 2

Plus two electives from:

COMP	1215	Lotus 1-2-3, level 1 and
COMP	1216	Lotus 1-2-3, level 2 and
COMP	1216	Lotus 1-2-3, level 3
OPMT	1105	Engineering Economics
OPMT	1107	Quality Management for Service Industries
ORGB	2205	Organizational Behaviour 1

MANAGEMENT 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 benefiting 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. The certificate uses the Canadian Association for Production and Inventory Control PIM courses.

Courses

BUSA 1305 Supervisory Skills
COMM 2204 Technical Reports
CPIC 1105 Master Planning Certification Review (CAPIC)
CPIC 1110 Principles of Inventory Control **or** CPIC 1210
CPIC 1210 Inventory Management Certification Review (CAPIC)
CPIC 1350 Material/Capacity Requirements Planning (CAPIC)
CPIC 1510 Production Activity Control (CAPIC)
CPIC 1600 Just-In-Time Certification Review (CAPIC)
CPIC 1615 Systems and Technologies Certification Review (CAPIC)
OPMT 1106 Quality Assurance 1
OPMT 1175 Warehouse Management
OPMT 1191 Purchasing
OPMT 1198 Productivity Engineering 1
OPMT 2275 Warehouse Management 2
OPMT 2298 Productivity Engineering 2
OPMT 3344 Total Quality Management (TQM)
TDMT 1409 Harmonized Systems and the Free Trade Agreement

MANAGEMENT CERTIFICATE IN QUALITY MANAGEMENT

This program is designed primarily for people working in the field of quality control or quality management for the manufacturing industries, service industries and government. It will be particularly helpful to those who already have the basic industrial and technological training for their work but who are now facing quality-related responsibilities.

Under the influence of global markets and international competitiveness, the quality of products has acquired a totally new level of significance to business survival.

Graduates from this program will be well prepared to initiate a cost-effective quality management system with its technical, legal and human aspects, in any organization.

The quality related courses in this program will also assist students who intend to write the Certification Examinations of the American Society for Quality Control (ASQC).

Required courses

COMM 2204 Technical Reports
OPMT 1106 Quality Assurance 1
OPMT 1107 Quality Management for Service Industries
OPMT 1115 Software Quality Assurance
OPMT 1142 Introduction to Quality Control Methods
OPMT 2206 Quality Assurance 2
OPMT 2242 Intermediate Quality Control Methods
OPMT 3306 ISO 9000 Standards for Quality Systems
OPMT 3342 Statistical Design of Experiments for Industry
OPMT 3344 Total Quality Management (TQM) in Manufacturing
OPMT 3345 Quality Auditing
OPMT 3346 Reliability Principles

Any of the following electives will give additional credits toward the certificate. Other quality courses may be available at a later date.

ORGB 2505 OPMT 1192
FMGT 1152 OPMT 1197
OPMT 1102 OPMT 1198
OPMT 1188 OPMT 2248

Note: OPMT 1197 (or equivalent) is a prerequisite for OPMT 2242.

MANAGEMENT CERTIFICATE IN TRANSPORTATION LOGISTICS

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

Courses

BUSA 1305 Supervisory Skills
OPMT 1102 Basic Mathematics of Finance
OPMT 1188 Management Information Systems
OPMT 1191 Purchasing
OPMT 1192 Inventory Planning and Control
OPMT 1197 Statistics for Business and Industry
OPMT 1198 Productivity Engineering 1
TDMT 1101 Geography of Trading 1
TDMT 1150 Distribution 1 (C.I.T.T.)
TDMT 1409 Harmonized Systems and the Free Trade Agreement
TDMT 2202 Transportation Regulations
TDMT 2203 Transportation Economics
TDMT 2250 Distribution 2 (C.I.T.T.)
TDMT 3304 Introduction to International Trading
TDMT 3413 Traffic and Transportation Management

Suggested electives:

OPMT 1107 Quality Management for Service Industries
OPMT 1175 Warehouse Management
OPMT 2275 Advanced Warehouse Management

Faculty and Staff

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B. Curtis, Program Head, Transportation Logistics
Tel. 432-8850
F. Gruen, Part-time Studies Coordinator
Tel. 451-6743

COURSE DESCRIPTIONS AND CREDITS

ADMINISTRATIVE SYSTEMS

BLAW 3100 (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**

BLAW 3205 (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**

BUSA 1105 (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**

BUSA 1305 (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**

BUSA 2105 (ADMN 211) Management 2 — A continuation of the study of functions of management begun in BUSA 1105. Prerequisite: BUSA 1105. **3 credits**

BUSA 3405 (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: BUSA 1105 **and** 2105. **3 credits**

BUSA 4405 (ADMN 407) Advanced Problem-solving and Decision-making — A continuation of BUSA 3405 for the student seeking further development of problem-solving and decision-making techniques. Prerequisite: BUSA 3405. **3 credits**

BUSA 4905 (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**

BUSA 5200 (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 into the Advanced Diploma in Business Program. **3 credits**

BUSA 6800 (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: Six courses completed in Advanced Studies and ADMN 410 or equivalent. **3 credits**

ECON 1150 (ADMN 306) Economic Issues - This is an introductory course in economics that addresses some of the more prominent issues facing todays society. Topics may include the FTA and NAFTA, environmental and natural resource concerns, the deficit and the national debt, and the determination of interest and exchange rates. **3 credits**

ECON 2100 (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**

ECON 2200 (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**

ECON 5200 (ADMN 705) Intermediate Macroeconomic Analysis — This course extends the macroeconomic analysis introduced in ECON 2200. It develops modern theories of the determination of income, employment and prices with attention to their application to the Canadian experience. The course emphasizes the application of theory to understanding the workings of macroeconomic policy. Prerequisite: Diploma graduate and acceptance into the Advanced Business Program, ECON 2100 and ECON 2200. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

ECON 6500 (ADMN 750) Managerial Economics — Managerial Economics is designed to provide the theory, concepts, tools and techniques for economic decision-making by managers under conditions of risk and uncertainty faced by business firms and other organizations. Demand, cost and pricing decisions are emphasized. Topics include decision-making criteria and procedures, demand and cost theory estimation, pricing theory and practice (including price positioning), pricing new products, competitive bids and price quotes.
credits TBA

HRMG 2805 (ADMN 128) Occupational Health and Safety — 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**

HRMG 3105 (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: BUSA 1105, ORBG 2205. **4 credits**

HRMG 3205 (ADMN 332) Labour Relations 1 — For those involved in or associated with labour 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 labour relations field. Prerequisite: BUSA 1105, ORGB 2205.
4 credits

HRMG 3255 (ADMN 432) Labour Relations 2 — A thorough explanation of collective administration, agreements, wage issues, economic supplements, arbitration, mediation, preparation for collective bargaining and collective bargaining techniques. Prerequisite: HRMG 3205.
3 credits

HRMG 3305 (ADMN 205) Selection Interviewing — This course is presented for people in the fields of personnel, management, supervision, and 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: HRMG 3105.
4 credits

HRMG 3315 (ADMN 448) Human Resources Measurement — Employees and future employees are measured and surveyed on a variety of work-related parameters. This course examines applications and issues associated with human resources measurement, survey and feedback systems. Employment and career progression testing, employee surveys, training assessments, are examples of systems and progression testing, employee surveys, training assessments, are examples of systems and procedures, measurement issues and the legal and ethical considerations associated with the subject area. Proficiency with statistical methodologies is not required. Prerequisite HRMG 3105 or agreement from the instructor.

HRMG 3505 (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**

HRMG 3705 (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**

HRMG 4145 (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: HRMG 3105. **3 credits**

HRMG 4405 (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: HRMG 3105.
4 credits

COURSE DESCRIPTIONS AND CREDITS

HRMG 4605 (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: HRMG 3105. **4 credits**

HRMG 4705 (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: HRMG 3705. **3 credits**

ORGB 2205 (ADMN 222) Organizational Behaviour 1 — For persons with no formal training in organizational behaviour, a study of basic behavioural 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 behavioural studies. The beginning concentrates on the individual, focusing on the determinants of behaviour - heredity, culture, motivation, perception, attitudes, learning and leadership. The conclusion focuses on understanding group behavioural processes. Prerequisite: Recommend completion of BUSA 1105 and 2105. **3 credits**

ORGB 2305 (ADMN 322) Organizational Behaviour 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 behaviour 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: ORGB 2205. **3 credits**

ORGB 2505 (ADMN 324) Interpersonal Skills — This course will help managers, supervisors and others develop interpersonal skills through hands-on role playing and experimental learning exercises in a variety of business related situations. **3 credits**

ORGB 5600 (ADMN 720) Management of Change — Further analysis of human behaviour 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 into the Advanced Studies in Business Program. **3 credits**

BROADCAST COMMUNICATIONS

BCST 1101 (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 1140 (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 1143 (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 1144 (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 1145 (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 humour. Career-oriented. Weekly practical application. No text required. **3 credits**

BCST 1148 (BCST 148) Interviewing for Radio and TV — Learn how to be interviewed with confidence. You'll no longer "Do I really look/sound like THAT?" Enhance your performance on video and audio tape while learning radio and TV interviewing techniques. This course will appeal to students/journalists who want to bring a solid on-air presence to their work, as well as being suited to people of all professions who may be uncomfortable appearing on camera or tape. **3 credits**

BCST 1150 (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 1151 (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**

COURSE DESCRIPTIONS AND CREDITS

BCST 1152 (BCST 152) Music and Programming — How is radio programming developed? How are music formats designed and maintained? What is the role of news/information in radio? How and why is radio regulated? These questions and more are answered in this course. NOTE: This course is creditable to the day school radio program. BCST 1150 (radio introduction) is recommended as a prerequisite, but not required.

BCST 1160 (BCST 160) Television Broadcasting Introduction — Television and video production of all kinds provide attractive and diverse career opportunities. This introductory course 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 1161 (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 1162 (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 1167 (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 1168 (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 1170 (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 1172 (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 1177 (BCST 177) The "Heartbeat" of Film Production — Find out where the pulse of film production begins! Learn how it all comes together from start to finish in the production office. We will examine the vital role that the production office plays in creating feature films, TV movies and episodic television. From producers and writers to the camera department and editing. No prerequisites are required but this course is a good follow-up to BCST 1161. **3 Credits**

BCST 1179 (BCST 179) TV Production-Variety, Talk & Entertainment — Introduces students to the production requirements of variety/entertainment television programs. The focus will be how to research, produce, and host shows that are not specifically news programs. Students will become acquainted with talk shows, variety programs, telethons and special event programming. **3 Credits**

BCST 2222 (BCST 222) Theory of Colour Television Systems — The course begins with the psychophysics of human vision and explains how the eye perceives and adapts to colour. This theory is applied to the NTSC system. The colour TV signal path is explained, from the camera through production and measuring equipment to final display. Prerequisite: BCST 1101. **3 credits**

BCST 2223 (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 1160 or BCST 2220. **3 credits**

BCST 2252 (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. For those who have completed BCST 1150 or who have industry experience. **3 credits**

BCST 2253 (BCST 253) Radio Operations Lab — Most students find upon completion of BCST 1150 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 2260 (BCST 260) Television Production Techniques — Offers practical application opportunities for students who have completed BCST 1160 and BCST 3323. 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 1160, 2223. **3 credits**

BCST 2263 (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 1160. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

CANADIAN ASSOCIATION FOR PRODUCTION AND INVENTORY CONTROL (CAPIC)

CPIC 1100 (CPIC 100) Principles of Planning (POP) —This course covers basic operational planning and control practices applicable to a wide range of organizations. Material discussed includes the role of operations management, forecasting techniques, concepts for developing a sales and operations plan, tailoring the operating plan to the business strategy and to differing environments, using controls to recognize and implement needed changes and master scheduling. **3 credits**

CPIC 1105 (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 2210 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 1110 (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 1210 (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 1110 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 1350 (CPIC 350) Material/Capacity Requirements Planning Certification Review — Provides an understanding of material requirements planning and how capacity influences decision-making. The course includes MRP logic and examines the detailed inputs-master planning, bills of material, inventory status, and lead times. Topics such as planned orders, rough cut, routing, work centre balance are explained. **2.5 credits**

CPIC 1510 (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 1600 (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**

CPIC 1615 (CPIC 615) Systems and Technologies, Certification Review — Expands on production management knowledge at the strategic level with marketing and other key functions discussed. The course covers recognition of strategic choices, configuration of the production and inventory management system, management of the implementation and measurement of success. Topics include product life cycles, total quality management, computer aided manufacturing, bar coding, and electronic data interchange. **2.5 credits**

COMMUNICATION

(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 1103 (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. This course is ideal for those with little experience in business or technical communication. **3 credits**

COMM 2202 (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 2204 (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 2205 (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 three-day formats at the Burnaby and Downtown campuses. **1.5 credits**

COMPUTER SYSTEMS

COMP 1601 (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 distributing 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, 1401. **3 credits**

COMP 1615 (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 2615. **3 credits**

FINANCIAL MANAGEMENT

FMGT 1100 (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 2100. Topics include accounting as an information system; introduction to accounting theory; income measurement; traditional recordkeeping procedures; the accounting cycle; special journals; cash; investments and receivables. This course is also available by distance education. **4 credits**

FMGT 1101 (FMGT 107) Accounting 1 Basics — This course covers the basic accounting cycle. Topics include an introduction to financial statement preparation and adjusting entries. (FMGT 1101 and 1102 are the equivalent of FMGT 1100.) **2 credits**

FMGT 1102 (FMGT 108) Accounting 2 Basics — Follow up to FMGT 1101. Instructs students in the use of special journals and subsidiary ledgers, the control of cash valuations and the accounting functions of a merchandising concern. (FMGT 1101 and FMGT 1102 are the equivalent of FMGT 1100.) **2 credits**

FMGT 1151 (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 1152 (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 1180 (FMGT 115) Accounting 1L — Enables students to start the basic course in accounting in January. It is the equivalent of FMGT 1100 and the first six weeks of FMGT 2100, for a total of 18 weeks of the 30-week presentation. The balance of the course, FMGT 2180, may be taken in either May or September. For a description of the course content see FMGT 1100/2100. **5.5 credits**

FMGT 1540 (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 1620 (FMGT 315) Introduction to Investment — Provides students with an understanding of the function and operation of the stock market. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

FMGT 1810 (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 2100 (FMGT 201) Accounting 2 — The follow-up to FMGT 1100. 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 1100. This course is also available through distance education. **5.5 credits**

FMGT 2180 (FMGT 215) Accounting 2S — Follow-up course to FMGT 1180, enabling students to complete the last 12 weeks of the basic accounting course. See FMGT 2100 for details. Prerequisite: FMGT 1180. **4 credits**

FMGT 2190 (FMGT 116) Accounting 1/2 — This course, equivalent to FMGT 1100/2100, 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 1100/2100 for details. **10 credits**

FMGT 2540 (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 2820 (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 1810. **3 credits**

FMGT 3110 (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 4110 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 2100, 2190, or 4180. **5 credits**

FMGT 3180 (FMGT 320) Financial Accounting 1L — Permits students to start financial accounting in January. The course covers the equivalent of FMGT 3110 and the first six weeks of FMGT 4110 for a total of 18 weeks of the 30-week presentation. The remaining 12 weeks can be completed either by taking FMGT 4110 over six weeks, on a two nights per week basis commencing in May, or over 12 weeks commencing in September. See FMGT 3110/4110 for details. Prerequisite: FMGT 2100, 2180, or 2190. **7 credits**

FMGT 3210 (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 2100, 2180, or 2190. **4 credits**

FMGT 3280 (FMGT 319) Cost and Managerial Accounting 1L — Designed to permit students to start cost accounting in January, this course is equivalent to FMGT 3210 and the first six weeks of FMGT 4210 for a total of 18 weeks of the 30-week presentation. The remaining 12 weeks can be completed either by taking FMGT 4210 over six weeks, two nights per week commencing in May, or over 12 weeks commencing in September. See FMGT 3210/4210 for details. Prerequisite: FMGT 2100, 2180, or 2190. **6 credits**

FMGT 3310 (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 2100, 2180, or 2190. **3 credits**

FMGT 3420 (FMGT 316) Income Tax 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 4420 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 2100, 2180, or 2190. **3 credits**

FMGT 3430 (FMGT 317) Taxation and Financial Planning — Refer to FMGT 3420 for description. Prerequisite: FMGT 1100 or FMGT 1152. **3 credits**

FMGT 3510 (FMGT 307) Finance 1 — Those with little or no knowledge of finance 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 2100, 2180, or 2190. **4 credits**

COURSE DESCRIPTIONS AND CREDITS

FMGT 3571 (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. Prerequisite: ECON 2100, 2200. **4 credits**

FMGT 3580 (FMGT 339) Finance 1L — This course will cover the equivalent of FMGT 3510 and the first six weeks of FMGT 4510. Topics include control and financial management of the business firm, profit planning, cash and capital budgeting and inventory control. Prerequisite: FMGT 2100, 2180, or 2190. **6 credits**

FMGT 3610 (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 2100, 2180, or 2190. **4 credits**

FMGT 4110 (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 3110. **7 credits**

FMGT 4120 (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 4100, 4180, or 4190. **5.5 credits**

FMGT 4180 (FMGT 420) Financial Accounting 2S — The follow-up course to FMGT 3180, enables students to complete the last portion of the financial accounting course. See FMGT 4110 for details. Prerequisite: FMGT 3180. **5 credits**

FMGT 4190 (FMGT 314) Financial Accounting 1 and 2 — This course is equivalent to FMGT 3110/4110 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 3110, 4110 for details. Prerequisite: FMGT 2100, 2180, or 2190. **12 credits**

FMGT 4210 (FMGT 401) Cost and Managerial Accounting 2 — Enables the student who has completed FMGT 3210 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 3210. **6 credits**

FMGT 4280 (FMGT 419) Cost and Managerial Accounting 2S — As a follow-up course to FMGT 3280, FMGT 4280 completes the last portion of the cost accounting courses. See FMGT 4210 for details. Prerequisite: FMGT 3280.**4 credits**

FMGT 4290 (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 3210/4210. Prerequisites: FMGT 2100, 2180, or 2190. **10 credits**

FMGT 4310 (FMGT 406) Auditing 2 — Follow-up to FMGT 3310. 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 3310. **6 credits**

FMGT 4420 (FMGT 408) Income Tax 2 — Students expand on the study of Canadian income tax begun in FMGT 3420 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 3420. **3 credits**

FMGT 4510 (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 3510. **6 credits**

FMGT 4551 (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. Prerequisite: FMGT 3510. **3 credits**

FMGT 4580 (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 markets and pension portfolios as they affect business decisions of the Canadian firm. Prerequisite: FMGT 3580. **4 credits**

FMGT 4590 (FMGT 327) Business Finance 1 & 2 — This course is the equivalent to FMGT 3510 and 4510. Prerequisite: FMGT 2100, 2180, or 2190.

FMGT 4610 (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 3610. **3 credits**

FMGT 4810 (FMGT 444) Personal Financial Planning 2 — An in-depth look at the topics commenced in FMGT 1810. Prerequisite: FMGT 1810, 1152, 3420 or 3430, 2820, BLAW 3100 and ECON 1150. **3 credits**

INTERIOR DESIGN

INTD 1000 (INTD 100) Interior Design Basic — Introduces students to the many areas of interior design including furniture arrangement, colour 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 1010 (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. **3 credits**

INTD 1020 (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. **6 credits**

INTD 2000 (INTD 200) Colour and Lighting — Provides students with basic theories of colour mixing and harmonies to enable them to produce colour schemes. A basic knowledge of lighting methods, effects and products will be covered. Prerequisite: INTD 1000. **3 credits**

INTD 2020 (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 1020. **6 credits**

INTD 3010 (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 3020. 65% minimum required to pass course. **3 credits**

INTD 3020 (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 2020. **3 credits**

INTD 3040 (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 3020. 65% minimum required to pass course. **3 credits**

INTD 3050 (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 1000, 3020. Students should bring drafting samples to first class. 65% minimum required to pass course. **3 credits**

INTD 3070 (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 1000. **3 credits**

INTD 4000 (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, colour scheme selection, furniture selection, lighting and electrical planning, developing drawings of custom millwork. Graphic presentation is of major importance. Prerequisite: Completion of all other courses in the Interior Design Certificate Program with a minimum final grade of 65%. **1.5 credits**

INTD 4030 (INTD 403) Business Practices 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 1000. **1.5 credits**

INTD 4040 (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 3040. 65% minimum required to pass course. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

MARKETING MANAGEMENT

MKTG 1102 (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 1107 (MKTG 107) Marketing Strategies 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 1112 (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 learn telephone techniques, customer relations and effective speaking. **3 credits**

MKTG 1119 (MKTG 119) Sports Marketing — A course designed for those in the sports industry involved in promoting sporting figures or events. For those who liaise sporting activities with industry and those who design sporting events to raise funds. **3 credits**

MKTG 1120 (MKTG 120) Special Event Marketing — 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 1125 Network Marketing — This course is designed to cover in detail the nuts and bolts of the network marketing distribution system. The student will learn the strategic differences between network marketing and traditional marketing methods. The course covers how to set up your own network organization, how to train others to do the same, how to evaluate the different types of network marketing plans in the industry, how to develop promotional material, how to recruit, and how to effectively communicate one on one and in groups. This course does not focus on any one product but covers the network marketing industry. **3 credits**

MKTG 1130 Political Marketing — This course will provide a "hands-on" introduction to the world of electoral politics in Canada. Modules will cover the various campaign positions and the interrelation of politics, the media and the public. Topics include making the decision ("should I run?"); how to set up a campaign team ("where will **they** all come from?"); campaign financing ("where will **it** all come from?"); media relations ("what will they say about me"); and others. **3 credits**

MKTG 1212 (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 1219 (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 1323 (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 1324 (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 1325 (MKTG 325) Importing — Provides students with importing business basics. Discussion covers methods of finding overseas suppliers, assessing market potential, payment mechanisms and foreign exchange. Students will learn how to set up their own import businesses. **3 credits**

MKTG 1327 (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 1342 (MKTG 342) Trade Show Marketing — A course designed to examine how a trade/consumer show is an effective marketing opportunity for businesses of all sizes. It will examine how to select a show, set up an exhibit, operate a booth, organize interrelationships amongst all levels of organization and follow up and monitor results. Prerequisite: MKTG 2202 is recommended. **3 credits**

MKTG 1365 (MKTG 365) Marketing Tech Products and Services — A basic foundation marketing course to meet the needs of B.C. high-tech companies. Materials covered will include the framework for understanding high-tech marketing. The marketing strategy model, creating a strategy, promotional approaches, how to conduct research, and developing the material plan. The course is designed for those who have a working understanding of marketing but need assistance in the marketing concept in small companies. Industry experience is required to take this course. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

MKTG 2202 (MKTG 202) Principles of Promotional Marketing — Presents an overview of promotional strategies; advertising, sales promotion, direct marketing, event marketing, publicity, trade shows and public relations. It is intended for those students pursuing the concentrated marketing program. The course examines those areas of promotion on the basis of where each fits in the promotional mix and when you should best use them. Although advertising is included, the course only covers it in a general way. Prerequisite: MKTG 1102. **3 credits**

MKTG 2205 (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 1102. **3 credits**

MKTG 2220 (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 1219 or related experience. **3 credits**

MKTG 2319 (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 versus price; how to deal with nos, prospecting for sales, selling yourself and your company, generating sales through telephone and follow-up techniques, goal setting and personal motivation. Prerequisite: MKTG 1219 or related experience. **3 credits**

MKTG 2320 (MKTG 320) Retail Marketing — This course will provide relevant information on operations oriented policies, methods and procedures integral to successful retailing. Topics include nature of retailing, environmental influences, site location, developing the product/service mix, developing merchandising plans, pricing and promotional activities. Prerequisite: MKTG 1102 is recommended. **3 credits**

MKTG 2341 (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 2202. **3 credits**

MKTG 3218 (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 3322 or related experience is recommended. **3 credits**

MKTG 3225 (MKTG 225) Consumer Behaviour — An introduction to the subject of consumers and why they buy. The course examines topics such as segmentation, consumer needs, attitudes, learning and lifestyle analysis. The focus will be on the applications of consumer behaviour concepts to marketing situations. **3 credits**

MKTG 3307 (MKTG 307) Industrial and Organizational Marketing — This course deals with industrial markets focusing 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 1102. **3 credits**

MKTG 3321 (MKTG 321) Public Relations — For anyone in business, government, 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 2202. **3 credits**

MKTG 3322 (MKTG 322) Advertising Strategies — 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 - newspapers, 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 1101. **3 credits**

MKTG 3332 Major Account Selling — This course is designed for intermediate and senior sales persons. It will focus on technical products and services to large organizational buyers. This course will provide and develop an indepth professional approach. Prerequisite: MKTG 219 or equivalent experience is recommended. **3 credits**

MKTG 3337 (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 3406 Product Development — A study of effective processes for generating product ideas, design planning, performance evaluation and market testing. Commercialization of highly innovative products is emphasized. Prerequisite: MKTG 1102. **3 credits**

MKTG 3427 (MKTG 427) Developing Creative Advertising — 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 this course is to have each student produce high quality creative projects to enhance their portfolios. Prerequisite: MKTG 3322 or related experience. **3 credits**

MKTG 4318 (MKTG 318) Media Planning — 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 3218. **3 credits**

MKTG 4340 (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 behaviour, product planning, pricing, distribution, and communication strategies. Prerequisite: MKTG 2202, 2341. **3 credits**

MKTG 4501 (MKTG 501) Strategic Marketing Management Simulation — 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. This course demands that students draw heavily from all other marketing knowledge gained in previous courses. Prerequisite: MKTG 2202, 4340, 2341. **3 credits**

MEDIA TECHNIQUES FOR BUSINESS

MDIA 0199 (MDIA 099) Photography (Entry Level) — Basic Photography. Learn how to handle a 35mm Single Lens Reflex (SLR) camera and accessories! Through lectures, videos, slides, and a workshop you will learn and understand basic photographic concepts: 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 enrol in this exploratory course to foster that interest and determine your potential. You will need to supply your own 35mm SLR with 50mm lens and your own film. A tripod is recommended. Four weeks, five sessions. **non credit**

MDIA 1010 (MDIA 101) Photography — Improve your knowledge of handling 35mm equipment and accessories (including flash), learn composition, choosing 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. Eight weeks, eight sessions. Prerequisite: MDIA 0199 or permission from the instructor. **3 credits**

MDIA 1040 (MDIA 104) Graphics 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 enrol in this exploratory course to foster that interest and determine their career potential. **3 credits**

MDIA 1050 (MDIA 105) PageMaker PC 1 — This is an introductory course of Aldus PageMaker which 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 templates, brochures and flyers. Aldus PageMaker gives you everything you need to produce any document electronically. Students have their own workstations. **1.5 credits**

MDIA 1090 (MDIA 109) PageMaker Macintosh 1 — This introductory course of Aldus PageMaker 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 pieces, including templates, brochures and flyers. Aldus PageMaker gives you everything you need to produce any document electronically. Students have their own workstations using an Apple Macintosh Centris 650. **1.5 credits**

COURSE DESCRIPTIONS AND CREDITS

MDIA 1100 (MDIA 110) Introduction to Media Techniques for Business — This core course of the program has a dual focus. The first part explores the fundamental issues faced by anyone trying to create and implement a variety of visual and audiovisual communication projects. During the second part, group activities and class visits to production facilities will provide you with a practical perspective on pre-press production and printing, desktop publishing, commercial applications of photography and photographic imaging, audiovisual techniques, video production, interactive video, photo CD technology applications, and other communication tools used in corporate, industrial, educational, and marketing communication today. On completion you will have a good grasp of needs assessment, target audience identification, the basic principles of production planning, the evolving technology, and a better understanding of the exciting world of media integration. **3 credits**

MDIA 1110 (MDIA 111) FreeHand Macintosh 1 — 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 Centris 650. **1.5 credits**

MDIA 1150 (MDIA 115) Quark X-Press Macintosh 1 — An introduction designed to give you an overview of the capabilities of Quark X-Press, the most powerful page layout program available. You will gain a solid understanding of page composition, formatting, manipulation of text and graphics, creating long documents. Students have their own workstations using a Macintosh Centris. Prerequisite: A working knowledge of the Macintosh. **1.5 credits**

MDIA 2020 (MDIA 202) Advanced Darkroom Techniques — During three classroom sessions and nine darkroom sessions, students will develop the practical skills to create fine black and 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 1010, MDIA 2010 (recommended) or permission from the instructor. **3 credits**

MDIA 2040 (MDIA 204) Graphics 2 — A continuation of MDIA 1040. Students develop their graphic art skills in layout, design and mechanical artwork for four colour printing, paper selection, print production, specialty printing techniques, imposition, commercial photography, costing and estimating. Includes a tour of a large printing plant. Prerequisite: MDIA 1040. **3 credits**

MDIA 2050 (MDIA 205) PageMaker PC 2 — This advanced course of Aldus PageMaker 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. Students have their own workstations. Prerequisite: MDIA 1050 or permission from the instructor. **1.5 credits**

MDIA 2060 (MDIA 206) Effective Presentation Techniques — This course is designed to prepare students to effectively present material, both written and spoken. Learn what to say and how to say it, using the right words and proper grammar. Build written communication skills that will allow you to write confidently and make certain you are understood. Acquire speaking skills using proper pronunciation, phrasing, and emphasis. Essential for those who prepare and present written and spoken material in today's corporate world. **3 credits**

MDIA 2070 (MDIA 207) Business Video — 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 2090 (MDIA 209) PageMaker Macintosh 2 — 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 colour separation files and work with our desktop greyscale scanner. Students have their own workstations using a Mac Centris. Prerequisite: MDIA 1090 or permission from the instructor. **1.5 credits**

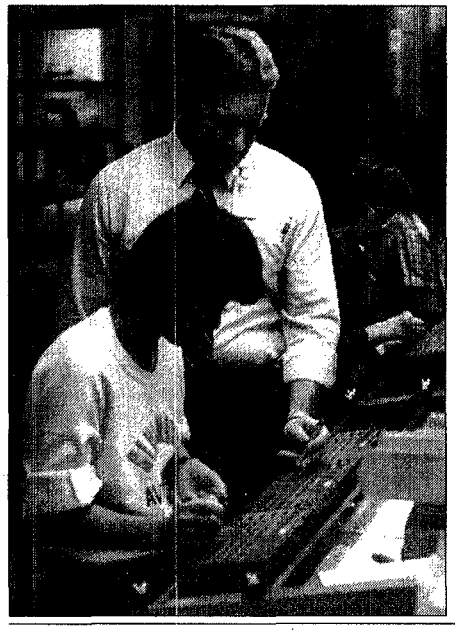
MDIA 2110 (MDIA 211) FreeHand Macintosh 2 — This advanced course of Aldus FreeHand explores freehand's tools in greater detail. Learn how to lay out any graphic with graduated screens and bends with more precision and control. Discover how to use process colour in developing your illustrations. Use our desktop greyscale scanner to create your own templates prior to drawing. Learn how to print, process and spot colour separations off our laser printer. Students can produce colour logos with blends and learn how to create traps to compensate for press misregistration. Students have their own workstations using an Apple Mac Centris computer. Prerequisite: MDIA 1110 or permission from the instructor. **1.5 credits**

MDIA 2150 (MDIA 215) Quark X-Press Macintosh 2 — You will learn advanced techniques in Quark X-Press, the program which has become the industry standard for page composition. Topics include spot and process colour, precise control of typography, and sophisticated manipulation of page elements. You will have your own workstation - a Macintosh Centris. Prerequisite: MDIA 1150 or permission from the instructor. **1.5 credits**

COURSE DESCRIPTIONS AND CREDITS

MDIA 2160 (MDIA 216) Advanced Photography 1 — During classroom sessions and workshops in darkroom and studio (including a practical make-up demonstration), you will develop the basic skills to plan and carry out a wide variety of assignments in editorial and people photography, and you will learn how to set up a darkroom for advanced B&W processing printing. You will learn to recognize the potential of lighting in the studio and on location, and how to work from a layout to meet a client's requirements and quality standards within the industry. Good technique and composition are stressed throughout the course. You will need a 35mm SLR, with at least a standard lens, a flash, and a tripod. All darkroom material is included, however you have to supply your own film. **1.5 credits**

MDIA 2170 (MDIA 217) Advanced Photography 2 — During classroom sessions, and workshops in darkroom and studio you will learn the fundamentals to plan and carry out a variety of assignments in the areas of still life and advertising photography, and how to set up and operate a small studio. You will gain hands-on experience in working with sophisticated lighting equipment and how to put together a powerful portfolio and make a presentation. Good techniques and composition are stressed throughout the course. You will need a 35mm SLR, with at least a standard lens, a flash and a tripod. All darkroom materials are included, however, you will have to supply your own film. **1.5 credits**



MDIA 3010 (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; how to prepare an estimate and 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 industry quality standards, and the techniques to develop a powerful personal portfolio. All darkroom 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. Twelve weeks, 12 sessions. Prerequisite: MDIA 2010 and MDIA 2020 or permission from the instructor. **3 credits**

OPERATIONS MANAGEMENT

OPMT 0199 (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 1102 (OPMT 102) Basic Mathematics of Finance — Discusses interest and its effects upon business and industry. The students learn 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 0199. **3 credits**

OPMT 1105 (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. **3 credits**

OPMT 1106 (OPMT 106) Quality Assurance 1 (Manufacturing) — An introductory course in Quality Assurance for the manufacturing industries. This course presents a general overview of quality system topics: establishing the desired product quality and reliability, and the conditions necessary to achieve them; quality planning; standards for quality management programs; Quality Assurance and production processes; investigating quality problems in production; inspection and test operations; total quality control concepts. Class activities include video presentations, group discussions and group exercises. No prerequisites. **3 credits**

OPMT 1107 (OPMT 107) Quality Management for Service Industries — An introductory course in quality management for service industries and for administrative or service functions at manufacturing companies. Methods and techniques for service quality programs which focus on total customer satisfaction. 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 1115 (OPMT 115) Software Quality Assurance — Covers the application of quality assurance principles to the development of computer software. The course will appeal to those individuals who are involved in software development who want to meet modern requirements for design, verification and re-useability. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

OPMT 1117 (OPMT 117) Basic Quantitative Techniques in Administration — A study of simplified "hands-on" techniques to assist the administrator in decision-making using business mathematics and statistics. This practical course will include some problem-solving, graphs, interest applications, business descriptive statistics, sampling and forecasting. The use of the preprogrammed business calculator will be emphasized and the ease of using many electronic spreadsheet business applications will be demonstrated. **3 credits**

OPMT 1122 (OPMT 122) Blueprint Reading for Facilities — This course is for facilities managers. Students will be introduced to layout, electrical, plumbing, site, construction, etc., specification drawings for cost estimation, code and equipment specifications. **3 credits**

OPMT 1125 (OPMT 125) Facilities Space Planning — This introductory course will provide an understanding of the applications of facilities planning as it relates to facilities management and covers space management and forecasting. Simple computer-aided facilities management (using Archibus/FM) will be introduced to enable the user to gain more control over their space by having better inventory of existing space, as well as tools for forecasting, allocation, layout and more. **3 credits**

OPMT 1142 (OPMT 142) Introduction to Quality Control Methods — A practical course in QC methods to introduce students to the field. The course will begin with basic descriptive statistics and some standard graphical tools such as histograms, Pareto charts, and scatter diagrams. The concept of process capability and the use of common control charts. Procedures for inspection sampling plans. **3 credits**

OPMT 1151 (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 1175 (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 1187 (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 1188 (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 1189 (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 1191 (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 1192 for a supporting course in inventory planning and control. **3 credits**

OPMT 1192 (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 1197 (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**

COURSE DESCRIPTIONS AND CREDITS

OPMT 1198 (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 1344 (OPMT 344) Total Quality Management in Manufacturing — Total Quality Management in manufacturing hinges on two aspects: Making the company the best it can possibly be in the use of its human resources and striving for world-class quality in the products it offers. Topics include: The basic philosophy, values and culture of TQM; total customer orientation; maximizing employee potential for continuous improvement. The course will then survey recent techniques used in striving for world class quality in: research and development, quality of design, customer and supplier relationships, production capability, process control and materials management. **3 credits**

OPMT 2125 Advanced Computer Aided Facility Management using ARCHIBUS/FM — This course covers all aspects of the bidirectional links between AutoCAD Release 12 and the ARCHIBUS/FM database editor. Topics include linking floor, room, and departmental boundaries, creating and inserting furniture and equipment standards, and creating visual reports. Strategies for converting existing AutoCAD drawings, importing existing database information, and issues related to data integrity will also be covered. Students will also customize ARCHIBUS/FM database schemes. This course requires OPMT 1125 (or a knowledge of PC databases) and a good working knowledge of AutoCAD Release 12. **4.5 credits**

OPMT 2197 Statistics for Business and Industry 2 — This course extends the coverage of OPMT 1197 by introducing computer software to perform basic descriptive statistics, inferential statistics, and includes additional quantitative models such as decision-trees, multiple regression, and the fundamentals of linear programming. Prerequisite: OPMT 1197 with a minimum grade of 65% or an equivalent college level business statistics course (with minimum B- grade), accessibility to and basic knowledge of personal computer.

OPMT 2206 (OPMT 206) Quality Assurance 2 (Manufacturing) — This course continues from OPMT 1106. Topics include Quality Assurance as it relates to marketing, engineering, purchasing and customer relations. QA support for marketing. The role of quality assurance during product development and design review; concepts of Taguchi methods. Vendor quality assurance, vendor quality rating systems, vendor certification. The relationship between Just-In-Time production and quality. Quality auditing. Legal aspects and product liability. Human factors in quality control; employee motivation and involvement. **3 credits**

OPMT 2242 (OPMT 242) Intermediate Quality Control Methods — This course is intended for people who have previous knowledge of statistics. Topics will include the use of distributions and tests to QC applications. The development of control charts including special charts. Design of sampling plans. Theory and applications for standard industrial sampling schemes, (MIL-STD-105, MIL-STD-414, and the commercial equivalents.) Reliability concepts and calculations for basic models. This course is designed to help candidates prepare for the certification examinations of the ASQC in these areas. **3 credits**

OPMT 2275 (OPMT 275) Advanced Warehouse Management — Students who have completed OPMT 1175 will benefit from this course. Upon successful completion, the student will have a sound understanding of Advanced Warehouse Management. Prerequisite: OPMT 1175. **3 credits**

OPMT 2287 (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. Prerequisite: OPMT 1187 or equivalent. **3 credits**

OPMT 2290 (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 1198. **3 credits**

OPMT 2298 (OPMT 298) Productivity Engineering 2 — For students with the basics of OPMT 1198. OPMT 2298 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 1198. **3 credits**

OPMT 3306 (OPMT 306) ISO 9000 Quality Standards —This course will familiarize students with the use of the ISO 9000 International Standards for Quality Management and Quality Assurance systems. The series consist of ISO 9000, 9001, 9002, 9003 and 9004. The purpose and requirements of the ISO Standards, and the selection of the standard most applicable to the goals and operations of your company. Assessment of existing company operations in terms of the standards, and the changes needed to implement the selected ISO standard. The steps to be followed to achieve approval and registration of the company quality system for accomplishment to the ISO requirements. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

OPMT 3342 (OPMT 342) Statistical Design of Experiments for Industry — Basic concepts of statistical experimentation. One-factor experiments, analysis of variance, two-factor experiments, randomized blocks, Latin Square model, fixed and random models. Factorial experiments including confounding and multi-level factors. Introduction to Taguchi methods and experimental parameter design. This course is designed to help candidates prepare for the CQE certification examination of the ASQC in this area. Prerequisite: OPMT 1197, 2242 or equivalent. **3 credits**

OPMT 3345 (OPMT 345) Quality Auditing — This course covers principles and applications for quality system audits, process audits and product audits, internal audits within the company and external audits at suppliers. Auditing terminology, planning, staffing and staff training, scheduling, reporting, using audit results and data. Techniques for handling different types of human reaction at all levels. Auditing standards in common use. Preparing for audits by major customers or agencies. This course will help candidates prepare for the ASQC CQA examination. Prerequisite: OPMT 1106 and 2206. **3 credits**

OPMT 3346 (OPMT 346) Reliability Principles — This course provides an introductory survey of reliability studies and testing. The nature of reliability and its role in a system life cycle, factors influencing inherent reliability and field use degradation. Reliability trade-offs. Developing a reliability program. Planning reliability at the conceptual design stage; prediction for reliability models; failure mode, effect and criticality analysis. Fault tree analysis. Types of reliability tests: environmental testing, accelerated life testing, burn-in tests. Failure reporting and corrective action. Maintainability concepts. Prerequisite: OPMT 1197, 2242 or equivalent. **3 credits**

OPMT 5740 (OPMT 740) Integrated Management Information Systems — This course will enable students to: appreciate the types of data which are collected into functional databases, how the data are synthesized into management information, and how this information can be integrated into the strategic decision-making process; understand current business practice for strategic information technologies, microcomputing, digital communication, image processing, relational database, artificial intelligence, graphics, voice processing, CASE, CAD/CAM, open systems, EDI, etc. You will be able to prepare and deliver effective oral and written presentations to management and work better within the project team to achieve common objectives. **credits TBA**

OPMT 5750 (OPMT 750) High Technology Processes — Provides a survey of high-technology manufacturing and service processes. The course will familiarize graduates of the Advanced Technology Management program with a variety of leading edge processes. The course includes analyses of both successful and unsuccessful implementations of high technology processes. It provides the opportunity for individual research in the field. Prerequisite: Admission to ASTB program. **credits TBA**

OPMT 5751 (OPMT 751) Mathematical Models for Business — This is a second course in the application of statistical methods to business problems. The course will provide detailed theoretical understanding and practical applications of two of the most commonly used techniques in mathematical modelling: Linear Regression and Time Series Analysis. You will learn how to view business situations as mathematical models and formulate the equations required for the model solution. Extensive lab work using computer software will lead to theoretical solutions. You will then learn how to interpret these solutions as a guide to practical management action. The course provides the opportunity to use and evaluate current software. **credits TBA**

TOURISM

TOUR 1250 (TOUR 250) Travel Agency and Tour Operation — A framework for students considering working in the tour wholesaling, retailing and operating fields. Topics include hotel terminology, group reservations and registrations, cruise and tour bookings, marketing of tours and product comparisons, elements of tour packages, incentive travel marketing, transportation commitments and negotiations, and tour package pricing. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

TOUR 1261 (TOUR 261) Tourism Issues — This course examines the evolution, function and direction of tourism. Topics include historical influences, basic ingredients of community tourism, government's function, tourism industry conflicts and recreational influences, the psychology of travel and instructional influences, social costs of tourism development and development strategies. **3 credits**

TOUR 2301 (TOUR 301) Group Travel Tours & Charters — The development, research and marketing of tour packages and charters provides a variety of employable skills resulting from this course. Practical exercises are given in tour planning, organizing, managing, guiding and marketing of tour/charter products. Terminology used by tour operators, wholesalers and destination management companies (D.M.C.'s) is applied in the costing, documentation and reservation systems used by firms in this growth sector of tourism. Prerequisites: TOUR 1261. **3 Credits**

TOUR 2303 (TOUR 303) Conventions, Meetings and Travel — The impact of conventions and incentive travel programs on tourism revenues for a destination warrants highly skilled, professional planners. This course places emphasis more on the planning and marketing function of meetings and incentive travel, rather than on the supply side. Subjects covered include transportation, accommodation and hospitality issues, program development, audiovisual and staff requirements, coping with contracts, speaker, spousal programs and pre/post activities. Effective meetings management is the goal and students will demonstrate their skills in practical assignments. **3 Credits**

TOUR 2325 (TOUR 325) Tourism Product Development — Designed to familiarize the student with tourism product development. Examines general demand factors, travel motivations, market segmentation, travel advertising, sales support, public relations, marketing risks and problems, statistical applications and analysis, tourism research, tour packaging and its various elements, etc. Prerequisite: TOUR 1261 **3 Credits**

TOUR 2330 (TOUR 330) Community Tourism Development — An approach to developing community tourism, oriented towards developing local interest and economic benefits. Topics include the nature of attraction, planning strategies, economic considerations, environmental factors and social and cultural impacts.

TRANSPORTATION LOGISTICS

TDMT 1101 (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 1150 (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. **3 credits**

TDMT 1202 (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. **3 credits**

TDMT 1304 (TDMT 304) Introduction to International Trading — Gives 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 1409 (TDMT 409) Harmonized Systems and the Free Trade Agreement — 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 3304 **or** TDMT 3305. **4.5 credits**

TDMT 2203 (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. **3 credits**

TDMT 2250 (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. **3 credits**

TDMT 3413 (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. **4.5 credits**

COOPERATIVE ASSOCIATION PROGRAMS

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 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.

BCIT, in cooperation with CAPIC, 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.

CAPIC's American parent — APICS — provides formal recognition by awarding a "Certified in Production and Inventory Management (CPIM)" designation for those practitioners who successfully pass the six exams set by APICS. These exams are:

Inventory Management
Master Planning
Material/Capacity Requirements Planning
Production Activity Control
Just-In-Time Production (JIT)
Systems & Technologies

Courses that have "certification review" in their title are intended to assist students in their preparation for the APICS exams.

CPIC 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 1110 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. 451-6746.

CREDIT UNION INSTITUTE OF CANADA (CUIC)

The Credit Union Institute of Canada (CUIC) is an independent, national, educational association owned, funded and controlled by the Canadian credit union system. CUIC provides Canadian credit unions with professional development programs for their elected officials, management and staff.

The CUIC program gives credit union employees a challenging curriculum of study aimed at enhancing their job skills. These programs offer greater job satisfaction, and open doors to new career opportunities within the credit union system.

For further information on the CUIC Program, contact: Eleanor Drescher, CUIC Coordinator, Training and Development Department, B.C. Central Credit Union, 1441 Creekside Drive, Vancouver, B.C. V6J 4S7, Telephone 734-2511.

The following courses will be considered for transfer credit for the 1993–1994 academic year:

CUIC Course	BCIT Part-time Studies
Accounting	FMGT 1100 Accounting 1 and FMGT 2100 Accounting 2 or FMGT 2190 Accounting 1/2
Communications	COMM 1615 Introduction to Business Technical Communication and COMM 1245 Business & Technical Correspondence
Business Administration	BUSA 1105 Management 1 and BUSA 2105 Management 2
Marketing	MKTG 1102 Essentials of Marketing
Finance	FMGT 3510 Finance 1 and FMGT 4510 Finance 2 or FMGT 3580 Finance 1L and FMGT 4580 Finance 2S
Organizational Behaviour	ORGB 2205 Organizational Behaviour 1 and ORGB 2305 Organizational Behaviour 2
Economics	ECON 2100 Microeconomics and ECON 2200 Macroeconomics
Electives	HRMG 3705 Counselling 1 and HRMG 4705 Counselling 2 HRMG 3100 Human Resource Management and HRMG 4605 Human Resource Planning HRMG 3205 Labour Relations 1 and HRMG 3255 Labour Relations 2 HRMG 3505 Training Techniques and HRMG 3500 Training & Development

Further elective courses will be evaluated as required.

COOPERATIVE ASSOCIATION PROGRAMS

THE CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION OF BRITISH COLUMBIA

The Certified General Accountants Association of British Columbia recognizes BCIT courses (full-time and part-time) 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 toward 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	FMGT 1100/2100 FMGT 1180/2180 or FMGT 2190
	Economics 1	ECON 2100/2200
	Quantitative Methods 2	TBA
	Financial Accounting 2 and 3	FMGT 3110/4110 or FMGT 3180/4180 or FMGT 4190
	Management Accounting 1	FMGT 3210/4210 or FMGT 3280/4280 or FMGT 4290
	Finance 1	FMGT 3510/4510 or FMGT 3580/4580
	Management Information Syst. 1	COMP 1601/1020/1401 COMP 1104/2125
	Public Speaking	MKTG 1323 or COMM 1100/2200
	Business Writing	COMP 1615/1245 or COMM 1100/2200

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.

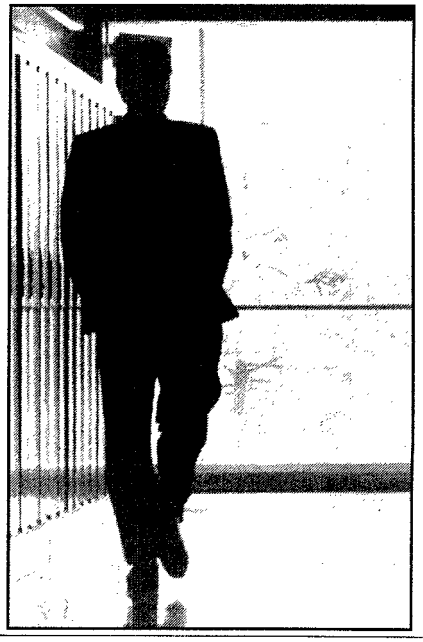
THE INSTITUTE OF CHARTERED ACCOUNTANTS OF BRITISH COLUMBIA

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 1100, 2100 or FMGT 1180, 2180 or FMGT 2190
Intermediate Financial Accounting	FMGT 3110, 4110 or FMGT 4190 or FMGT 3180, 4180
Introductory Management Accounting	FMGT 3210 or FMGT 3280
Cost Accounting	FMGT 4210 or 4280
Finance	FMGT 3510, 4510
Computers	COMP 1601 or 1010 or 1015
Management Information Systems	COMP 1615, 2615
Commercial Law	BLAW 3100
Mathematics	OPMT 1102 or MATH 2011
Probability /Statistics	OPMT 1197
Economics	ECON 2100, 2200
Organizational Behaviour	ORGB 2205
Tax	FMGT 3420, 4420

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.



COOPERATIVE ASSOCIATION PROGRAMS

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	BLAW 3100
3. Principles of Administration	BUSA 1105/2105
4. Principles of Accounting	FMGT 1100/2100
5. Communication	COMM 1103
6. Statistics	OPMT 1197

Business Administration Program

Module A (both subjects to be passed)

A1 Financial Management Accounting	FMGT 3210/3110
A2 Corporation Law	ECON 2200

Module B (two subjects to be passed)

B1 Law for the Administrator	BLAW 3100
B2 Taxation	FMGT 3420/4420
B3 Business Finance	FMGT 3510/4510

Module C (two subjects to be passed)

C2 Management of Human Resources	ORGB 2205/2305
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 3110/4110
A3 Public Finance	—

Module B (two subjects to be passed)

B1 Law for the Administrator	BLAW 3100
B4 Canadian Government	—
B5 Canadian Public Administration	ICSA

Module C (two subjects to be passed)

C2 Management of Human Resources	ORGB 2205/2305
C3 Economic Policies and Problems	ECON 2200

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 Accounting	ICSA
A5 Law of Local Government	BLAW 3205

Module B (two subjects to be passed)

B4 Canadian Government	—
B5 Canadian Public Administration	ICSA
B6 Law of Local Government 2	BLAW 3205

Module C (two subjects to be passed)

C2 Management of Human Resources	ORGB 2205/2305
C3 Economic Policies and Problems	ECON 2200

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.

COOPERATIVE ASSOCIATION PROGRAMS

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 1103 Quality Control Methods 1
OPMT 1106 Manufacturing Quality Assurance 1
OPMT 2203 Quality Control Methods 2
OPMT 2206 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 5746.

COOPERATIVE ASSOCIATION PROGRAMS

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 its prerequisites 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 Suite 1575, 650 West Georgia Street, Vancouver, B.C. V6B 4W7.

Exemption Policy for BCIT

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% 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 1100/2100 or FMGT 1180/2180 FMGT 2190
122	Commercial Law	BLAW 3100
123	Organizational Behaviour	ORGB 2205/2305
212	Economics	ECON 2100/2200
229	Intermediate Accounting 1	FMGT 3110 or 4190 or 3180
241	Management Accounting 1	FMGT 3210/4210 or FMGT 4290 or FMGT 3280/4280 and COMM 2203
324	Taxation	FMGT 3420/4420
332	Quantitative Methods	OPMT 1197
339	Intermediate Accounting 2	FMGT 4110 or FMGT 4180 or FMGT 4190
342	Management Accounting 2	FMGT 3210/4210 or FMGT 4290 or FMGT 3280/4280 and COMM 2203
Professional Program		
442	Financial Management	FMGT 3510/4510 or FMGT 3580/4580
451	Accounting Information Systems	COMP 1615/2615
452	Internal Auditing	FMGT 3310/4310
502	Advanced Financial Accounting	FMGT 4120

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 specialities 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

Institute Compulsory Subjects	BCIT equivalents
Principles of Accounting	FMGT 1152 FMGT 1100
Business Communications	COMM 1103 COMM 2204
Interpersonal Communication	MKTG 1323
Business Law	BLAW 3100
Principles of Economics	ECON 2100/2200

COOPERATIVE ASSOCIATION PROGRAMS

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	BUSA 1105/2105
Communications	COMM 1103
Year 2	
Canadian Business Law	BUSA 3100
Managerial Process and Organizational Behaviour	ORGB 2205
Year 3	
Marketing Management Option	HRMG 3105/4605 BUSA 3405 HRMG 3205 MKTG 1102
Managerial Accounting	FMGT 2100/3510/4190
Year 4	
Managerial Finance	CIM only
Policy and Administration	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	BUSA 1305
CSM	101	Introduction to Financial Management	FMGT 1100/1152
CSM	102	Communication Skills for Managers	COMM 2202
CSM	103	Industrial Relations and Personnel	BUSA 1305 & HRMG 3105

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

CANADIAN ADMINISTRATIVE HOUSEKEEPERS ASSOCIATION (CAHA)

CAHA is an accredited Canadian professional association of persons employed in the field of housekeeping management. Students who are interested in the CAHA, may contact Lea LBuburuz, the Education Director of CAHA, Tel. 660-5610.

CAHA 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 CAHA. The following courses have been accepted:

CAHA Requirements	BCIT Part-time Studies
Mandatory Courses	
Sociology	ORGB 2305 or HMGT 4150
Psychology	ORGB 2305 and HMGT 4150
Economics	ECON 2100
Labour Relations	HRMG 3205 or HRMG 3255 or HMGT 4160
Personnel Management	HRMG 3105 or HMGT 4150
Microbiology/Sanitation	CAHA (Correspondence Course)
Interior Planning/Design	INTD 1000
Safety/Accident Prevention	HRMG 2805
Supervisory Skills	BUSA 1305
Organization Planning	BUSA 1105 or HCSY 4180

Five electives are required by CAHA for certification. Choose from the list below:

Training Techniques	HRMG 3505
Business Law	BLAW 3100
Purchasing	OPMT 1191
Accounting	FMGT 1152
Small Business Management	MKTG 1324 or HMGT 5120
Pest Control	CAHA
Laundry/Linen	CAILM (Canadian Laundry Managers Association)
Communications (Choose one)	COMM 1103 COMM 2202 COMM 2203 COMM 2204
Interview Techniques	HRMG 3305
Counselling Skills	HRMG 3705
Computer Fundamentals	TBA
Quality Assurance Programming	Seminars/Courses
Quality Control Methods	OPMT 1103
Statistical Process Control Equipment Maintenance Design	CAHA Seminars/Other Approved Related Employment Course or CAHA

ELECTRICAL AND ELECTRONIC TECHNOLOGY

SCHOOL OF ELECTRICAL AND ELECTRONIC TECHNOLOGY

Dennis C. Duffey, Dean
Holly Stanley, Administrative Officer

59 / ELECTRONICS ENGINEERING TECHNOLOGY

Mike Jervis, B.Sc., Associate Dean
E.G. Hancock, Dipl.T., B.Eng., P.Eng., Program Coordinator
Tel. 432-8253
Ann McNaughton, Program Advisor
Tel. 432-8467

Technology Certificate Programs
Intermediate Certificate of Technology
Diploma of Technology
Post-diploma courses for industry
Specialty courses for the Instrumentation Industry

61/ COURSE DESCRIPTIONS AND CREDITS

Electronics Engineering Technology

64 / ELECTRICAL TRADES

Dennis C. Duffey, Associate Dean
Ron Bushell, Trades Program Coordinator
Tel. 432-8728
Elayne Anderson, Trades Program Assistant
Tel. 432-8637
Ann McNaughton, Program Advisor
Tel. 432-8467

Electrical Trades Upgrading
Industrial Computing and Control
Instrumentation Upgrading
Learning Skills for Trades

65 / ELECTRONICS TRADES

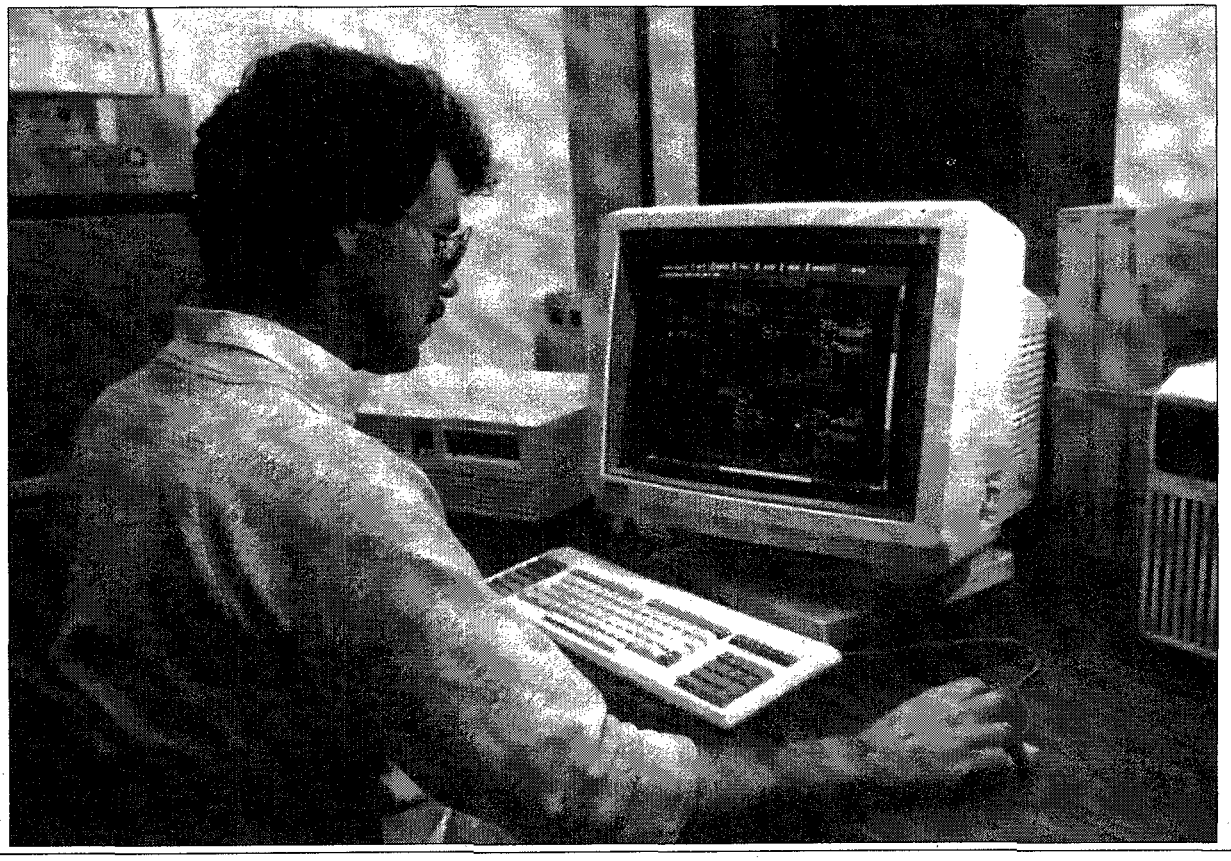
Dennis C. Duffey, Associate Dean
Patrick Mulldoon, Chief Instructor
Tel. 432-8223
Ann McNaughton, Program Advisor
Tel. 432-8467

Electronics Technician Common Core Program
Introduction to Electronics
Electronics Specialty Training

66 / COURSE DESCRIPTIONS AND CREDITS

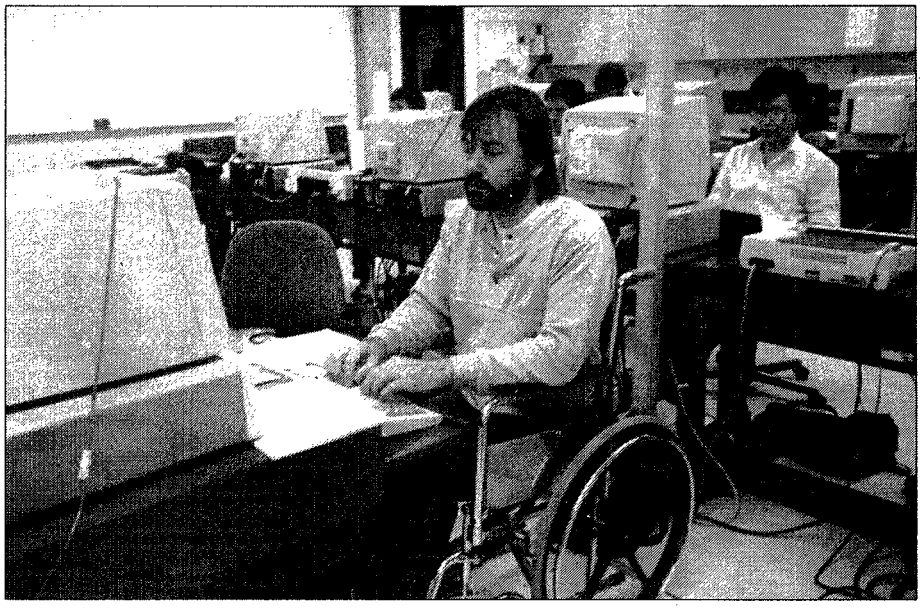
Electrical Trades
- Electrical Trades Upgrading
- Industrial Computing and Control
- Instrumentation
- Learning Skills for Trades

Electronics Trades
- Introduction to Electronics



ELECTRONICS ENGINEERING TECHNOLOGY

For more information or questions on prerequisites, contact Ernie Hancock, Tel. 432-8253.



GENERAL INFORMATION

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 engineering technical team. The positions held by these persons are found in design, development, production, installation, sales and maintenance, and in companies such as H.A. Simons, Franzen Engineering, B.C. Hydro, Nexus Engineering, M.D.A., MPR Teltech, BC Tel, the Department of Communications, ASEA, General Electric, and Westinghouse.

The Electronics Engineering Technology diploma program is accredited by the Association of Applied Sciences Technologists and Technicians of British Columbia (ASTTBC). See Engineering Technology section for more information on membership.

Most part-time Engineering Technology courses offered through BCIT Electronics Technology are recognized for credit toward a diploma.

Introductory Courses

For persons interested in electronics engineering, the following courses are an introduction.

ELEX	0100	Electronics Engineering Technology Careers
ELEX	0105	Circuit Analysis 1 Introduction
ELEX	0115	Digital Techniques 1 Introduction

TECHNOLOGY CERTIFICATE PROGRAMS

The Certificate of Technology and Intermediate Certificate of Technology are available to those students who maintain a 60% average and earn at least 50% of their required course credits at BCIT. All courses offered through regular day school can be taken on a part-time basis.

Most of the part-time courses are identical to day school courses. Students can easily transfer between part-time and full-time studies.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY

For persons wishing to commence a program of Electronics study at the Engineering Technology level.

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.

COMM	1103	Introduction to Business and Technical Communication
ELEX	1105*	Circuit Analysis 1
ELEX	1111	or 1163* Electronic Manufacturing Processes
ELEX	1115	or 1116* Digital Techniques 1
ELEX	2105*	Circuit Analysis 2
ELEX	2120	Electronic Circuits 1
MATH	1434/ 1435	Mathematics for Electronics Parts A & B
PHYS	1143	Physics for Electronics 1

*ELEX 2135 is an accelerated combined (ELEX 1105 and 2105) course available to those with recent Math 12 or equivalent and 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 who will continue in ELEX 2135 and who will be advised to transfer to ELEX 1105. Prerequisite: Recent Math 12 and Physics 11 both with at least C+, or equivalent.

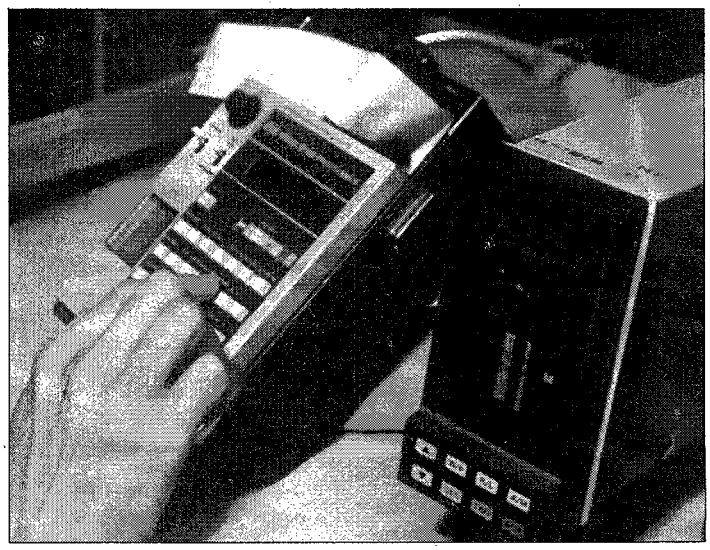
*ELEX 1163 and ELEX 1116 are for students with previous electronics work experience.

ELECTRICAL AND ELECTRONIC TECHNOLOGY

CERTIFICATE OF TECHNOLOGY

For persons seeking courses leading to accreditation, to national standards, as an "Engineering Technician" with the ASTT. Courses in this program also serve as the foundation for BCIT's Nationally recognized "Diploma of Technology." A Certificate of Technology program will typically require 41 to 43 credits in addition to the "Intermediate Certificate" for a total of 86 to 92 credits.

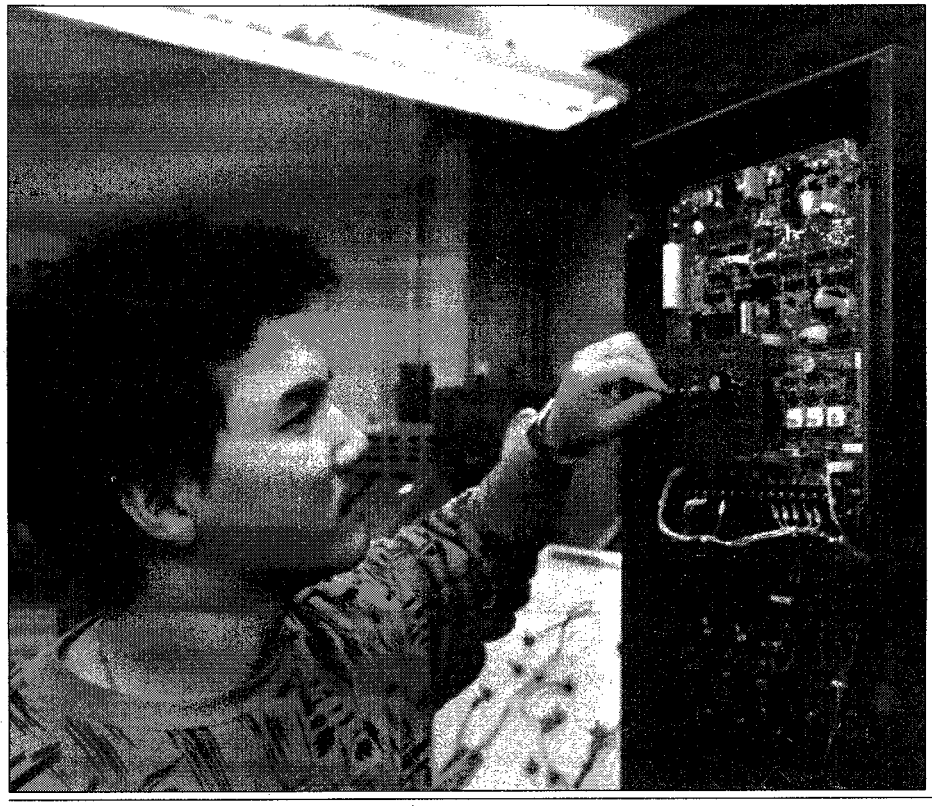
ELEX 2115 Digital Techniques 2
ELEX 2125 or 2130* C Programming or C for the Novice Electronics Pascal Programmer
ELEX 3320 or 3515 Electronic Circuits 2 (Control or Telecommunications)
ELEX 3405 or 3505 Electrical Equipment 1 or Telecommunications Circuits & Systems 1
ELEX 3310 Pulse Techniques
MATH 2434/2435 Calculus for Electronics Parts A & B
PHYS 2143 Physics for Electronics 2



DIPLOMA OF TECHNOLOGY

The diploma program is a two-year (four-term, full-time, 150-credit program. Several diploma courses are available in the evening.

ELEX 3305 Microcontroller Systems 1
ELEX 4325 Microcontroller Systems 2
ELEX 4505 Telecommunication Circuits and Systems 2
ELEX 4510 Data Communication



SPECIALTY COURSES IN TELECOMMUNICATIONS AND COMPUTER CONTROL

Advance your diploma or Engineering studies with these courses specifically tailored to suit B.C. Industry needs.

ELEX 5510 Introduction to RF Circuit Design for Engineers and Technologists
ELEX 7505 Introduction to Digital Signal Processing (DSP)
ELEX 7510 Real-time DSP Applications
ELEX 7515 Introduction to LAN Firmware Setup
ELEX 7520 Introduction to Xilinx PLDs

*** Others to be announced in Fall, Winter and Spring flyers.

SPECIALTY COURSES IN INSTRUMENTATION AND AUTOMATION

The following courses are designed for those working in the Instrumentation Industry.

ELEX 0205 PLC Introduction for Electronics Technology
ELEX 0215 Measurement and Control 1
ELEX 0220 Measurement and Control 2
ELEX 0225 Measurement and Control 3

COURSE DESCRIPTIONS AND CREDITS

ELECTRONICS ENGINEERING TECHNOLOGY

For more information or questions on prerequisites, contact Ernie Hancock, Tel. 432-8253.

Note: (T) indicates course directly transferable to diploma credits.

ELEX 0100 (ELEX 001) Electronics Engineering Technology Careers — A discussion of electrical and electronics career opportunities, the electronics industry in B.C. and Canada, and electrical and electronics engineering technology courses available to the person interested in an electronics career or hobby. **non credit**

ELEX 0105 (ELEX 920) Circuit Analysis 1 Introduction — An introduction to circuit analysis. A non-credit course which parallels the first 12 weeks of ELEX 1105. Students who wish to continue for credit may register in ELEX 1105 before week 12. (ELEX 0105 fees will be applied to ELEX 1105 with continued registration.) Prerequisite: Math 12, Physics 11 or departmental approval. **non credit**

ELEX 0115 (ELEX 930) Digital Techniques 1 Introduction — An introduction to digital techniques. A non-credit course which parallels the first 12 weeks of ELEX 1115. Students who wish to continue for credit may register in ELEX 1115 before week 13. (ELEX 0115 fees will be applied to ELEX 1115 with continued registration.) **non credit**

ELEX 0205 (ELEX 905) PLC Introduction for Electronics Technology — Examines the use of the Programmable Logic Controller (PLC) to solve a number of control problems ranging from simple motor control interlocks to more complex systems. Students gain a full understanding of the design process involved in solving a control problem safely, as well as accepted documentation practices, while obtaining hands-on training implementing their programs. **non credit**

ELEX 0215 (ELEX 942) Measurement and Control 1 — An introduction to the area of process automation and instrumentation. Pressure and level measurement equipment (including smart transmitters) are discussed and typical industrial applications are reviewed. The basic elements of closed loop feedback control systems are presented and students will set up on/off and proportional control systems to a typical industrial process. **non credit**

ELEX 0220 (ELEX 943) Measurement and Control 2 — A continuation of ELEX 0215. Discusses various types of flow and temperature measurement equipment. Students will calibrate and evaluate typical industrial transmitters used to measure temperature and flow. The application of the various types of transmitters to industrial processes will be presented. Integral and derivative control modes are developed. Control systems based on PI, PD and PID are commissioned and tuned by the student. Prerequisite: ELEX 0215. **non credit**

ELEX 0225 (ELEX 944) Measurement and Control 3 — A continuation of ELEX 0220. Analytical measurements such as humidity, pH, conductivity, gas analysis, etc. are reviewed. Control topics including cascade, feedforward and adaptive control are discussed. Prerequisite: ELEX 0220. **non credit**

ELEX 1105 (ELEX 100) Circuit Analysis 1 (T) — Teaches the principles and methods of analysis related to DC circuits. Topics include SI units and terminology, voltage, current, work, energy, power and resistance. 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 RK 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 with a C+, or departmental approval. **7 credits**

ELEX 1111 (ELEX 103) Electronics Manufacturing Processes (T) — This is a project-oriented course with intensive hands-on lab work. Students will develop two electronic products and will learn the fundamentals of electronic components and their selection, preparation of engineering drawings such as schematic diagrams, orthographic views, pattern layouts, and the design and fabrication of single- and double-sided printed circuit boards. A popular printed-circuit CAD program will be introduced and used in the design of circuit boards. Students will have the opportunity to develop skills in: Component heat analysis and heatsink selection, basic- and high-reliability soldering, and printed circuit board repair and rework. For students with experience in all of the above except the design of printed circuitry, ELEX 1163 may be taken as an alternative. **3 credits**

ELEX 1115 (ELEX 102) Digital Techniques 1 (T) — 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) concepts 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. **6 credits**

ELEX 1116 (ELEX 112) Digital Tech. 1 Upgrade (T) — Provides an upgrade from the old ELEC 202 which was 3 credits to the new ELEX 1115 which contains more material and is now 6 credits. Also for those with previous trades/technical digital training. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

ELEX 1163 (ELEX 163) Printed-circuit Design & Manufacturing (T) — This is a project-oriented short course with intensive hands-on lab work. Students will develop printed-circuitry for two electronics products. In the process, they will learn the fundamentals of circuit board specifications, material selection, component selection, and to identify and set design priorities before commencing layout. Students will fully document their work, and will create a "production package" for each of their projects. A popular printed-circuit CAD program will be introduced, and used in the design of one or more circuit boards, single-sided and double-sided. These boards will be fabricated in the BCIT PC-board lab. An alternative course, ELEX 1111, provides instruction in the broader subject of electronics manufacturing and includes the topics taught in ELEX 1163. This course is mainly intended for those students who, by virtue of acceptable work experience, have credit for ELEX 1111 in all topics but printed circuitry. **2.5 credits**

ELEX 2105 (ELEX 200) Circuit Analysis 2 (T) — Introduces the behaviour of electrical circuits and networks when driven by a single-phase alternation current (AC) source; preparation for the course 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 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 1105 , MATH 1431 or 1434/1435 or departmental approval. **5.5 credits**

ELEX 2115 (ELEX 202) Digital Techniques 2 (T) — Builds on the knowledge gained in ELEX 102. Studies the utilization of logic gates in larger combinational 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 3305. Prerequisite: ELEX 1115, 1116, or departmental approval. **7 credits**

ELEX 2120 (ELEX 203) Electronic Circuits 1 (T) — 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 1431 or 1434/1435, ELEX 2105* (*may be taken concurrently), or departmental approval. **8 credits**

ELEX 2125 (ELEC 205) C Programming (T) — An introductory course in microcomputers, DOS operating system, programming languages, compilers and interpreters. The IBM personal computer is used throughout this course for interactive student training. The main part of the course covers C programming for engineering applications. Students will also document and debug software, and utilize available software libraries. **4.5 credits**

ELEX 2130 (ELEX 206) C for Novice ELEX Pascal Programmers (T) — Upgrade to C. C is the language of choice in the Electronics industry. For the person who has done some programming, most likely in Turbo Pascal. Suitable for PC users presently programming in other languages such as BASIC or FORTRAN. **3 credits**

ELEX 2135 (ELEX 208) Circuit Analysis AC/DC (T) — Enables persons with good math skills or 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 continue. Counselling will be provided. Prerequisite: Recent Math 12 and Physics 11 both with minimum C+, or equivalents, or departmental approval. **12.5 credits**

ELEX 2866 Introduction to Interfacing the IBM PC (30 hours) (T) — This course extends the student's knowledge of the C language by programming into a hardware interface, activating both digital and analog I/O and giving a concrete sense of ports, buffer latches, decoding and memory. The course combines further exploration of the 8253 timer chip, the 8259 PIC, the 8250 UART and the keyboard with hands-on experience of installing a floppy drive and a hard drive. **4 credits**

ELEX 3305 (ELEX 302) Microcontroller Systems 1 (T) — Applies knowledge gained in ELEX 1115/2115 to perform a detailed study of a Microcontroller System. This includes internal architecture, memory devices, machine/assembly/high-level language programming on operating systems, software development tools, input and output ports, A to D and D to A converters, interrupts and the serial peripheral interface. Throughout the course, a single board microcontroller system is used to facilitate a detailed analysis of the hardware and software involved. **7 credits**

COURSE DESCRIPTIONS AND CREDITS

ELEX 3310 (ELEX 307) Pulse Techniques (T) — 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 2105, 2115, 2120, MATH 1431 or 1434/1435, or departmental approval. **5.5 credits**

ELEX 3405 (ELEX 305) Electrical Equipment 1 (T) — 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 3405 requirement for the Control Option diploma. Meets or exceeds the ELEX 2845 requirement for Mechanical. Explains the operation of electrical equipment for tradespersons. Prerequisite: Previous AC and DC circuit analysis training required. **6 credits**

ELEX 3505 (ELEX 331) Telecommunications Circuits and Systems 1 (T) — 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 2105 or 2135, 2115, 2120, or 3515*, MATH 2431 or 2435 (*may be taken concurrently), or departmental approval. **7 credits**

ELEX 3515 (ELEX 333) Electronic Circuits 2 (Telecom) (T) — Provides further knowledge of electronic circuits with emphasis on their application in telecommunications. Topics include small-signal tuned amplifiers; control of gain; stability of tuned amplifiers; wideband amplifiers; differential amplifiers; operational amplifiers; active filters; and parameter systems and their use in small-signal analysis. Prerequisite: ELEX 2115 or 2135, 2120, MATH 2431 or 2435, or departmental approval. **5.5 credits**

ELEX 4325 (ELEX 416) Microcontrollers Systems 2 (T) — This course continues the work done in ELEX 3305 on the single-chip microcontroller and its use in industry measurement, control and data acquisition applications. Prerequisite: ELEX 3305, 3310. **7 credits**

ELEX 4505 (ELEX 431) Telecommunication Circuits and Systems 2 (T) — Schematics of several commercial transmitters and receivers are analysed in detail using the manufacturers documentation. The applications of circuits studied in Levels 1 through 3 are noted. The transmitting and receiving systems selected for analysis are typical examples of equipment used for various communications services, including general mobile, and avionic and marine radio. Cellular radio systems are examined in detail. The course also gives an introduction to the systems and circuits used for video signal transmission and reception (including colour), and examines the effects of noise and distortion on system performance. Labs give instruction on system test and evaluation procedures in accordance with DOC and EIA specifications. Prerequisites: ELEX 3305, 3505, 3510, 3515, 4525* (*may be taken concurrently). **7 credits**

ELEX 4510 (ELEX 406) Data Communication (T) — 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. This course is intended for the electronic technologist involved in hands-on work with Data Communication equipment at the chip level. Prerequisite: ELEX 3305, 3515, and 3310 or departmental approval. **7 credits**

ELEX 5510 (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 CHEBYCHEV 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 7505 (ELEX 731) Introduction to Digital Signal Processing (DSP) — Explains the theory and introduces the mathematical models and computer tools and procedures used for data analysis and a broad array of digital filter designs. Prerequisite: Diploma of Technology in a related area or equivalent, or departmental approval. **3 credits**

ELEX 7510 (ELEX 732) Real-time DSP Applications — A continuation of ELEX 7505. Introduces the Motorola 56000 family of DSP processors. Teaches the use of Assembly language programming to write efficient code to perform real-time digital filtering. Introduces the discrete Fourier Transform and its fast Fourier Transform implementation. Students code, debug and execute one of their digital-filter designs from ELEX 7505. Prerequisite: ELEX 7505. **3 credits**

ELEX 7515 Intro to LAN Firmware Setup (12 hours) — TBA. Call Ernie Hancock for more information at 432-8253.

ELEX 7520 Intro to Xilinx PLDs (24 hours) — TBA. Call Ernie Hancock for more information at 432-8253.

ELECTRICAL AND ELECTRONIC TECHNOLOGY

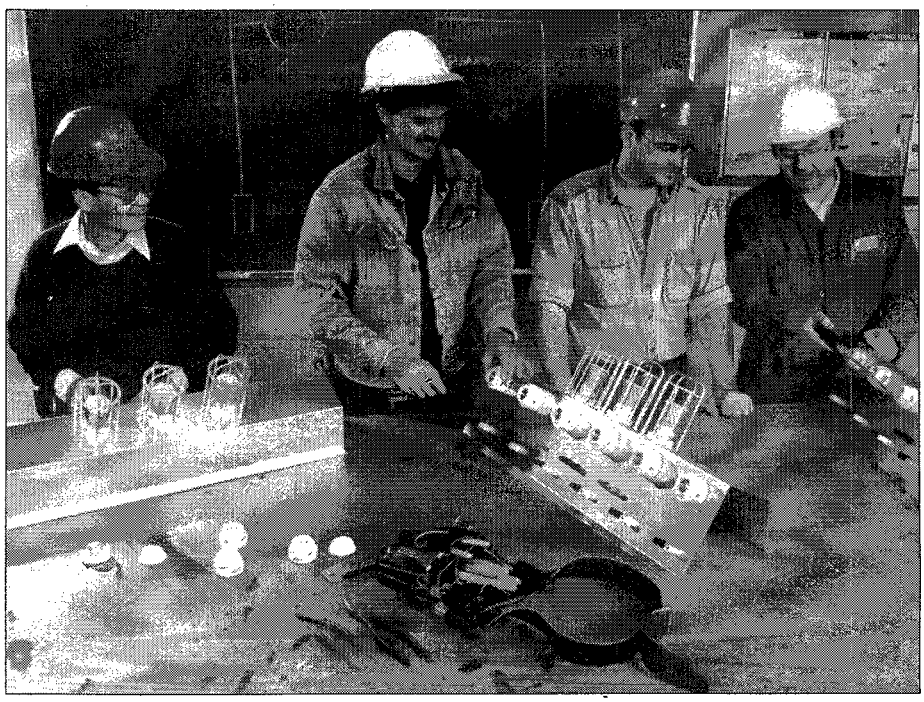
ELECTRICAL TRADES

ELECTRICAL TRADES UPGRADING 432-8637/432-8728

Ron Bushell, Program Coordinator

The following courses are for those persons currently working in the Electrical Trade and are needing an upgrade to make themselves more marketable in their field of expertise. All upgrading courses are non-credit.

TELC 0105 Electrical Trade Qualification Refresher
TELC 0106 Electrical Code 1
TELC 0107 Electrical Code 2
TELC 0109 Code Calculations for Motors
TELC 0110 Code Calculations for Transformers & Capacitors
TELC 0111 Code Requirements for Grounding & Bonding
TELC 0112 Code Requirements for Protection & Control
TELC 0121 Math for Electricians 1
TELC 0122 Math for Electricians 2
TELC 0123 Math for Electricians 3
TELC 0125 DC Motors
TELC 0126 AC Motors
TELC 0127 AC Systems, Transformers & Distribution
TELC 0131 Lighting
TELC 0135 Heating, Ventilating, Air Conditioning Systems for Electricians
TELC 0138 Blueprint Reading for Electricians
TELC 0140 Fire Alarm Systems
TELC 0141 Security Systems
TELC 0142 Alarm Systems Basic
TELC 0150 Basic Hydraulics for Electricians
TELC 0161 High Voltage 1
TELC 0162 High Voltage 2



INDUSTRIAL COMPUTING AND CONTROL 432-8637

Ron Bushell, Program Coordinator

The following courses are for those persons currently working in an industrial or commercial environment requiring upgrading in computerized control.

TCMP 0101 Introduction to Computers for Electricians
TCMP 0104 Programming in BASIC for Tradespersons
TCMP 0110 Introduction to L.A.N. Systems
TCMP 0120 Introduction to Novell Netware V3.11
TELC 0128 DC Variable Speed Drives
TELC 0129 AC Variable Frequency Drives
TELC 0130 Motor Control 1
TELX 0104 Introduction to Microprocessors for Trades
TELX 0131 Fibre Optics
TELX 0160 Basic Programmable Logic Controllers for Mechanical Trades
TELX 0170 Operational Amplifiers

A Statement of Completion in Programmable Logic Controllers is issued to students who successfully complete TELX 0181, 0182, 0183, and 0184.

TELX 0181 Programmable Controllers 1
TELX 0182 Programmable Controllers 2
TELX 0183 Programmable Controllers 3
TELX 0184 Programmable Controllers 4

INSTRUMENTATION UPGRADING 432-8637

Ron Bushell, Program Coordinator

The following courses are for those persons currently working in an industrial environment requiring additional training in boiler and process control.

TELX 0122 Introduction to Computerized Process Control
TELX 0123 Computerized Industrial Boiler Control

ELECTRICAL AND ELECTRONIC TECHNOLOGY

LEARNING SKILLS FOR TRADES 432-8637

Ron Bushell, Program Coordinator

The following courses are designed to improve students' reading and study skills.

TELC 0100 Reading Comprehension
TELC 0101 Study Skills

ELECTRONICS TRADES

INTRODUCTION TO ELECTRONICS

This is a program consisting of four courses designed for those with little or no previous knowledge of Electronics. This short-term program is intended for those who require a basic working knowledge of electronics for their jobs or those who want to learn more about electronics. A Statement of Attendance in Electronics (Basics) is issued to students who successfully complete TELX 0175, 0176, 0177, and 0178.

TELX 0175 Introduction to Electronics: Passive Devices
TELX 0176 Introduction to Electronics: Solid-state Devices
TELX 0177 Introduction to Electronics: Digital Devices
TELX 0178 Introduction to Electronics: Microprocessors

ELECTRONICS TECHNICIAN COMMON CORE PROGRAM

This is a part-time version of the BCIT Electronics Technician Common Core Program. This version differs only in that the hours have been modified to accommodate those students who cannot attend regular day school. This program takes place on Tuesday, Wednesday and Thursday evenings from 1830 to 2200. The entire program requires two full years to complete. Upon successful completion students will receive a BCIT Certificate. Registration is limited to 18 students per year. For more information please contact the full-time admissions department.

TELX 1101 Electronics Technical Skills 1
TELX 1102 DC Circuit Analysis
TELX 1103 AC Circuit Analysis
TELX 1104 Electronic Troubleshooting
TELX 1110 Solid-state Devices — Discreet
TELX 1111 Solid-state Devices — Integrated
TELX 1112 Electronic Troubleshooting 2
TELX 1130 Electronics Technical Skills 2
TELX 1131 Digital Principles
TELX 1132 Microprocessor Principles
TELX 1133 Electronic Troubleshooting 3

ELECTRONICS SPECIALTY TRAINING

The following courses are for those persons with previous electronics training.

Upon successfully completing the following course, students will be issued a Statement of Completion in Microcomputer Systems Maintenance.

TCMP 0179 Microcomputer Systems Maintenance

Students who successfully obtain a grade of 70% or better in the following courses will receive a BCIT/PACE Statement of Completion on conclusion of each course.

TELX 0110 Universal Repair & Rework
TELX 0111 Multilayer Board Repair
TELX 0112 Surface Mount Technology

Students who successfully obtain a grade of 70% or better will receive a Statement of Completion in Fibre Optics.

TELX 2209 Fibre Optics

ELECTRICAL TRADES

ELECTRICAL TRADES UPGRADING

TELC 0105 (TELC 916) Electrical Trade Qualification Refresher (60 hours) — This course is for tradespersons preparing to write the Electrical Trade Qualification Exam. Tradespersons must have approved electrical work experience. It is recommended that approval be obtained from the Ministry of Skills, Training and Labour area office nearest you prior to enrolling. Prerequisite: Knowledge of wiring methods and terminology.

TELC 0106 (TELC 905) Electrical Code 1 (60 hours) — Designed for Electricians wanting to become eligible to write the Class C Contractors Examination. On completion, students should be able to interpret the Canadian Electrical Code, with special emphasis on building demand, motor feeder and branch circuit calculations. This course is mandatory for first-time license applicants and is also ideal for current Electrical Contractors who are required to update their code knowledge for renewal of their license. This course is taught by a certified code instructor approved by the Electrical Safety Branch. Prerequisite: Knowledge of wiring methods and terminology.

TELC 0107 (TELC 907) Electrical Code 2 (60 hours) — This course covers all aspects of the Canadian Electrical Code with emphasis on high-voltage installations. Ideal for current Electrical Contractors (all classes) who want to update their code knowledge. Completion of this course will satisfy upgrading requirements as required by the Electrical Safety Branch. This course is taught by an Electrical Inspector who has up-to-date knowledge of the working requirements of the code. Prerequisite: High Voltage or three-phase experience recommended.

TELC 0109 (TELC 981) Code Calculations for Motors (6 hours) — Includes conductor sizing, selection of overload and overcurrent devices for AC and DC motors.

TELC 0110 (TELC 982) Code Calculations for Transformers and Capacitors (6 hours) — Includes conductor sizing, selection of overcurrent devices for single- and three-phase transformers. Also covering protection and sizing of conductors for capacitors.

TELC 0111 (TELC 983) Code Requirements for Grounding and Bonding (6 hours) — Includes conductor sizing and connection for grounding various electrical systems.

TELC 0112 (TELC 984) Code Requirements for Protection and Control (6 hours) — Includes the installation standard for overcurrent and overload devices and the sizing and selection of various protective devices.

TELC 0121 (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 mathematical expressions, algebra refresher, DC electricity and resistive circuit analysis. Prerequisite: Math 10.

TELC 0122 (TELC 923) Math for Electricians 2 (60 hours) — Provides students with the mathematical background they need to understand alternating current (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 0121 or equivalent.

TELC 0123 (TELC 925) Math for Electricians 3 (60 hours) — This course is recommended to students about to enter the third year apprenticeship program in electrical trade, and for others interested in understanding three-phase circuits and equipment. Prerequisite: TELC 0122 or equivalent.

TELC 0125 (TELC 924) DC Motors (12 hours) — This course will cover the principles of DC motor operation and construction, and operating characteristics of different types of DC motors.

TELC 0126 (TELC 926) AC Motors (12 hours) — This course will cover the principles of AC motor operation, construction, and operating characteristics of different types of single-phase and three-phase motors.

TELC 0127 (TELC 938) AC Systems, Transformers and Distribution (12 hours) — This course covers theory, construction and applications of single-phase and three-phase transformers and connections. Secondary distribution discussions will include vaults, switchboards, unit substations and other types of distribution systems. Single-phase and three-phase loads will be covered.

TELC 0131 (TELC 920) Lighting (12 hours) — This course includes lighting principles, lighting units, incandescent, fluorescent, HID lamp types and their characteristics and operation. Recent development in lighting, energy efficient ballasts, lighting controls and Canadian Electrical Code. Prerequisite: Familiarity with wiring methods and electrical construction.

TELC 0135 (TELC 937) Heating, Ventilating, Air Conditioning Systems for Electricians (12 hours) — Covers terminology, regulations for use, different types of systems for various occupancies, and associated air handling units and control units. Also covered is controlling mixed air, supply air, humidification, heating, cooling, individual space control and zone valves.

TELC 0138 (TELC 939) Electrical Blueprint Reading (12 hours) — This course is designed to give students an overview of architectural, mechanical and plumbing drawings leading to electrical blueprints and specifications. Will include shop, plan, elevation, sectional and detail drawings. Blueprints of several projects will be analyzed.

TELC 0140 (TELC 917) Fire Alarm Systems (12 hours) — Gives students an overview of the codes and regulations that govern fire alarm systems. Covers A & B class, supervised and unsupervised, single-stage and two-stage systems. Initiating devices, smoke and heat detectors, alarm devices, annunciators and typical panels. Discussions will include various types of common alarm systems.

TELC 0141 (TELC 968) Security Systems (42 hours) — For the salesperson, administrator, manager or Crime Prevention Officer with limited technical knowledge about security systems; as well as for installers who are new to the trade. Covers: rules and regulations including mandatory Trades Qualification requirements; basic electronics; testing and servicing; wiring methods; input, output and control equipment; central station communications; access and CCTV systems. A Security Clearance Form will be completed on the first night. Failure to make the security clearance will result in immediate withdrawal.

TELC 0142 (TELC 969) Alarm System Basics (6 hours) — For the business owner/manager, or the home owner. This course covers the design and installation of security systems; the types of equipment used; applicable regulations and bylaws; selection of an installation contractor. Upon completion of this course the student will be able to make an informed decision on the purchase of an alarm system, understand the basics in alarm system operation, and understand how they are installed.

TELC 0150 (TELC 950) Basic Hydraulics for Electricians (18 hours) — Intended for electricians working with electromechanical interfacing equipment. Emphasis will be placed on how to determine whether system failures are due to electrical or mechanical faults in electromechanical systems.

TELC 0161 (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. Prerequisite: Journeyed level of experience and knowledge preferred.

TELC 0162 (TELC 961) High Voltage 2 (30 hours) — A continuation of TELC 0161, examines practical applications of, control and protection, fuses, current limiting, ground fault relaying, transformers, blocking relays, high-potential testing and safety practices. Prerequisite: TELC 0161.

INDUSTRIAL COMPUTING AND CONTROL

TCMP 0101 (TCMP 903) Introduction to Computers for Electricians (24 hours) — Introduces the personal microcomputer. This course will allow the student to become familiar with the use of the microcomputer (IBM and compatible) and its MS-DOS operating system, including computer terminology, hardware, directories and the basic DOS commands to manage disks and files.

TCMP 0104 (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 programming in BASIC.

TCMP 0110 Intro to L.A.N. Systems (36 hours) — An introduction to network modelling and standardization, protocols and architecture, communication concepts, network topologies, hardware components, cabling internetworking devices, software components and network printer sharing are covered. This is a hands-on lab and lecture course. Students should have some experience in DOS and PC-based applications.

TCMP 0120 Intro to Novell Netware V3.1x (36 hours) — This introductory course is designed to familiarize the network installer and general user with Novell Netware V3.1x. Course topics include system login, Netware menu systems (syscon, filer, pconsole), backup and restore procedures, network printing, netware security, running applications and some basic system administration. This is a hands-on practical course therefore space is limited.

TELC 0128 (TELC 946) DC Variable Speed Drives (12 hours) — This course 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 0129 (TELC 947) AC Variable Frequency Drives (12 hours) — Concentrates on the most common types of electronic drive units and the use of solid-state components in drives. Theory and circuitry of static drive systems and speed control are included.

TELC 0130 (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, pilot devices, circuit layout, interpretation and application of schematics, and wiring diagrams. Prerequisite: Familiarity with wiring methods and terminology.

TELX 0104 (TELX 904) Introduction to Microprocessors for Trades (30 hours) — Hands-on training involving 8-bit and 16-bit microprocessors. Designed for tradespersons who intend to continue in the industrial computing environment.

TELX 0131 (TELX 926) Fibre Optics (12 hours) — Examines theory of optics, light sources, detectors and systems. LED transmitters and receivers will be demonstrated and tested. Fibre optic splicing techniques will be introduced.

TELX 0160 (TELX 980) Basic Programmable Logic Controllers for Mechanical Trades (12 hours) — For mechanical tradespeople involved with complex electromechanical systems controlled by Programmable Logic Controllers (PLCs). Emphasis is placed on how to determine whether system failures are due to electrical or mechanical fault.

TELX 0170 (TELX 970) Operational Amplifiers (30 hours) — Basic linear amplifier and non-linear signal processing circuits, differentiators and integrator, voltage and current circuits, Norton op-amps and instrumentation amps. Prerequisite: TELX 0176 or equivalent.

TELX 0181 (TELX 981) Programmable Controllers 1 (30 hours) — Covers the basic knowledge required to operate a programmable controller. Includes overview and advantages of PLC's, installation, hardware requirements, peripheral devices, system operation, and hands-on programming to relay replacement level using dedicated programming terminals. Prerequisite: Industrial wiring experience and familiarity with motor control schematics.

TELX 0182 (TELX 982) Programmable Controllers 2 (30 hours) — Provides hands-on training in the use of dedicated programming software. Explores the power of the PLC, data manipulation, mash routines and data comparison instructions. Prerequisite: TELX 0181 and a good working knowledge of DOS.

TELX 0183 (TELX 983) Programmable Controllers 3 (30 hours) — Continues to explore the power of the PLC by expanding on file and data manipulation routines including serial and parallel shift registers, logical comparison instructions and sequencing functions. Prerequisite: TELX 0182.

TELX 0184 (TELX 984) Programmable Controllers 4 (30 hours) — Provides an introduction to data communications, use of "smart cards" (analog, ASCII, etc.), report generation and subroutines. All programs concentrate on safe installation and programming techniques. Prerequisite: TELX 0183.

INSTRUMENTATION

TELX 0122 (TELX 936) Intro to Computerized Process Control (30 hours) — Of interest to industrial tradespersons, power engineers/process control operators who would like to learn the fundamentals of distributed control. Hands-on experience will be provided using the Fisher Provox DCS systems.

TELX 0123 (TELX 937) Computerized Industrial Boiler Control (30 hours) — An introductory course covering boiler level and combustion control systems including oxygen trim control using a Bailey Net90 distributed control computer system. A basic understanding of boilers and industrial computer control is recommended.

LEARNING SKILLS FOR TRADES

TELC 0100 (TELC 904) Reading Comprehension (24 hours) — Assists students of all levels to unlock the secrets of textbooks and pamphlets. How to read quickly, efficiently and get the answers needed to be successful in furthering your education.

TELC 0101 (TELC 906) Study Skills (12 hours) — How to make every minute spent studying count; how to listen; how to learn; using a library; managing your time and how to write essays and pass exams.

ELECTRONICS TRADES

INTRODUCTION TO ELECTRONICS

TELX 0110 (TELX 967) Universal Repair & Rework (42 hours) — This PACE 200 program develops the skills and techniques in today's high-tech electronics world. Covers a broad range of nondestructive printed circuit board repairs, and uses the latest state-of-the-art PACE rework systems. This course provides an in-depth starter program for the novice, as well as an excellent skills upgrade program for practitioners. A Statement of Completion will be issued to students obtaining a 70% or better grade.

TELX 0111 Multilayer Board Repair (42 hours) — This PACE 300 program develops the skills and repair techniques necessary to rework and repair complex advanced multilayer and flexible printed wiring circuits. The skills acquired in this course can significantly reduce the need to replace these very expensive assemblies. Procedures for excavation, re-establishing inter-facial and internal conductors will be covered as well as repair techniques for broken conductors and damaged land areas. A Statement of Completion will be issued to students obtaining a 70% or better grade.

TELX 0112 Surface Mount Technology (42 hours) — This PACE 400 program focuses on the relatively new technology of surface mounted devices. The primary consideration of this program will be to develop the hand skills necessary to install, remove and replace the small and fragile electrical and electronics components found on modern printed circuit boards. A Statement of Completion will be issued to students obtaining a 70% or better grade.

COURSE DESCRIPTIONS AND CREDITS

TELX 0175 (TELX 975) Introduction to Electronics: Passive Devices (60 hours) — This is the first in a series of four courses designed for those with little or no understanding of electronics. This course focuses on the basic elements of electronics. Covers DC and AC circuits, introducing the student to the concepts of voltage, current, resistance, series and parallel circuits, Ohm's Law, power, frequency, resonance, impedance, and phase shift. Students will apply theory to construct circuits and prove the theory by making electrical measurements using standard test equipment such as multimeters and oscilloscopes. Prerequisite: Grade 10 math recommended but not required.

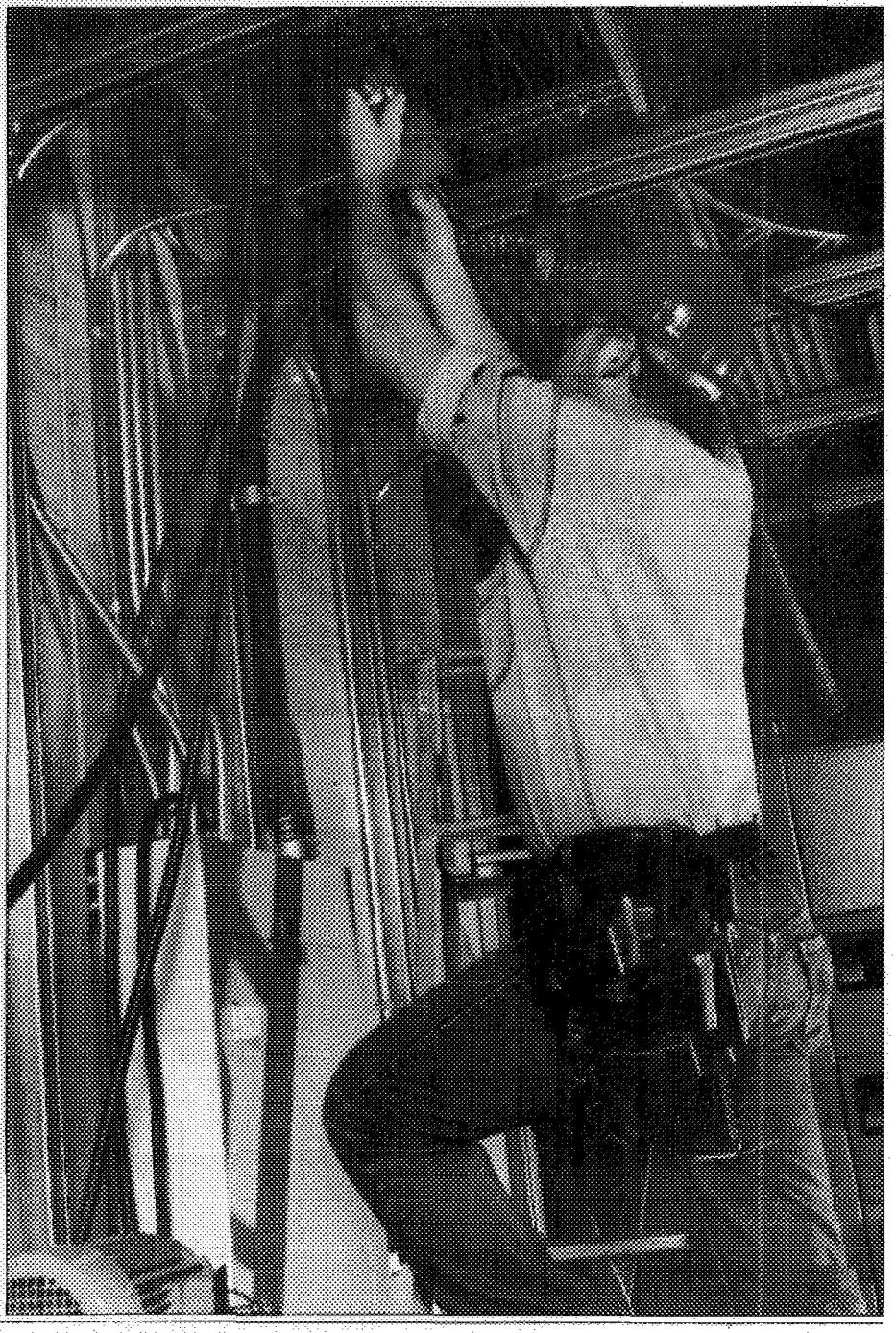
TELX 0176 (TELX 976) Introduction to Electronics: Solid-state Devices (60 hours) — A continuation of TELX 0175, Passive Devices, this course focuses on semi-conductor theory. Topics covered include P-N junctions, diodes, bi-polar transistors, FET's, zeners, LED's, rectification, amplification, oscillators and power supplies. Students will prove the theory by constructing and testing basic solid-state circuits. Prerequisite: Successful completion of TELX 0175.

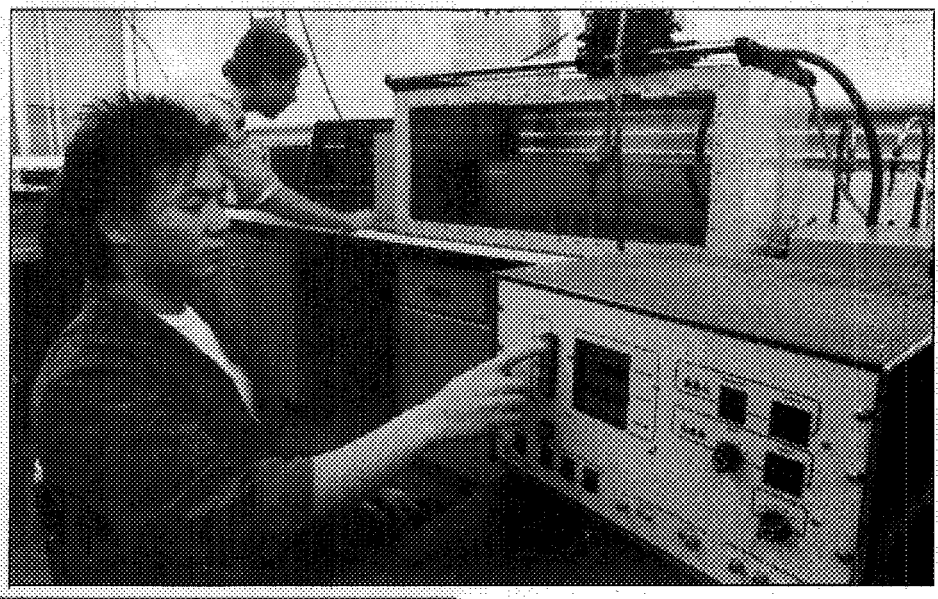
TELX 0177 (TELX 977) Introduction to Electronics: Digital Devices (60 hours) — This course deals with basic digital concepts. Topics covered include Binary and BCD number systems and codes, Boolean algebra, logic gates, truth tables, integrated circuits, flip-flops, counters, shift registers, multiplexers, demultiplexers, memory, timers and logic families. Students are also instructed in the use of logic probes and oscilloscope techniques to troubleshoot digital circuits. Students will prove the theory by constructing and testing basic digital circuits. Prerequisite: Successful completion of TELX 0176.

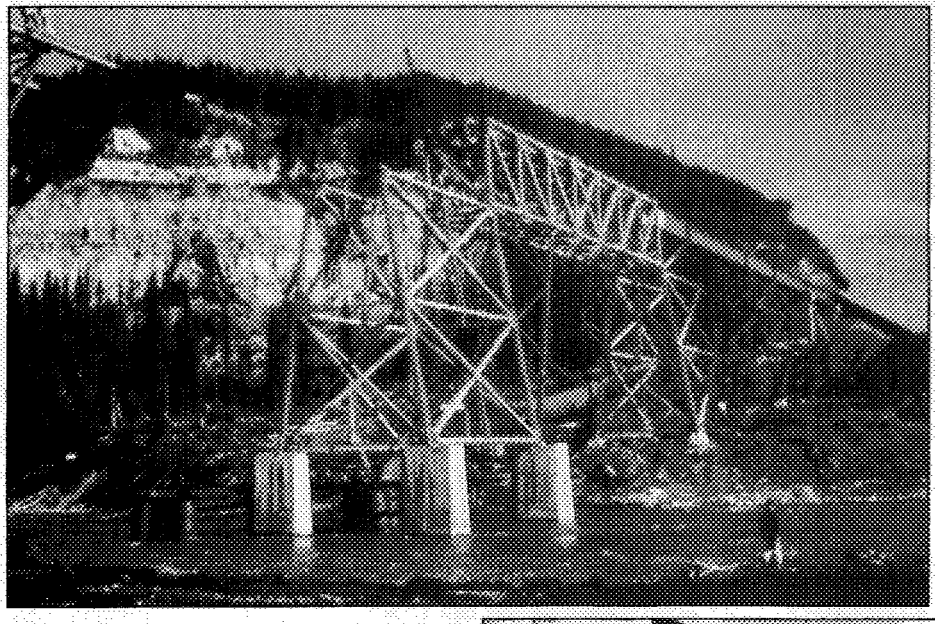
TELX 0178 (TELX 978) Introduction to Electronics: Microprocessors (60 hours) — Based on the 6800 Microprocessor, this program covers microcomputer basics, architecture, addressing modes, branching, computer arithmetic, stack operations, sub-routines, I/O operations, interrupts, interfacing and simple programming in machine code. Prerequisite: Successful completion of TELX 0177.

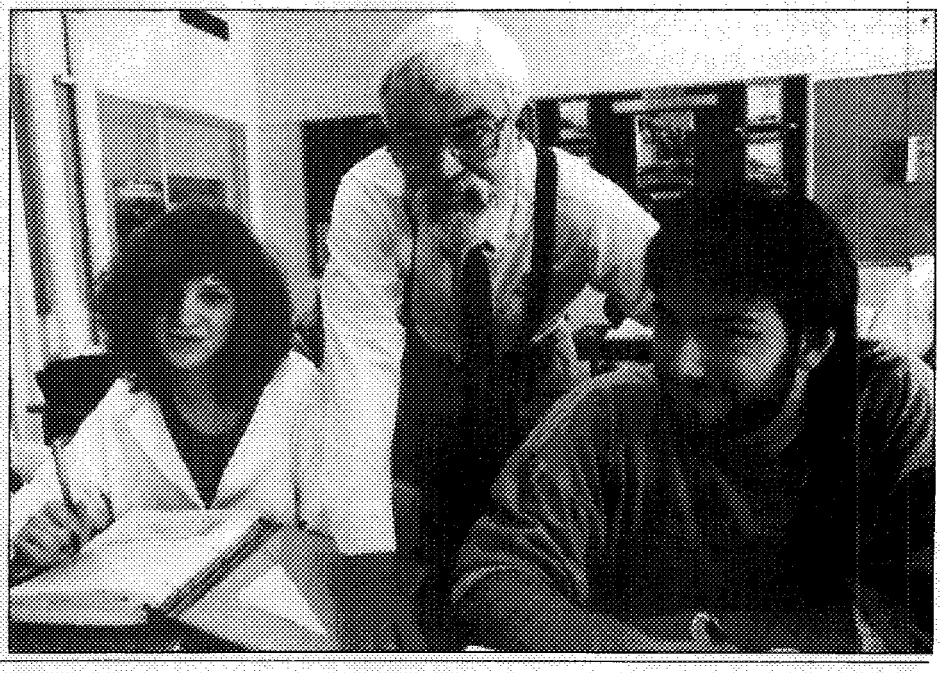
TELX 0179 (TCMP 910) Microcomputer Systems Maintenance (60 hours) — Reviews analog/digital electronics, basic microcomputer architecture, troubleshooting methodology for sophisticated systems. Gives hands-on training in advanced uses of test instruments. Teaches maintenance skills with hands-on instruction in the repair of keyboards, disk drives, controllers and monitors of an IBM computer system series. Prerequisite: Previous electronics training.

TELX 2209 (TELX 209) Fibre Optics (60 hours) — Fibre Optics is an advanced course in Telecommunications. This course is offered in conjunction with The Light Brigade, the primary supplier of training for Fibre Optics in the North Western United States. Students will spend half of the program working hands-on with mechanical and fusion splices, optical connectors, light sources, power meter, optical time-domain reflectometers (O.T.D.R.) as well as installing a fibre optic system.









ENGINEERING TECHNOLOGY

SCHOOL OF ENGINEERING TECHNOLOGY

D.K.N. Chowdhury, D.I.C., M.A., M.B.A., Ph.D., Dean
Alexander (Sandy) McGechaen, B.A., M.A., Ed.D., Director
Marv Woolley, Dipl.T., A.Sc.T., Assistant Director
Ron Isaak, Dipl.T., B.Sc., A.Sc.T., Manager, Industry Services
Mike Boyle, P.Eng., Program Head, Transportation Systems
Luis O. Curran, B.A., L. Th., Program Head, ADP Technology Management
Stephen Berry, B.Sc., Training Consultant, Industry Services
Rick Long, Manager, PTS, Computer Systems Technology
Denise Nordin, B.Sc. (Hons.), Coordinator, Fish Harvesting and Process Industry
Ann McNaughton, Program Advisor
Bette Bayley, Program Assistant
Sharon Cameron, Program Assistant
Lucille Sokoloski, Program Assistant
Laurie Kozbial, Program Assistant
Shari Monsma, Program Assistant
Robertta Pajunen, Program Assistant
Janice Pontes, Program Assistant
Frank Simek, Systems Coordinator

ENGINEERING TECHNOLOGY

GENERAL INFORMATION

ACADEMIC STUDIES

Kent Yakel, B.Sc.(Hons.), M.Sc., Associate Dean

Pre-entry Courses
Refresher Courses
Engineering Technology Entry Program (ETE)
Distance Education
Chemistry
Communication/Business Communication
Mathematics
Physics

CIVIL TECHNOLOGIES

D. C. Deans, B.A., Associate Dean

Building Technology
Civil and Structural Technology
Geographic Information Systems
Public Works Operations
Surveying and Mapping Technology
Transportation Systems (Highways) Technology

COMPUTER SYSTEMS TECHNOLOGY

Ken Takagaki, Ph.D., B.A.(Hons), C.M.A., C.D.P. , Associate Dean
Tel. (604) 432-8584

Computer Systems Technology
Software Development Advanced Diploma

MECHANICAL DESIGN AND MANUFACTURING

Trevor Williams, P.Eng. Associate Dean
Tel. 432-8542

Mechanical Advanced Diploma
Mechanical
Systems
Plastics
Robotics and Automation

PROCESS TECHNOLOGIES

Tom Neilson, B.A.Sc., P.Eng., Associate Dean

Chemical Sciences
- Nondestructive Testing
- Metallurgy

Natural Gas and Petroleum Technology
Renewable Resources
- Integrated Resource Management

Advanced Diploma Program

CORRESPONDENCE COURSES/DIRECTED STUDY

Many credit courses offered part-time in the School of Engineering Technology 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 information about Civil Technology, Math and Physics correspondence courses please contact: Shari Monsma, Program Assistant, Tel. 432-8784.

INDUSTRY SERVICES: CUSTOMIZED TRAINING, CONSULTING AND DEVELOPMENT SERVICES

Ron Isaak, Dipl.Tech., B.Sc., A.Sc.T., Manager, Industry Services
Tel. 432-8234

Industry Services provides another training option for your business organization. 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 easily accessible local resources to train their personnel.

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

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 the disciplines represented.

Benefits of Membership

In addition to the professional status and recognition granted by ASTTBC, services include:

- enhanced career options through 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: Membership Services Coordinator, ASTTBC, 10767 - 148 Street, Surrey, B.C. V3R 0S4, Tel. (604) 585-2788.

THE ASSOCIATION OF PROFESSIONAL ENGINEERS AND GEOSCIENTISTS OF BRITISH COLUMBIA

The Association of Professional Engineers and Geoscientists 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 a preliminary screening examination which must be passed to enter, followed by about 16 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, students should note that the diploma courses at BCIT are not designed specifically for this purpose. A student embarking on the association's examination program should seek advice from the association 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 and Geoscientists of British Columbia, 210 - 6400 Roberts Street, Burnaby, B.C., V6G 4C9, Tel. (604) 299-7100.

Engineering Technology Part-time Studies is prepared to offer tutorials for basic studies examinations if sufficient demand is shown.

For further information contact: Program Assistant, Engineering Technology. Tel. 432-8521, or Program Advisor, Tel. 432-8467.

THE BUILDING OWNERS AND MANAGERS ASSOCIATION

The Building Owners and Managers Association of British Columbia (BOMA, B.C.), is one of more than 100 chapters of BOMA International which operate in the major cities in North America.

One of its 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 five of the eight 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
Leasing and Marketing for Property Managers

Continued on page 74

The Building Owners and Managers Association continued from page 73

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 enrolment and registration forms are available for classroom format instruction through BOMA, B.C., Ste. 614, 409 Granville Street, Vancouver, B.C., V6C 1T2. Further information is available by calling 684-3916.

All programs are also available by correspondence through the BOMI Canada office. Tel. (416) 443-8790.

ADVANCED DIPLOMAS

ADVANCED DIPLOMA IN APPLIED WASTE MANAGEMENT IN CIVIL ENGINEERING

A.R. Barren, B.Sc., Ph.D., P.Eng., Program Head
Tel. 432-8344
Marsh Heinekey, B.Tech., Dipl.T., Dipl. Adult Ed., M.B.A., A.Sc.T., Program Coordinator
Tel. 432-8765
Philip Cunnington, B.Sc., P.Eng., Program Coordinator
Tel. 434-5734, Local 5346

BCIT's Civil Advanced Diploma program (ADP) provides an opportunity for graduate technologists and engineers to enhance their technical and management skills in the expanding environmental field of waste management.

This program is presently under development. As courses become available they will be offered on a part-time basis. The current courses available are listed below. Minimum prerequisite for all Civil ADP courses will be a Diploma of Technology in Civil and Structural or Chemical Science — or departmental approval.

For more information on this program contact Tony Barren 432-8344, Fax 432-8973.

Orientation Nights

Orientation Nights are offered. The Civil Department invites anyone interested in pursuing an ADP in Applied Waste Management in Civil Engineering. Instructors will be present to provide details of the program and content. Registration is recommended. Details for Orientation Night will be released in the Part-time Studies flyers.

Available Courses:			Credits
CIVW	6700	Environmental Case Studies	1.0
CIVW	6710	General and Physical Chemistry 1	1.0
CIVW	6711	General and Physical Chemistry 2	1.0
CIVW	6712	Principles of Organic Chemistry	1.0
CIVW	6713	Environmental Analytical Chemistry	1.0
CIVW	6714	Methods of Wastewater Analysis	1.0

Civil Technology for Waste Management courses:

Prerequisite: CIVW 6700

The following series of four courses (CIVW 6715-6718) is for people who do not have a civil engineering background. The series upgrades geotechnical, geological and hydraulics skills. This is prerequisite material for the next level courses. The course content is still under development. Tentative content may include sub surface soil and groundwater investigation techniques, engineering geology, elementary groundwater flow and analysis and principles of soil mechanics. Basics of groundwater and surface water hydrology and hydraulics including open channel flow. Ground water, ground vapour and surface water sampling techniques are also being considered.

			Credits
CIVW	6715	Hydraulics 1: Waste Management 1	1.0
CIVW	6716	Geotech/Geology: Waste Management 2	1.0
CIVW	6717	Hydrology 2: Waste Management 3	1.0
CIVW	6718	Hydraulics 2: Waste Management 4	1.0
CIVW	6719	Survey Techniques for Waste Management	1.0
CIVW	6720	Applied Microbiology	1.0
CIVW	6721	Applied Toxicology	1.0
CIVW	6740	Groundwater Hydrology	1.0
CIVW	6741	Contaminant Transport	1.0
CIVW	6742	Groundwater Modelling	1.0
CIVW	7750	Municipal Liquid Waste Management	1.0
CIVW	7752	Industrial Waste Water	1.0
CIVW	7760	Municipal Solid Waste Management	1.0
CIVW	7761	Recycling/Reduction Techniques	1.0
CIVW	7770	Environmental Site Assessment	1.0

Please see Course Descriptions section: **Applied Waste Management** on page 98 for more information.

ENGINEERING TECHNOLOGY

ADVANCED DIPLOMA PROGRAM IN GEOGRAPHIC INFORMATION SYSTEMS

Ross Miller, Dipl.Tech., B.A., M.Sc., 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, nine-month program format, through part-time studies or a combination of these.

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.

Students interested in completing the GIS Advanced Diploma program should contact Student Services at 434-3304 for the detailed GIS brochure. Students who are interested in individual courses only should consult the current Part-time Studies flyer for course offerings/availability.

Entrance Requirements

Diploma of Technology or University/ College Degree in a related field. Students should possess good communication skills, ability to reason in a logical manner, a good disposition towards team work, fundamental computer literacy and computer programming skills.

Applicants should submit a resume and a letter of intent explaining their reasons for taking the program. Applications should indicate clearly whether the program is to be taken on a full-time or part-time basis.

Program of Studies

The general course requirement for graduation from the program is a minimum of 50 credits but may be greater, depending on academic background. ADP courses are selected from the following categories.

	Credits
ADP Technology Courses	27
Management	8
Projects	15

Courses in these categories require a suitable background in the following areas: Computer Programming (C programming, file and data handling); Mathematics (numerical methods, linear algebra, statistics); Fundamentals of Computer Systems (mathematics for computing, operating systems, hardware and software technology, applications), fundamentals of GIS, fundamentals of mapping for GIS, communications.

Students lacking formal education or proven ability in these areas will be required to complete the following foundation technology courses or their equivalent.

Foundation Technology			Credits
AICO	3070	Introductory C Programming	3.0
AICO	4070	Data Structures in C	3.0
COMP	1222	dBase IV Level 3	1.0
GIST	5108	Fundamentals Photogrammetic Mapping	3.0
GIST	5121	Applied Mathematics 1	3.0
GIST	5130	Technical Topics in Computer Systems	3.0
GIST	6121	Applied Mathematics 2	3.0

Some of these courses may be taken concurrently with ADP core and advanced technology courses. All students entering the program will initially be registered in the fundamental courses and may apply for credit or exemption after program commencement.

ADP Technology (27 credits required)

Core (15 credits)			Credits
GIST	5100	Fundamentals of GIS	3.0
GIST	6100	Technical Issues in GIS	3.0
GIST	6132	GIS Database Systems	3.0
One of			
GIST	5125	PAMAP GIS Level 1	3.0
GIST	5126	Terrasoft GIS Level 1	3.0
GIST	5128	ARC/INFO GIS Level 1	3.0
One of			
GIST	6125	PAMAP GIS Level 2	3.0
GIST	6126	Terrasoft GIS Level 2	3.0
GIST	6128	ARC/INFO GIS Level 2	3.0
Advanced Technology (12 credits)			
GIST	6102	Applications Modelling/ Customization	3.0
GIST	6101	Selected Topics in GIS	3.0
GIST	6108	Digital Mapping	3.0
GIST	6118	Remote Sensing	3.0
GIST	6133	Object Oriented Programming with C++	3.0
GIST	6134	Data Communications and Networking	3.0
Management (8 credits minimum)			
Required			
GIST	6100	Technical Issues in GIS	3.0
Electives (Suggested)			
GIST	6135	GIS System Management	3.0
MECH	7060	Graphic System Management	2.0

Students may also select management course electives from other advanced diploma or degree programs, subject to program approval.

Project (15 credits)			
GIST	5119	Technology Assessment	3.0
GIST	5120	Project Planning	3.0
GIST	6120	Project	9.0

ENGINEERING TECHNOLOGY

ADVANCED DIPLOMA PROGRAM IN INTEGRATED RESOURCE MANAGEMENT (currently under development)

Richard Chester, B.A., M.R.M.,
Program Head
Tel: 432-8857, Fax 439-0791

Currently under development, the **Integrated Resource Management Advanced Diploma Program** is being designed for employees seeking to upgrade their technical skills, while broadening their knowledge of resource management practices. Graduates will be prepared to work as resource management coordinators at local and regional levels.

The program is to be offered on a part-time studies basis, thereby granting employees access to advanced technological training. The courses are available to students registered in the Advanced Diploma Program **and** to anyone interested in upgrading their skills in integrated resource planning, measurements or analysis.

Enrolment is limited

Early registration is recommended. As course(s) reach capacity, a wait-list will be kept to ensure interested students an opportunity to register early in future course offerings. Courses will be cancelled if enrolment is low.

For more information on the Advanced Diploma Program, contact Richard Chester, Program Head, at 432-8857 or Fax 439-0791.

Introductory Level Courses
(see course descriptions under "Renewable Resources")

		Credits
RENR 1561	Using Aerial Photographs for Resource Management	1.0
RENR 2562	Principles of Aerial Photograph Interpretation	1.0
RENR 2563	Tree I.D. from Aerial Photographs	1.0
RENR 2564	Geology and Landforms from Aerial Photographs	2.0

Advanced Diploma Level Courses
(see course descriptions under "Renewable Resources")

		Credits
RENR 5570	Integrated Resource Management and Planning in B.C.	2.0
RENR 5571	Aerial Photograph Interpretation for Land-use Planning	1.0
RENR 5572	Using Aerial Photographs for Vegetation Mapping	1.0
RENR 5573	Aerial Photograph Interpretation of Geohazards	1.0
RENR 5574	Principles of Aerial Photo-based Inventory	1.0
RENR 5575	Skills for Practicing Integrated Resource Management	2.0

ADVANCED DIPLOMA PROGRAM IN MECHANICAL

T. Williams, B.Sc., M.Sc. (Mech Eng.), P.Eng., Associate Dean

Introduction

The Mechanical Advanced Diploma Program (ADP) is a career enhancement program which will appeal to working professionals who wish to continue their education on a part-time basis. The Mechanical ADP is a practitioner-oriented program designed to fill the needs for advanced technology training and provide engineers and technologists with the skills necessary in today's technological environment.

The Mechanical ADP is a flexible program of studies delivered with most of its classes in the evening or on weekends. A student selects from several areas of technical interest to include the following:

Computer-Aided Manufacturing (CAM)
Computer-Aided Engineering (CAE)
Machine Vision
Advanced Engineering Materials
Industrial Design
Plastic Product Design

The curriculum balances theory and practice through lectures, labs and projects. BCIT is well known for its two year practical job entry diploma programs using state-of-the-art labs. The Mechanical ADP is no exception. This career enhancement program has full access to computer labs, a robotics lab, a fully equipped machine shop, a plastics production facility and a machine vision lab.

As a finale to the program, each ADP candidate must complete a significant industrial project. This form of technology transfer is a major goal of the ADP and is intended to support BCIT's mandate as a centre for Advanced Technology in B.C.

Program Registration

Applications for the Mechanical Advanced Diploma Program are accepted throughout the year.

To apply, contact Student Services at BCIT and ask for program and admissions information. You will be asked to submit an "Application for Admission" form with all of your official documentation to Admissions, Burnaby campus. Write Mechanical ADP Program' clearly on the form.

Once you have been accepted to the program, you must arrange for an interview with the Mechanical ADP program head. Based on your background and interests, you will be given an approved program of studies which lists the courses you must complete in order to obtain a Mechanical Advanced Diploma.

After receiving program approval, you may begin courses at the start of the next term (September, January or April). The courses offered each term are listed in the BCIT part-time studies flyer.

ADP candidates are expected to maintain a minimum course load of three courses per calendar year (average one course per term).

Contacts

Specific information on the Mechanical ADP is available from one of the following persons:

Brent R. Dunn, P.Eng. Advanced Diploma Coordinator
Tel. 432-8755
Bette Bayley, Program Assistant
Tel. 432-8521
Cindy Miraftab
Tel. 432-8274

Written requests should be addressed to:

Cindy Miraftab
Mechanical Design and Manufacturing
British Columbia Institute of Technology
3700 Willingdon Avenue
Burnaby, B.C.
Canada V5G 3H2

ENGINEERING TECHNOLOGY

Program Requirements

The general requirements for an Advanced Diploma are a minimum of 50 credits drawn from various components.

Components	Credits
Foundation Subjects	As required
Management Subjects	9.0
Core Technology Subjects	8.0
Specialty Technology Subjects	15.0
Graduation Practicum Project	18.0

ADP candidates are required to take a minimum of 50 credits at the ADP level drawn from the various components as indicated. In addition, graduates from other institutions or individuals requiring technical upgrading may be required to take foundation subjects. The courses are selected based upon the candidate's education background and work experience.

ADVANCED DIPLOMA PROGRAM IN SOFTWARE DEVELOPMENT

Ken Takagaki, Ph.D., C.M.A., C.D.P., Associate Dean
Computer Systems Technology
Alexander (Sandy) McGechaen, Ed.D., Director
Part-time Studies & Advanced Programs
Tel. 432-8840
Michael Lo, B.Sc., M.Sc., Program Head
ADP and B.Tech. Programs
Tel. 432-8459

The Computer Systems Technology (CST) Department of BCIT offers a unique, practitioner-oriented Advanced Diploma Program (ADP) in Software Development. In contrast to the two-year diploma of technology (Dipl.T.) program which is designed primarily for job entry into the computing industry, the ADP is a professional/technical skills development and advanced specialization program for:

- Graduates of two-year diploma programs in Computer Systems.
- Computer professionals who wish to acquire formal advanced qualifications.
- Degree-holders in other disciplines engaging in a career change into the computer industry.

The ADP is offered primarily as a part-time program for individuals who are already employed in the computer industry. The program is designed for the experienced and mature learner and provides the high level of flexibility required to serve the needs of working professionals. Candidates can take course loads ranging from a minimum of one course per term, to an equivalent full-time program of studies. Most ADP courses are offered in evenings or weekends. Applicants can register into the program at anytime.

A major capstone project (practicum) requires ADP candidates to explore innovative ideas for industry applications. This form of technology transfer is a major goal of the ADP and is intended to support BCIT's mandate as a centre of advanced technology in B.C.

Bachelor of Technology in Computer Systems

The Bachelor of Technology in Computer Systems, B.Tech., is a practitioner-oriented degree program available to graduates of the ADP in Software Development and is a collaborative degree between BCIT and the Open University.

In addition to the ADP, candidates for the Bachelor of Technology must fill specific requirements in general education and administrative studies. Typically, a candidate with a Dipl.T. in Computer Systems Technology and an ADP in Software Development will require the equivalent of approximately one additional semester of study. Courses for this requirement are available through the Open University. Open University also recognizes transfer credits from many other universities and colleges.

Structure of the ADP/B.Tech. Program

For the ADP:

- Foundations of Computing
- (Two-year BCIT Dipl.T. or equivalent)
- ADP Core Courses
- ADP Technical Specialty Courses
- ADP Practicum
- Work Experience Requirement.

For the B.Tech:

- All of the above plus,
- General Education and Administrative or Applied Studies

ADP candidates may choose to specialize in certain technical areas. An ADP diploma with specialization is granted after successful completion of a total of 12 credits in approved specialty courses, at least nine of which must at the ADP level (7000 and 8000 level courses). Currently, specialty courses are offered in the following areas:

- Applied Artificial Intelligence
- Computer Graphics
- Data Communications
- Database Technology.

An ADP in Technology Management (Software Development) is also available through BCIT. Consult with the ADP program head for further information regarding specialization in the ADP.

Other specialty courses may be added in response to market demand and faculty availability.

Program Registration

Applications for the ADP are accepted throughout the year.

Candidates for the ADP must prepare a proposed program of studies and arrange with the ADP program head for an entry interview and formal program approval.

After receiving program approval, candidates may begin courses at the start of the next term (September, January or April).

ADP candidates are expected to maintain a minimum course load of three courses per calendar year (average one course per term). Students are expected to maintain a minimum 65% throughout the program to maintain their status as an ADP candidate.

ENGINEERING TECHNOLOGY

Foundation Studies

Cover basic knowledge equivalent to the BCIT two-year diploma program in Computer Systems Technology. Candidates for the ADP must demonstrate competence, by having formal training or work experience in the following areas:

1. **Language and communications skills**:
   Two courses in business communications or technical writing.

2. **Mathematics, statistics and quantitative methods**:
   Mathematical competence as evidenced by satisfactory completion of courses in mathematical analysis discrete mathematics, statistics, and quantitative methods.

3. **Business methods**:
   Knowledge of business concepts in accounting, economics, marketing and computer law.

4. **Programming**:
   Structured programming techniques (Pascal or other procedural languages), substantial programming practice and proficiency in a variety of industry standard programming languages (C, COBOL, PL/I), working knowledge of assembly language, and concepts in Object-Oriented Programming.

5. **Systems**:
   Productivity applications (spreadsheets, word processing, etc.), systems analysis/ design, systems life cycle concepts, project control, CASE technology.

6. **Technical**:
   Computer organization/architecture, computer hardware technology, database, data communications, operating systems.

7. **Projects**:
   Candidates must have demonstrated basic competence in computing fundamentals by completion of a substantial project in industry or other real-life situation.

Core ADP Courses

Candidates are required to complete the following courses:

		credits
COMP 7655	Technical Issues in Software Development	5.0
COMP 7830	Applied Research Methods in Software Development	3.0
COMP 7656	Management Issues in Software Development	3.0

Specialty ADP Courses

Candidates require a minimum of 10 credits of which five credits must be at the 8000 level.

COMP 7651	Data Communications Principles	5.0
COMP 8651	Advanced Data Communication Applications	5.0
COMP 7840	Computer Graphics Fundamentals	5.0
COMP 8840	Selected Topics in Computer Graphics	5.0
COMP 7495	Neural Network Applications	5.0
COMP 8495	Selected Topics in Applied AI	5.0
COMP 7660	Advanced Database	5.0
COMP 8660	Selected Topics in Database	5.0

Other specialty courses at the ADP level may be added, or existing ones modified, in response to market demand and faculty availability.

Note:
Course credits are currently under review. Please consult the ADP program head for details.

Elective
Three credits of approved upper level elective(s) in Administrative Studies (e.g. Organizational Behaviour, Finance, Marketing, Economics).

Practicum

Each candidate must complete 20 credits of practicum work. This can be accomplished as two projects or a single combined project.

COMP 7845	Practicum 1	10
COMP 7846	Practicum 2	10

Practical Experience

Candidates for the ADP must have accumulated at least two years of relevant work experience before completing the ADP. The type and level of work experience must be approved by the ADP program head.

Open University Requirements for Bachelor of Technology

The formal requirements for the Bachelor of Technology as specified by Open University consist of the following:

General Education	**Credits**
English 100 and 101	6.0
*Applied Mathematics	3.0
*Statistics	3.0
*Introduction to Economics	3.0
Micro/Macro-Economics	6.0
Humanities	3.0

*Requirements marked are typically completed as part of a Dipl.T. program in CST. Consult the ADP program head for details.

Applied Studies	21.0
or	
Administrative Studies: Lower Level	
*Business Communications	6.0
*Accounting	6.0
*Marketing	3.0
*Management Science	3.0
*Business Law	3.0

* Requirements marked are typically fulfilled as part of a Dipl.T. program in CST.

Applied Studies	9.0
or	
Administrative Studies: Upper Level	
* Management Science	3.0
**Applied Research Methods	3.0
**Elective (Organizational Behaviour Finance/Marketing/Economics)	3.0

* Requirements marked are typically fulfilled as part of a Dipl.T. Program in CST.
** Requirements marked are met by the ADP Program.

Computer Systems: Lower Level
27 credits of approved courses in CST (COMP 1000/2000/3000 level courses or equivalent at BCIT).

Computer Systems: Upper Level
36 credits approved courses in CST (COMP 4000/7000/ 8000 level courses or equivalent at BCIT).

Computer Systems Work Experience

Two years of approved relevant work experience.

Further Information

The ADP/B.Tech. program is under continual review to reflect changes in industry. For the most up-to-date information, please contact:

The Director,
Part-time Studies & Advanced Programs
School of Engineering Technology
British Columbia Institute of Technology
3700 Willingdon Avenue
Burnaby, B.C.
Canada V5G 3H2
Tel. 432-8459, Fax. 432-9572

ADVANCED DIPLOMA PROGRAM IN TECHNOLOGY MANAGEMENT

Alexander (Sandy) McGechaen, Ed.D., Director, Part-time Studies
Tel. (604) 432-8459
Luis Curran, B.A., L.Th., Program Head, Advanced Diploma Program
Tel. (604) 432-8942

Program Aim

The aim of the Advanced Diploma Program in Technology Management is to provide technologists and others with the knowledge, skills and attitudes for their roles as supervisors and managers in technical organizations.

This program will appeal to those technologists and others who are seeking to improve their skills in management and in the area of their technical specialty. They will be better able to understand their role in the organization and better able to become effective supervisors, project leaders and managers as well as better able to satisfy the needs of manufacturing, production and marketing.

Program Objectives

The primary goals of this program can be summarized as follows:

- to equip technologists and others for supervisory and management positions
- to deliver the program in a flexible format so participants can learn while they work
- to open opportunities for technologists to earn advanced academic qualifications in Technology Management.

Prerequisites

- Diploma in Technology from BCIT or equivalent institution or
- a degree from a recognized program and
- approval from the program head.

Normally two or more years of relevant and current employment experience will be required for entry into the program and students will enrol on a part-time basis. Courses will be offered in a flexible format so that candidates can continue with their regular employment. These courses will be offered during afternoons, evenings and on weekends. Credit from other universities and colleges may be given depending on their relevancy and appropriateness to the Advanced Diploma Program. Candidates will develop an individual program of studies approved by the program head.

Structure of the Program

With one unit of credit nominally equivalent to 15 hours of classroom instruction, the distribution of credits between components is as follows:

Management Courses	20 credits
Advanced Technology Courses	15 credits
Graduation Project	15 credits
• Related Courses	9 credits
• Applied Research Project	6 credits

Management: Five areas of study, each of which carries 4 credits:
Technology Management
Financial Management
Marketing Management
Human Resource Management
Business Development Management

Advanced Technology: Courses will be drawn from technical specialty Advanced Diploma Programs. Currently these include Computer Systems (Software Development), Mechanical Technology, Manufacturing Technology, Geographic Information Systems, Electronics, Civil and Structural Technology and Environmental Technology. These courses will carry a total of 15 credits.

Graduation Project: Candidates will solve a significant problem or explore innovative ideas for improvement of their employer's organization. The Graduation Project component will be comprised of courses in Directed Studies, Applied Research Methods, Technology Assessment and the implementation of the Applied Research Project itself. The Graduation Project will carry a total of 15 credits.

Directed Studies	3 credits
Applied Research Methods	3 credits
Technology Assessment	3 credits
Applied Research Project	6 credits

Bachelor of Technology Degree

Upon completion of the Advanced Diploma Program, candidates are eligible to apply for the degree of Bachelor of Technology in Technology Management, offered collaboratively with the Open University.

Persons with a Diploma in Engineering Technology or its equivalent, an Advanced Diploma in Technology Management and the required number of credits in general education courses from the Open University will be eligible to qualify for this degree.

For More Information

For the most current information package on the Advanced Diploma Program and Bachelor of Technology degree in Technology Management, please contact:

The Director, Part-time Studies
School of Engineering Technology
BCIT, 3700 Willingdon Avenue
Burnaby, B.C.
Canada V5G 3H2
Tel. (604) 432-8459
Fax (604) 432-9572

ENGINEERING TECHNOLOGY

ACADEMIC STUDIES

Kent Yakel, B.Sc.(Hons.), M.Sc., Associate Dean

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 0001 Meets Chemistry 11 entrance requirement for BCIT programs.

COMM 0005 Meets English 12 entrance requirement for BCIT programs for students whose first language is not English (65% is a pass (P) in English 12).

COMM 0008 Meets English 12 entrance requirement for some BCIT programs (65% is a "P").

MATH 0001 Meets Math 12 entrance
MATH 0002 requirement for BCIT programs (65% or higher meets C+ standing).

PHYS 0309 Meets Physics 11 entrance requirement for BCIT programs.

REFRESHER COURSES

For students who have the necessary prerequisites for BCIT technology programs, but who wish to review and refresh their skills in Communication, Mathematics or Physics, these non-credit refresher courses are offered at various times throughout the year in part-time studies.

COMM 0020 Preparatory courses in basic writing
COMM 0021 and learning skills needed for BCIT full-time programs.

MATH 0004 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.

PHYS 0304 This 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.

ENGINEERING TECHNOLOGY ENTRY (ETE) PROGRAM

This 15-week, full-time program provides academic upgrading to students wishing to enrol 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. It is offered three times per year, beginning in September, January and May.

Students enrolled in the ETE program could be provisionally accepted (at time of enrolment) into an Engineering Technology program in the subsequent term, subject to satisfactory completion of the ETE program.

Prerequisites: English 11 and Mathematics 11 or approval from the program head.

Program Courses			Clrm Hrs/wk
CHEM	0010	Introductory Applied Chemistry	6.0
COMM	0007	Introductory Communication and Learning Skills	6.0
COMP	0107	Computer Literacy	3.0
MATH	0005	Introductory Technical Mathematics	7.0
PHYS	0309	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 ETE Program, please call Student Services: (604) 434-3304, or toll-free: 1-800-667-0676.

DISTANCE EDUCATION

Some part-time mathematics and physics courses are offered as distance education (correspondence) 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 434-3304 for information.

Distance Education (Correspondence) Courses

MATH 0002 Meets Math 12 entrance requirement for BCIT programs.
MATH 1041 Equivalent to MATH 1011 and ASTT accredited.
MATH 1042 Equivalent to MATH 1012 and ASTT accredited if taken with MATH 1043.
MATH 1043 Equivalent to MATH 1012 and ASTT accredited if taken with MATH 1042.
MATH 2041 Equivalent to MATH 2011 and ASTT accredited if taken with MATH 1042.
MATH 2042 Equivalent to MATH 2011 and ASTT accredited if taken with MATH 2041.
MATH 2043 Calculus: Part 3
PHYS 1302 Equivalent to PHYS 1301 theory only.
PHYS 2302 Equivalent to PHYS 2301 theory only.

ENGINEERING TECHNOLOGY

BUILDING TECHNOLOGY

Anna Maharajh, Dipl.T., A.Sc.T., P.Q.S.,
Program Co-ordinator
Tel. 432-8586
Program Advisor
Tel. 432-8467

Programs leading to 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.

CIQS Architectural Syllabus for Quantity Surveying course list is available upon request.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY (DESIGN COURSES)

			Credits
BLDG	1700	Drafting and Design 1: Architectural Drafting	6.0
BLDG	1730	Construction 1	6.0
BLDG	1805	B.C. Building Code: Housing	3.0
BLDG	1970	Building Materials and Methods 1	3.0
BLDG	2700	Drafting and Design 2: Architectural Presentation	6.0
BLDG	2730	Construction 2A	4.5
BLDG	2735	Construction 2B	4.5
BLDG	2970	Building Materials and Methods 2	3.0
COMM	1103	Introduction to Business and Technical Communication	3.0
MATH	1011	Trigonometry	3.0
MATH	1012	Analytic Geometry and Logarithms	3.0

CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY (DESIGN COURSES)

Prerequisite: Completion of Intermediate Certificate of Technology (Design Courses), or equivalent.

			Credits
BLDG	1820	B.C. Building Code: General	4.5
BLDG	1900	Construction Industry Procedures	3.0
BLDG	3350	Construction Specifications	2.0
BLDG	3700	Drafting and Design 3: Architectural Design	6.0
CIVL	1000	Statics	6.0
CIVL	2500	Stress Analysis 1	3.0
CIVL	3500	Stress Analysis 2	3.0

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY (CONSTRUCTION COURSES)

BLDG	1700	Drafting and Design 1: Architectural Drafting	6.0
BLDG	1730	Construction 1	6.0
BLDG	1760	Construction Estimating 1	3.0
BLDG	1805	B.C. Building Code: Housing	3.0
BLDG	1970	Construction Materials and Methods 1	3.0
BLDG	2730	Construction 2A	4.5
BLDG	2735	Construction 2B	4.5
BLDG	2835	Computer Applications/ Building Technology 1	3.0
BLDG	2970	Construction Materials and Methods 2	3.0
COMM	1103	Introduction to Business and Technical Communication	3.0
MATH	1011	Trigonometry	3.0
MATH	1012	Analytic Geometry and Logarithms	3.0

CERTIFICATE OF TECHNOLOGY IN BUILDING TECHNOLOGY (CONSTRUCTION COURSES)

Prerequisite: Completion of Intermediate Certificate of Technology (Construction Courses), or equivalent.

			Credits
BLDG	1820	B.C. Building Code: General	4.5
BLDG	2760	Construction Estimating 2	3.0
BLDG	3760	Pricing and Bidding	3.0
BLDG	3870	Introduction to Building Development	3.0
BLDG	3875	Construction Law in Project Management	3.0
BLDG	3880	Project Management: Construction Management	3.0
BLDG	3970	Construction Materials and Methods 3	3.0
		Electives	7.5

Electives (with prior approval)

BLAW	3100	Business Law	4.0
BLDG	1800	Fire Protection Systems in Buildings	3.0
BLDG	1910	Architectural Illustrations	3.0
BLDG	3835	Computer Application in Building Technology 2	3.0
BLDG	3840	Computer Construction Estimating	3.0
BLDG	3885	Cost Control and Scheduling	3.0
COMM	2022	Business and Technical Correspondence	3.0
COMM	2204	Technical Reports	3.0
ECON	2100	Microeconomics	3.0
FMGT	1100	Accounting 1	4.0
OPMT	1187	Project Planning and Scheduling	3.0
SURV	1108	Engineering Survey 1	7.0

ENGINEERING TECHNOLOGY

CAD PROGRAMMING POST-DIPLOMA PROGRAM

T. Williams, B.Sc., M.Sc. (Mech Eng.), P.Eng., Associate Dean

INTRODUCTION

Computer Aided Design and Manufacturing (CAD/CAM) techniques are becoming common place engineering tools in industry. Specialized training is required to effectively use and manage this technology. This career enhancement program provides graduate technologists and engineers from all disciplines with the skills necessary in today's technological environment.

The CAD Programming Post-diploma Program is a flexible program of studies designed to meet the background and technical interest of the student.

The curriculum balances theory and practice through lectures, labs, and projects. BCIT is well known for its two-year practical job-entry diploma programs and state-of-the-art labs. The CAD Programming Post-diploma is no exception; this career enhancement program has full access to computer labs utilizing current engineering software.

PROGRAM REGISTRATION

Full-Time studies

The full-time program is intended for individuals who would like to complete a post-diploma through an intensive nine month period of studies. The program runs each year from September through May.

Applying for the CAD Programming Post-diploma Program (Full-time)

Applications for the full-time program are accepted throughout the year, however, the application deadline for the September intake is **July 1**. Students who have completed the equivalent of the first term of studies through part-time course work may enter the full-time program in January if space is available.

To apply, contact Student Services at BCIT and ask for program and admissions information. You will be asked to submit an "Application for Admission" form with all of your official documentation to Admissions, Burnaby campus.

Once you have been accepted to the program, you must arrange for an interview with the program head. Based on your background and interests, you will be given an approved program of studies which lists the courses you must complete in order to obtain a post-diploma.

Part-time studies

The part-time, post-diploma program is designed to meet the needs and interests of practising engineers and technologists. The program consists of evening and weekend courses designed to accommodate working students. The program allows students to specialize in one area of study or take courses from a variety of areas.

Applying for the CAD Programming Post-diploma Program (Part-time)

Applications for the part-time program are accepted throughout the year.

To apply, submit an "Application for Admission" form with all of your official documentation to Admissions, Burnaby campus. Write "Part-time CAD Programming Post-diploma" clearly on the form.

Once you have been accepted to the program an interview will be arranged for you to meet with the program head. Based on your background and interest, you will be given an approved program of studies which lists the courses you must complete in order to obtain a CAD Programming Post-diploma.

After receiving program approval, you may begin courses at the start of the next term (September, January or April). The courses offered each term are listed in the BCIT Part-time Studies flyer.

Part-time candidates are expected to maintain a minimum course load of three courses per calendar year (average one course per term).

Contacts

Specific information on the CAD Programming Post-diploma is available from one of the following persons.

Brent R. Dunn, P.Eng. Advanced Diploma Coordinator
Tel. 432-8755
Bette Bayley, Program Assistant
Tel. 432-8521
Cindy Miraftab
Tel. 432-8274

Written requests should be addressed to:
Cindy Miraftab
Mechanical Design and Manufacturing
British Columbia Institute of Technology
3700 Willingdon Avenue
Burnaby, BC
Canada V5G 3H2

Program Requirements

The general requirements for a Post-diploma are a minimum of 50 credits drawn from various components.

Components	Minimum Credits
Management Subjects	8.0
Core Technology Subjects	21.0
Specialty Technology Subjects	15.0
Graduation Practicum Project	6.0

Credits obtained from similar courses that may have been taken as part of an undergraduate program are not transferable.

Note: Courses are selected based on a student's educational background and work experience.

CHEMICAL SCIENCES TECHNOLOGY

Bob Pike, Program Coordinator
Tel. 432-8946
Program Advisor
Tel. 432-8467

Intermediate Certificate Programs in:
- Metallurgy (see page 89)
- Nondestructive Testing (see page 89)

The programs leading to the award of the Intermediate Certificate of Technology in the above areas of Chemical Sciences Technology, will consist of chemical science 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.

ENGINEERING TECHNOLOGY

CIVIL AND STRUCTURAL TECHNOLOGY

Marsh Heinekey, B.Tech., Dipl.T., Dipl.Adult Ed., M.B.A., A.Sc.T., Program Coordinator
Tel. 432-8765
Anne McNaughton, 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.

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.

Certificate of Technology Guideline

A) The emphasis will be placed on the Certificate of Technology. The Intermediate Certificate of Technology will be incorporated into the certificate for approval. A student will still receive the intermediate certificate after completion of 45 credits. The certificate credits will be designed based on the following formula.

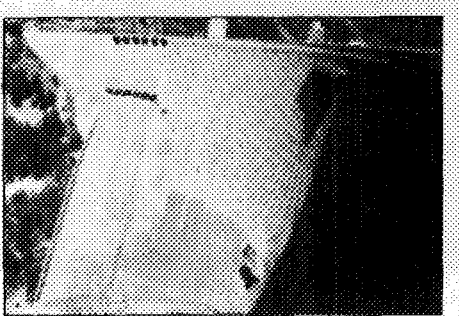
Course Criteria	Percent of Program	Minimum Credit
Core Fundamentals courses Math, Communications, etc.	12%	9.0
Civil Fundamentals courses Statics, Hydrology, Drafting	38%	28.0
Civil Secondary courses Hydraulics, Stress Analysis	25%	19.0
Specialty courses: Civil, Survey, Building, (special electives)	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 Certificate of Technology 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.

			Credits
*CIVL	1000	Statics	6.0
CIVL	1001	Graphical Communication 1	2.5
CIVL	1080	Concrete Technology	3.0
CIVL	1500	Public Works Inspection	3.0
*CIVL	1540	Hydrology 1	2.0
CIVL	1580	Construction Materials Testing Fundamentals	2.5
*CIVL	1622	Highway Design 1	3.0
CIVL	2003	Graphical Communication 2	2.5
CIVL	2224	Asphalt Technology	3.0
*COMM	1103	Introduction to Business and Technical Communication	3.0
*MATH	1011	Trigonometry	3.0
*MATH	1012	Analytic Geometry and Logarithms	3.0
*SURV	1108	Engineering Survey 1	7.0
		Electives	1.5
			45.0

Upon completion of a further 30 credits as listed below you will be eligible for the Certificate of Technology.

*CIVL	1520	Estimates and Contracts for Heavy Construction 1	3.0
*CIVL	2500	Stress Analysis 1	3.0
CIVL	2520	Estimates and Contracts for Heavy Construction 2	3.0
*CIVL	2540	Hydrology 2	2.0
*CIVL	2541	Hydraulics 1	3.0
CIVL	2582	Soil Mechanics 1	3.0
CIVL	3010	AutoCAD (CADD) Applications for Civil Engineering	3.0
*COMM	2204	Technical Reports	3.0
		Electives	4.0
			30.0

Continued on page 84

ENGINEERING TECHNOLOGY

Certificate of Technology in Civil and Structural Technology continued from page 83

Note:
* Mandatory subjects. Intermediate Certificate of Technology after 45 credits. Certificate of Technology after 75 credits.

Electives			Credits
AICO	1000	AutoCAD 1	3.0
AICO	2000	AutoCAD 2	2.5
BLDG	2830	Architectural CAD (Auto Arch)	3.0
CIVL	1001	Graphical Communication 1	2.5
CIVL	2003	Graphical Communication 2	2.5
CIVL	2510	Public Works Inspection 2	3.0
CIVL	2521	Construction Documents and Cost Control	3.0
CIVL	3120	Subdivision Planning	3.0
CIVL	3121	Urban Street Design	3.0
CIVL	3500	Stress Analysis 2	3.0
CIVL	3620	Municipal Services 1	3.0
CIVL	4010	AutoCAD 2 for Civil Engineering	3.0
CIVL	4160	Structural Design 1	6.0
CIVL	4170	Structures General	6.0
CIVL	4620	Municipal Services 2	3.0
COMP	1001	Understanding PC MS DOS	1.5
MECH	5070	CAD Customization Using AutoLISP	2.5
SURV	1100	Survey Fundamentals for Inspectors	1.5
SURV	1112	Computations 1	7.0
SURV	2108	Engineering Survey 2	7.0
SURV	2112	Computations 2	3.0
SURV	2325	AutoCAD Applications for Surveying and Mapping	3.0

CIVIL AND STRUCTURAL PART-TIME STUDIES: 1ST YEAR EQUIVALENCY

			Credits
CIVL	384	Civil Engineering Computer Applications	3.0
CIVL	1000	Statics	6.0
CIVL	1001	Graphical Communication 1	2.5
CIVL	1080	Concrete Technology	3.0
CIVL	1540	Hydrology 1	2.0
CIVL	1622	Highway Design 1	3.0
CIVL	2003	Graphical Communication 2	2.5
CIVL	2500	Stress Analysis 1	3.0
CIVL	2540	Hydrology 2	2.0
CIVL	2541	Hydraulics 1	3.0
CIVL	3500	Stress Analysis 2	3.0
CIVL	3541	Hydraulics 2	3.0
CIVL	4160	Structural Design 1	6.0
COMM	1103	Introduction to Business and Technical Communication	3.0
COMM	2202	Business and Technical Correspondence	3.0
COMM	2204	Technical Reports	3.0
MATH	1011	Trigonometry	3.0
MATH	1012	Analytic Geometry and Logarithms	3.0
MATH	2011	Technical Mathematics 3: Calculus	6.0
PHYS	1301	General Physics 1	6.0
PHYS	2301	General Physics 2	6.0
SURV	1108	Engineering Survey 1	7.0

DIPLOMA OF TECHNOLOGY

Prerequisite: Year 1 equivalency 82.0

			Credits
BLDG	3875	Construction Law in Project Management	3.0
BLDG	3880	Project Management: Construction Management	3.0
CIVL	1621	Introduction to Urban Traffic Engineering	3.0
CIVL	2224	Asphalt Technology	3.0
CIVL	2521	Construction Documents and Cost Control	3.0
CIVL	2582	Soil Mechanics 1	3.0
CIVL	2622	Highway Design 2	3.0
CIVL	3010	AutoCAD (CADD) Applications for Civil Engineering	3.0
CIVL	3120	Subdivision Planning	3.0
CIVL	3121	Urban Street Design	3.0
CIVL	3582	Soil Mechanics 2	3.0
CIVL	3620	Municipal Services 1	3.0
CIVL	3621	Land Use Planning	3.0
CIVL	3622	Computer Highway Design	3.0
CIVL	4161	Structural Design 2	6.0
CIVL	4541	Hydraulics 3	3.0
CIVL	4582	Soil Mechanics 3	3.0
CIVL	4620	Municipal Services 2	3.0
MATH	3011	Technical Mathematics 4: Calculus	6.0
OPMT	1187	Project Planning and Scheduling	3.0
SURV	2108	Engineering Survey 2	7.0

Upper Level Courses

The following upper level courses are designed for technologists or engineers with industrial experience who wish to upgrade, update or expand their career opportunities. These courses may also be applied to the Advanced Diploma Program in Technology Management.

CIVL	5500	Natural Hazard Assessment	3.0
CIVL	5521	Transportation Planning	3.0
CIVL	5522	Transportation Planning 1: Network Planning Principles	3.0
CIVL	5523	Transportation Planning 2: Travel Demand Forecasting	3.0
CIVL	5561	Reinforced Masonry Design	3.0
CIVL	5580	Advanced Concrete Technology	3.0
CIVL	5582	Geotechnical Design Rock Stability	3.0

ENGINEERING TECHNOLOGY

PUBLIC WORKS OPERATIONS COURSES

Specific training in the area of Public Works Operations is available. Please see section: Public Works Operations, page 90, in this calendar.

NOTE: NEW PROGRAM

Civil and Structural Technology is developing an Advanced Diploma in Applied Waste Management for Civil Engineering. See section: **Advanced Diploma in Applied Waste Management for Civil Engineering**, page 74, for more details.

COMPUTER SYSTEMS TECHNOLOGY

Ken Takagaki, Ph.D., B.A.(Hons), C.M.A., C.D.P., Associate Dean
Tel. (604) 432-8584
R. B. Long, C.G.A., Manager, Part-time Studies
Tel. 432-8470
Chris Lloyd, Dipl.T., Program Advisor
Part-time Business Studies
Tel. 432-8829

The computer has made it possible to store, manipulate, retrieve and analyze vast quantities of data and information at high speed, so it is 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 (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.

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 receive promotion, or to retain a current position upon successful completion of the program. 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. Some courses are six weeks long, the remainder are four. New courses may be added and existing courses may be modified or deleted in accordance with the market trend in the industry.

Program Requirements

A minimum of 12 courses and a minimum of 18 credits chosen from the mandatory and electives lists below must be successfully completed within five years. The program must contain each of the application sections (such as word processing, spreadsheets, database). The courses chosen from the list of electives must be approved by the manager, Part-time Studies, Computer Systems Technology Programs.

Where the student has never used a computer, COMP 0001 COMPUTING FOR THE TIMID should be completed first.

Mandatory Courses			Credits
COMP	1005	Exploring DOS	1.5
COMP	1201	WordPerfect 5 Level 1 or	1.0
COMP	1205	WordPerfect 6 for DOS Level 1 or	1.5
COMP	1213	WordPerfect 5.2 for Windows L1 or	1.5
COMP	1266	Word for Windows Level 1	1.5
COMP	1210	Ventura Level 1	1.5
COMP	1212	Working with Windows	1.5
COMP	1215	Lotus 1-2-3 Level 1 or	1.0
COMP	1261	Excel Level 1	1.5
COMP	1220	dBASE IV Level 1 or	1.0
COMP	1270	Microsoft ACCESS 1	1.5
COMP	1245	Accpac General Ledger	1.5

Electives			
COMP	1202	WordPerfect 5 Level 2	1.0
COMP	1203	WordPerfect 5 Level 3	1.0
COMP	1206	WordPerfect 6 for DOS Level 2	1.5
COMP	1211	Ventura Level 2	1.5
COMP	1214	WordPerfect 5.2 for Windows L2	1.5
COMP	1216	Lotus 1-2-3 Level 2	1.0
COMP	1217	Lotus 1-2-3 Level 3	1.0
COMP	1221	dBASE IV Level 2	1.0
COMP	1222	dBASE IV Level 3	1.0
COMP	1246	Accpac A/R and A/P	1.5
COMP	1262	Excel Level 2	1.5
COMP	1267	Word for Windows Level 2	1.5
COMP	1271	Microsoft ACCESS 2	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 0001 COMPUTING FOR THE TIMID should be completed first.

Mandatory Courses			Credits
COMP	1001	Understanding PC/MS DOS	1.5
COMP	1010	Word Processing Concepts	1.0
COMP	1015	Spreadsheet Concepts	1.0
COMP	1020	Micro 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 seven courses (a minimum of 21 credits) of which five 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 1405 and 1410. 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			Credits
COMP	1401	Programming Concepts/ Methods	3.0
COMP	1405	Mainframe Assembler Programming Language 1 or	
COMP	1410	Micro PC Assembler Programming Language 1	3.0

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ENGINEERING TECHNOLOGY

Associate Certificate in Introductory Programming continued from page 85

Electives: Computer

COMP 1410	Micro PC Assembler Programming Language 1	3.0
COMP 1420	RPG Programming Language 1	3.0
COMP 1430	Micro PC BASIC Programming Language 1	3.0
COMP 1435	dBASE IV Programming Language 1	3.0
COMP 1440	COBOL Programming Language 1	3.0
COMP 1445	PL/1 Programming Language 1	3.0
COMP 1450	PASCAL Programming Language	3.0
COMP 2425	C Programming Language 1	3.0
COMP 2435	dBASE IV Programming Language 2	3.0
COMP 2440	COBOL Programming Language 2	3.0
COMP 2445	PL/1 Programming Language 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 2620/3620 Computer Systems Development instead of COMP 1615/2615 Computer Systems Introduction.

The program consists of seven courses (a minimum of 21 credits) of which three 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 1401.

Mandatory Courses		Credits
COMP 1615	Computer Systems Introduction 1 and	3.0
COMP 2615	Computer Systems Introduction 2 or	3.0
COMP 2620	Computer Systems Level 1 and	3.0
COMP 3620	Computer Systems Level 2	3.0
FMGT 1100	Accounting 1	4.0
FMGT 2100	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.

BUSA 1105	Management 1	3.0
BUSA 2105	Management 2	2.0
COMM 1103	Introduction to Business and Technical Communication	3.0
COMM 2202	Business/Technical Correspondence	3.0
COMM 2204	Technical Reports	3.0
COMM 2205	Write Manuals for Computer Industry	1.5
ECON 1150	Economic Issues	3.0
ECON 2100	Microeconomics	3.0
ECON 2200	Macroeconomics	4.0
FMGT 3210	Cost/Managerial Accounting 1	4.0
FMGT 4210	Cost/Managerial Accounting 2	5.5
MKTG 1102	Essentials of Marketing	3.0
MKTG 1323	Effective Public Speaking	3.0
OPMT 1102	Basic Mathematics of Finance	3.0
OPMT 1188	Management Information Systems	3.0
OPMT 1197	Statistics for Business/ 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 five 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.

		Credits
COMM 1103	Introduction to Business and Technical Communication	3.0
COMM 2202	Business/Technical Correspondence	3.0
COMM 2204	Technical Reports	3.0
COMM 2205	Write Manuals for Computer Industry	1.5
COMP 1001	Understanding PC/MS-DOS	1.5
COMP 1010	Word Processing Concepts	1.0
COMP 1015	Spreadsheet Concepts	1.0
COMP 1020	Micro Database Concepts	1.0
COMP 1401	Programming Concepts/ Methods	3.0
COMP 1410	Micro PC Assembler Programming Language 1	3.0
COMP 1440	COBOL Programming Language 1	3.0
COMP 1450	PASCAL Programming Language	3.0
COMP 1615	Comp Systems Introduction 1	3.0
COMP 2425	C Programming Language 1	3.0
COMP 2440	COBOL Programming Language 2	3.0
COMP 2610	Exploring Technical Aspects	3.0
COMP 2620	Comp Systems Level 1	3.0
COMP 3425	C Programming Language 2	3.0
COMP 3620	Comp Systems Level 2	3.0
ECON 1150	Economic Issues	3.0
FMGT 1100	Accounting 1	4.0
FMGT 2100	Accounting 2	5.5
MKTG 1102	Essentials of Marketing	3.0
OPMT 1102	Basic Mathematics of Finance	3.0
OPMT 1197	Statistics for Business/ Industry	4.5

ENGINEERING TECHNOLOGY

Electives: Computer			Credits
COMP	1420	RPG Programming Language I	3.0
COMP	1435	dBASE IV Programming Language I	3.0
COMP	2460	LISP Programming Language	3.0
COMP	2465	PROLOG Programming Language	3.0
COMP	2470	POWERHOUSE Programming Language 1	3.0
COMP	3480	FOCUS	3.0
COMP	3470	POWERHOUSE Programming Language 2	3.0
COMP	3490	C.I.C.S.	3.0

Prerequisite Exemptions

Students wishing to apply for an exemption from a required prerequisite must submit sufficient 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 functions.

FISH HARVESTING AND PROCESSING

Denise Nordin, B.Sc.(Hons.), Coordinator
Tel. 432-8948, Fax 434-6986

This program operates according to the current requirements of the fishing industry. Courses and workshop are developed with the assistance of industry committees and offered as needed. Below is a list of courses and workshops which have been offered in the past:

			Credits
FISH	0121	Quality Management Program (QMP) Inspection Workshop	0.0
FISH	0140	Double Seam Workshop	0.0
FISH	0141	Canned Salmon: Screening Line Theory and Operation Workshop	0.0
FISH	1900	Seafood Processing and Quality	4.0

For course descriptions see **Fish Harvesting and Processing** on page 117 in our course description section.

FOOD TECHNOLOGY

Victor J. Martens, B.S.A., M.Sc., P.Ag., Program Head
Tel. 432-8561

			Credits
FOOD	0130	Canned Foods: Thermal Processing and Container Evaluation	0.0
FOOD	0140	Sanitation for Food Processing Plants	0.0
FOOD	0150	Dairy Processing Correspondence	0.0
FOOD	0250	Dairy Processing 1	0.0
FOOD	0350	Dairy Processing 2	0.0

For course descriptions see **Food Technology** on page 117 in our course description section.

MECHANICAL SYSTEMS TECHNOLOGY

E. Morse, B.Sc., B.Eng., P.Eng., Coordinator
Tel. 432-8638
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 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 start 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

			Credits
COMM	2202	Business and Technical Correspondence	3.0
MATH	1011	Technical Mathematics 1: Trigonometry	3.0
MATH	1012	Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MATH	1021	Introduction to Microcomputers Numerical Methods	3.0
MECH	1000	Drafting Fundamentals	3.0
MECH	1120	Introduction to Thermal Processes	3.0
MECH	1140	Statics	4.0
MECH	2000	Mechanical Drafting 2	4.0
MECH	2245	Dynamics	5.5
MECH	3325	Fluid Mechanics	3.0
MSYS	1080	Plumbing	4.0
MSYS	1082	Heating and Ventilating 1: Residential	3.0
		Electives	3.5

ENGINEERING TECHNOLOGY

CERTIFICATE OF TECHNOLOGY IN MECHANICAL SYSTEMS

Prerequisite: Intermediate Certificate of Technology in Mechanical Systems.

			Credits
COMM	2204	Technical Reports	3.0
MECH	4425	Fluid Systems	2.5
MSYS	1084	Heating and Ventilating 1: Commercial	3.0
MSYS	2082	Heating and Ventilating 2	3.0
MSYS	3082	Air Conditioning 1	3.5
MSYS	4082	Air Conditioning Controls and Systems	5.0
		Electives	10.0

DIPLOMA OF TECHNOLOGY IN MECHANICAL SYSTEMS

Prerequisite: Certificate of Technology in Mechanical Systems

BLDG	1730	Construction 1	6.0
MATH	2011	Technical Mathematics 3: Calculus	6.0
MECH	2240	Mechanics of Materials	6.0
MECH	3320	Thermal Engineering 1	4.0
MECH	3460	Engineering Economy	2.0
		Electives	51.0

Optional/Elective Courses

Other electives will be by approval of part-time studies coordinator or Mechanical Systems program head.

AICO	1000	AutoCAD 1	3.0
AICO	1009	Micro Station Intergraph 1	3.0
AICO	2000	AutoCAD 2	2.5
AICO	2009	Micro Station Intergraph 2	3.0
MATH	3491*	Numerical Methods for Mechanical	4.0
MECH	1110	Production Processes 1	4.0
MECH	2350	Fluid Power 1	3.0
MECH	3450	Fluid Power 2	4.0
MECH	4080	Automatic Sprinkler System Design 1	3.0
MECH	4082	Automatic Sprinkler System Design 2	3.0
MECH	4420	Thermal Engineering 2	5.5
OPMT	1187	Project Planning and Scheduling	3.0
PHYS	2301	General Physics 2	6.0

* Available through part-time day study only. For information contact David Sabo, program head, 432-8698.

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 because 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 technologists 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 B.C.

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 work effectively with people in a team situation. Note: Students who start 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

			Credits
CHSC	1156	Metallurgy	6.0
COMM	2202	Business and Technical Correspondence	3.0
MATH	1011	Trigonometry	3.0
MATH	1012	Analytic Geometry and Logarithms	3.0
MATH	1021	Introduction to Microcomputers Numerical Methods	3.0
MECH	106	Manufacturing Processes 1	4.0
MECH	240	Manufacturing Processes 2	5.5
MECH	1000	Drafting Fundamentals	3.0
MECH	1140	Statics	4.0
MECH	2000	Mechanical Drafting 2	4.0
MECH	2240	Mechanics of Materials	6.0
MECH	2245	Dynamics	5.5

CERTIFICATE OF TECHNOLOGY IN MECHANICAL

Prerequisite: Intermediate Certificate of Technology in Mechanical

COMM	2204	Technical Reports	3.0
MATH	2011	Technical Mathematics 3: Calculus	6.0
MECH	1120	Introduction to Thermal Processes	3.0
MECH	3460	Engineering Economics	2.0
PHYS	2301	General Physics 2	6.0
		Electives	10.0

DIPLOMA OF TECHNOLOGY IN MECHANICAL

Mandatory courses

COMM	1103	Introduction to Business and Technical Communication	3.0
ELEX	3405	Electrical Equipment 1	6.0
MATH	3011	Technical Mathematics 4: Calculus	6.0
MATH	3491*	Numerical Methods for Mechanical	4.0
MECH	2350	Fluid Power 1	3.0
MECH	3315	Manufacturing Processes 3	4.0
MECH	3320	Thermal Engineering 1	4.0
MECH	3325	Fluid Mechanics	3.0
MECH	3340	Machine Design 1	4.0
MECH	3450	Fluid Power 2	4.0
MECH	4425	Fluid Systems	2.5
MECH	4440	Machine Design 2	6.5
		Electives	25.0

ENGINEERING TECHNOLOGY

Optional/Elective Courses			Credits
AICO	1000	AutoCAD 1	3.0
AICO	1009	Micro Station Intergraph 1	3.0
AICO	2000	AutoCAD 2	2.5
AICO	2009	Micro Station Intergraph 2	3.0
MATH	1021	Introduction to Microcomputers Numerical Methods	3.0
MECH	3450	Fluid Power 2	4.0
MECH	4080	Automatic Sprinkler System Design 1	3.0
MECH	4082	Automatic Sprinkler System Design 2	3.0
MECH	4420	Thermal Engineering 2	5.5
MECH	4425	Fluid Systems	2.5
MSYS	1080	Plumbing	4.0
MSYS	1082	Heating and Ventilating: Residential	3.0
MSYS	2082	Heating and Ventilating 2	3.0
MSYS	3082	Air Conditioning 1	3.5
MSYS	4082	Air Conditioning Controls and Systems	5.0

* Available through part-time day study only. For information contact David Sabo, program head, 432-8698.

METALLURGY

Bob Pike, Program Coordinator
Tel. 432-8946
Program Advisor
Tel. 432-8467

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN METALLURGY

This program is aimed at 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 listed as part of the Intermediate Certificate of Technology in Nondestructive Testing.

Mandatory Courses			Credits
CHSC	1156	Metallurgy	6.0
COMM	1175	Business and Technical Correspondence or	
COMM	1183	Technical Reports	3.0
MATH	1012	Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MATH	1101	Technical Mathematics 1: Trigonometry	3.0
NDTE	1172	NDT Magnetic Particle and Liquid Penetrant	3.0
PHYS	1301	General Physics	3.0

Optional, Elective Courses			Credits
CHSC	3314	Mineral Processing	3.5
CHSC	4414	Mineral Processing	4.5
CIVL	1000	Statics	6.0
CIVL	2500	Stress Analysis 1 (Strength of Materials)	3.0
CIVL	3500	Stress Analysis 2 (Strength of Materials)	3.0
COMM	1160	Introduction to Business and Technical Communication	3.0
MECH	1000	Drafting Fundamentals	3.0
NDTE	1169	NDT Radiography Level 1	3.0
NDTE	1170	NDT Ultrasonics Level 1	3.0

For course descriptions see **Chemical Sciences Technology** on page 103 in our course description section.

NATURAL GAS AND PETROLEUM

Robin Kinney, Dipl.T., A.Sc.T., Coordinator
Tel. 432-8308, Fax 431-9258

PETR	1151	Fundamentals of Reservoir Fluids	3.0
PETR	1153	Petroleum Production and Transmission	6.0
PETR	1154	Gas Distribution and Utilization	6.0

For course descriptions see **Natural Gas and Petroleum** on page 121 in our course description section.

NATURAL GAS AND PETROLEUM SUMMER INSTITUTE

Robin Kinney, Conference Coordinator
Tel. 432-8308
Fax. 431-9258

This is an annual three-day technical conference designed to enhance the overall knowledge of those involved with B.C.'s downstream natural gas and petroleum industries.

Speakers discuss topics of current interest, related to the changing roles, technologies and opportunities that confront the industry.

For further information regarding the upcoming program and its location, please contact Robin Kinney at the above numbers.

NONDESTRUCTIVE TESTING

Bob Pike, Program Coordinator
Tel. 432-8946
Program Advisor
Tel. 432-8467

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING

The 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 20-week form in which the student attends full-time day classes. The latter program begins each January.

The day and evening programs include courses in all standard NDT methods together with supporting 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 Standards Board (CGSB). However, before obtaining CGSB certification in any NDT method, a student must obtain 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, or previous NDT.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING

(18-week Full-time Day Format)

A. 20 weeks - January to May			Credits
CHSC	2156	Metallurgy	8.0
COMM	1135	Communication for NDT	3.0
MATH	1301	Technical Mathematics 1 for NDT	5.0
NDTE	1169	NDT Radiography Level 1	3.0
NDTE	1170	NDT Ultrasonics Level 1	3.0
NDTE	1172	NDT Magnetic Particle and Liquid Penetrant	3.0
NDTE	2171	Eddy Current	3.0
NDTE	2269	NDT Radiography Level 2	3.0
NDTE	2270	NDT Ultrasonics Level 2	3.0
NDTE	2280	NDT Special Procedures	3.0

For further information phone Bob Pike: 432-8946 or Wayne Irvine: 432-8326.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING

(Night School Format)

Mandatory Courses			
CHSC	1156	Metallurgy	6.0
CHSC	2173	NDT Strain Gauge and Acoustic Emission	3.0
CIVL	1000	Statics	6.0
CIVL	3500	Stress Analysis 2 (Strength of Materials)	3.0
COMM	1160	Introduction to Business and Technical Communication	3.0
MATH	1101	Technical Mathematics 1: Trigonometry	3.0
MECH	3315	Manufacturing Processes 3	4.0
NDTE	1169	NDT Radiography Level 1	3.0
NDTE	1170	NDT Ultrasonics Level 1	3.0
NDTE	1172	NDT Magnetic Particle and Liquid Penetrant	3.0
NDTE	2171	NDT Eddy Current	3.0

Plus at least three NDT courses selected from the list below:

Optional, Elective and Advanced Courses			Credits
CIVL	2500	Stress Analysis 1 (Strength of Materials)	3.0
COMM	1175	Business and Technical Correspondence	3.0
COMM	1183	Technical Reports	3.0
MECH	1000	Drafting Fundamentals	3.0
NDTE	2269	NDT Radiography Level 2	3.0
NDTE	2270	NDT Ultrasonics Level 2	3.0
OPMT	1106	Quality Assurance 1	3.0
OPMT	1142	Introduction to Quality Control Methods	3.0

For course descriptions see **Chemical Sciences Technology** on page 103 in our course description section.

PLASTICS TECHNOLOGY

D.F. Wilson, B.Sc, M.Sc., Ph.D., Program Head
Tel. 432-8350
J.E. Pretzlaff, Dipl.T.
Tel. 432-8366
E. Kulhanek, B.Sc., M.Sc.
Tel. 432-8530

Information Hotline: 432-8971

A Part-time Studies Certificate program is under development in consultation with The Society of the Plastics Industry of Canada, B.C. Division, (SPI). The Certificate program will provide practical and theoretical training in plastic materials and processes, health and safety, communications, math, statistical process control, quality control, computer applications and environmental issues.

The courses are intended for those employed in the plastics and allied industries wishing to upgrade and improve their skills. Some courses are also suitable for persons interested in gaining employment or general knowledge of this growing secondary manufacturing industry.

Watch for course schedules to be published in term flyers or call our staff to confirm course offerings through Part-time Studies or as Industry Services contracts.

PUBLIC WORKS OPERATIONS

Philip Cunnington, B.Sc., P.Eng.
Program Coordinator
Tel. 432-5346
Bette Bayley, Program Assistant
Tel. 432-8521

The following courses offer specific training in the area of Public Works Operations. This series of courses is being prepared to meet the needs of municipal operations personnel. Individuals interested in gaining or furthering their knowledge of both practical and technical matters will benefit from their attendance in these courses. Additional courses are being developed.

			Credits
PUBW	1001	Introduction to Public Works Operations	1.0
PUBW	1101	Sewers	1.0
PUBW	1111	Waterworks 1	1.0
PUBW	1121	Roadworks Maintenance	2.5
PUBW	1141	Municipal Plan Reading	2.5
PUBW	1151	Computers for Public Works	1.0
PUBW	1161	Construction Records	1.0
PUBW	1201	Pumps: Electrical and Controls	3.0
PUBW	2101	Sanitary Sewers	2.5
PUBW	2102	Storm Sewers 1	2.5
PUBW	2111	Waterworks 2	2.5
PUBW	2201	Pumps: Sanitary	3.0
PUBW	2202	Pumps: Water	3.0
PUBW	2203	Pumps: Storm	3.0

For course descriptions see **Public Works Operations** on page 121 in our course description section.

ENGINEERING TECHNOLOGY

PULP AND PAPER TECHNOLOGY SUMMER INSTITUTE

Stephen Berghold, Technical Program Coordinator and 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 B.C. since 1979. It is always offered in the second week of June.

The BCIT Pulp and Paper Technology Summer Institute presents an overview of the Pulp and Paper industry. The program will include about 25 speakers from the industry who will discuss the basics of pulp and paper manufacturing together with current innovations in technology. The discussion will be directed primarily to the principles and methods of manufacture. Field trips are included where possible.

A certificate is issued to students who successfully complete the program.

RENEWABLE RESOURCES

Norm Shaw, Dipl.T., A.Sc.T., Coordinator
Tel. 432-8804, Fax 439-0791

			Credits
RENR	1561	Using Aerial Photographs for Resource Management	1.0
RENR	1570	Basic Field Surveying	2.0
RENR	2131	Soils: An Introduction	3.0
RENR	2171	Metric Log Scaling	7.0
RENR	2500	Fundamentals of Fire Control (S130)	1.0
RENR	2505	Crew Boss (S230/S270)	1.0
RENR	2510	Log Residue and Waste Survey Certification	2.0
RENR	2515	B.C. Log Scale FBM	5.0
RENR	2516	Introduction to Timber Cruising	2.0
RENR	2520	Log Scaling Refresher	3.0
RENR	2525	Call Grading/Scaling Short Course	3.0
RENR	2540	B.C. Coast Appraisal Cruising	1.0
RENR	2562	Principles of Aerial Photo Interpretation	1.0
RENR	2563	Tree Identification from Aerial Photographs	1.0
RENR	2564	Geology and Landforms from Aerial Photographs	2.0
RENR	3531	3-P Sampling	1.0
RENR	3532	Provincial Vegetation Inventory Field Procedures	2.0
RENR	3535	Variable Plot and 3-P Short Course	3.0
RENR	4545	Advanced Forest Sampling	1.5
RENR	5570	Integrated Resource Management and Planning	2.0
RENR	5571	Aerial Photo Interpretation for Land-use Planning	1.0
RENR	5572	Using Aerial Photographs for Vegetation Mapping	1.0
RENR	5573	Aerial Photo Interpretation of Geohazards	1.0
RENR	5574	Principles of Aerial Photo-based Inventory	1.0
RENR	5575	Skills for Practicing Integrated Resource Management	2.0
RRET	3277	Computer Applications in Forest Road Design	3.0

For course descriptions see **Renewable Resources** on page 123 in our course description section.

ROBOTICS AND AUTOMATION

Dave Lewis, P.Eng., Program Head
Tel. 432-8925

The Robotics and Automation Technology program provides students with the opportunity to participate in an introduction to Industrial Robotics course to investigate various types of industrial robots and related systems. Look for ROBT 0010 under course descriptions in this calendar and watch for course start dates to be published in the Part-time Studies flyers.

If your company has specific training needs, or if you wish to draw on BCIT's resources for support in a new venture, contact the Industry Services Department.

SURVEYING AND MAPPING TECHNOLOGY

Nick Wong, Program Coordinator
Tel. 432-8992
Anne McNaughton, Program Advisor
Tel. 432-8467

The programs leading to the award of the Certificate of Technology or Intermediate Certificate in Surveying and Mapping consist of mandatory and elective 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 TECHNOLOGY

			Credits
AICO	1000	AutoCAD I	3.0
COMM	1103	Introduction to Business and Technical Communication	3.0
COMP	1001	Understanding PC/MS DOS	1.5
MATH	1011	Trigonometry	3.0
MATH	1012	Analytic Geometry/ Logarithms	3.0
MECH	1000	Drafting Fundamentals	3.0
PHYS	1301	General Physics I	6.0
SURV	1108	Engineering Survey 1	7.0
SURV	1112	Computations 1	7.0
		Electives listed for Intermediate Certificate	8.5

Courses may be substituted with prior approval.

ENGINEERING TECHNOLOGY

ELECTIVES: INTERMEDIATE CERTIFICATE OF TECHNOLOGY

			Credits
CIVL	1540+	Hydrology 1	2.0
CIVL	1622	Highway Design 1	3.0
COMP	1201	Word Perfect 5 Level 1	1.0
COMP	1215	Lotus 1-2-3 Level 1	1.0
COMP	1430	Micro PC BASIC Programming Language Level 1	3.0
PUBW	1001+	Introduction to Public Works Operations	1.0
PUBW	1141+	Municipal Plan Reading	2.5
SURV	2267	Photogrammetry 1	2.0

Students may take only two of the above electives marked with + for credit towards the Intermediate Certificate of Surveying and Mapping Program.

CERTIFICATE OF TECHNOLOGY IN SURVEYING AND MAPPING TECHNOLOGY

Prerequisite: Intermediate Certificate of Technology in Surveying and Mapping.

COMM	2204	Technical Reports	3.0
SURV	1190	Survey CAD: Rapid Transit	2.0
SURV	1200	Surveying with Total Stations	2.5
SURV	2108	Engineering Survey 2	7.0
SURV	2112	Computations 2	3.0
		Electives listed for Certificate of Technology	12.5

Courses may be substituted with prior approval.

Electives: Certificate of Technology

			Credits
AICO	2000	AutoCAD 2	2.5
CIVL	3120	Subdivision Planning	3.0
COMM	2202	Business/Technical Correspondence	3.0
GIST	5100	Fundamentals of GIS	3.0
GIST	5109	Mapping Using Microstation	3.0
MATH	1021	Introduction to Micros/ Numerical Methods	3.0
MATH	2011++	Technical Mathematics 3: Calculus	6.0
MATH	3011++	Technical Mathematics 4: Calculus	6.0
PHYS	2301	General Physics 2	6.0
PUBW	1101	Sewers	1.0
SURV	1118	Programming the HP48s: Engineering Applications	2.0
SURV	2105	Construction Surveying Techniques	3.0

Note: Courses marked ++ may be replaced by Advanced or Optional courses from the following list.

Year 1 Equivalency

Completion of a minimum 75 credits from the above courses, which must include MATH 2011 and MATH 3011, is necessary for Year 1, full-time equivalency.

ADVANCED OR OPTIONAL COURSES: CERTIFICATE OF TECHNOLOGY

BLDG	3875	Construction Law in Project Management	3.0
CIVL	3121*	Urban Street Design	3.0
CIVL	3621*	Land Use Planning	3.0
CIVL	4620*	Municipal Services 2	3.0
GIST	5125**	PAMAP GIS Level 1	3.0
GIST	5126**	TERRASOFT GIS Level 1	3.0
GIST	5128**	ARC/INFO GIS Level 1	3.0
GIST	6118	Remote Sensing	3.0
OPMT	1187	Project Planning/ Scheduling	3.0
SURV	1115	Global Positioning Systems 1	1.5
SURV	1310	Highway Design/Layout Surveyors	3.0

Students may take only one course marked * and only one course marked ** for credit towards the Certificate of Surveying and Mapping Program.

TRANSPORTATION SYSTEMS (HIGHWAYS)

Mike Boyle, P.Eng., 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 in order to take advantage of the courses offered. Although it is advisable to complete similar subject area courses in sequence, 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 Technologist level by CTAB.

For an information package, course outlines, or registration details, write to: Transportation Systems Technology, BCIT, 3700 Willingdon Avenue, Burnaby, B.C., Canada, V5G 3H2, or Fax your request to BCIT TRANSYSTEMS (604) 436-6113.

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) 432-8279.

ENGINEERING TECHNOLOGY

Program Requirements

The general requirements for each program are listed below. You are advised to study the individual course descriptions on the following pages in order 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		Minimum Credits
Required			
Fundamental Studies			
Technical Communication	TSYH 1101	TSYH 2104	4.0
Engineering Science	TSYH 1150	TSYH 2153	2.0
Graphical Communication	TSYH 1160	TSYH 2170	3.0
Computer Studies	TSYH 1180	TSYH 1186	3.0
Applied Technology Studies			
Hydrology	TSYH 3140	TSYH 3143	3.0
Soils Technology	TSYH 3201	TSYH 3209	2.0
Surveying	TSYH 3301	TSYH 3304	5.0
Construction Materials	TSYH 3220	TSYH 3243	3.0
Elective Studies			10.0
Program Total			**35.0**

CERTIFICATE OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

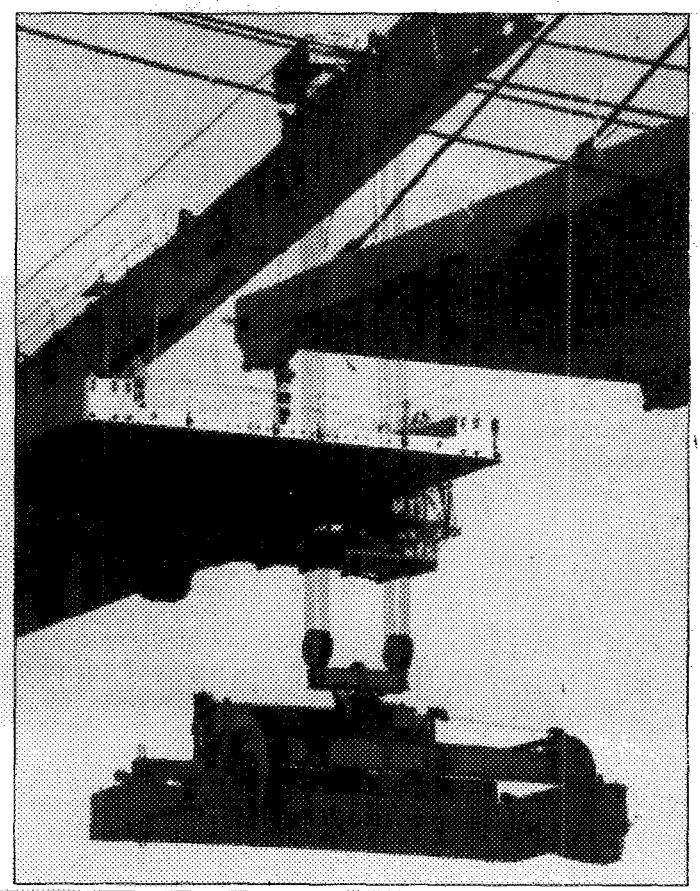
Fundamental Studies			
Technical Communication	TSYH 1101	TSYH 2104	4.0
Mathematics	TSYH 1120 or	TSYH 2129	*
Engineering Science	TSYH 1150	TSYH 2153	5.0
Graphical Communication	TSYH 1160	TSYH 2170	8.0
Computer Studies	TSYH 1180	TSYH 1186	4.0
Applied Technology Studies			
Hydrology	TSYH 3140	TSYH 3143	3.0
Soils Technology	TSYH 3201	TSYH 3209	5.0
Construction Materials	TSYH 3220	TSYH 3243	8.0
Engineering Surveying	TSYH 3301	TSYH 3335	10.0
Estimating and Contracts	TSYH 3450	TSYH 3461	8.0
Highway and Pavement Construction	TSYH 4401	TSYH 4442	8.0
Highway Design	TSYH 4501	TSYH 4510	2.0
Subdivision Planning/Design	TSYH 4530	TSYH 4537	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

			Credits
Fundamental Studies			
Technical Communication	TSYH 1101	TSYH 4199	14.0
Mathematics	TSYH 1120	TSYH 2136	14.0
Engineering Science	TSYH 1150	TSYH 2153	6.0
Graphical Communication	TSYH 1160	TSYH 2170	3.0
Computer Studies	TSYH 1180	TSYH 1186	3.0
Applied Technology Studies			
Hydrology and Hydraulics	TSYH 3140	TSYH 3147	9.0
Soils Technology	TSYH 3201	TSYH 3209	6.0
Construction Materials	TSYH 3220	TSYH 3243	6.0
Engineering Surveying	TSYH 3301	TSYH 3335	6.0
Estimating and Contracts	TSYH 3450	TSYH 3461	6.0
Advanced Design/Management Studies			
Highway Construction	TSYH 4401	TSYH 4442	12.0
Geotechnical Design	TSYH 4210	TSYH 4216	12.0
Highway Design and Traffic	TSYH 4501	TSYH 4510	13.0
Subdivision Planning/Design	TSYH 4530	TSYH 4537	12.0
Economics and Management	TSYH 4720	TSYH 4721**	16.0
Electives or unassigned studies		(Maximum)	12.0
Program Total			**150.0**

** Some Open Learning Agency credit (OLA) is transferable to this program. Please contact the Transportation Systems Department for details.



COURSE DESCRIPTIONS AND CREDITS

ACADEMIC STUDIES

CHEMISTRY

CHEM 0001 (CHEM 001) Pre-entry Chemistry 1 (72 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 3317 (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 1103, 2202 and 2203 in that order.

If you require the equivalent to first-year, full-time Technical Communication, you must take COMM 1103, 2202 and 2204 in that order.

If you require the equivalent to second-year, full-time Technical Communication, you must take COMM 3300 and 4400 in that order after completing all first-year communication requirements.

COMM 0003 Career Explorations in Trades and Technology for Students of English as an Additional Language (88 hours) — If you are able to carry out everyday activities and handle simple conversations in English but need to improve your speaking, listening, reading, and writing skills before you can pursue a career in post-secondary studies, this course is for you. The course will help you acquire the English skills you need to participate in successful interviews with BCIT advisors and instructors in trades and technology. You will learn how to present your career goals and interests clearly and concisely. You will prepare cards of introduction and resumes, practise filling out application forms, participate in practice interviews, and read about cultural differences. The course will feature guest lecturers from various BCIT programs and from Student Services at BCIT. All applicants will be registered in COMM 0009 Communication Placement to write an English Proficiency test on the first night of class to determine eligibility for continuation.

COMM 0004 (COMM 005) Introduction to BCIT for Students of English as an Additional Language (88 hours) — If your first language is not English and your language skills need upgrading before you can enrol in COMM 0005, this course is for you. It includes the speaking, listening, writing and reading skills needed to carry out writing and speaking tasks in COMM 0005 and in other BCIT courses. In this course, you will learn about the programs offered at BCIT. As you read, write and talk about these programs, you'll cover areas such as classification, cause and effect, comparison and contrast and process descriptions. Some of the activities you will do to learn these language skills include comparing and contrasting BCIT programs, interpreting charts and graphs and editing other students' work. A grade of 65% and a passing grade on the Communication Placement Test in this course meets the prerequisite for COMM 0005. All applicants will be registered in COMM 0009 Communication Placement to write an English Proficiency Test on the first night of class to determine eligibility for continuation. **non credit**

COMM 0005 (COMM 004) Technical English for Second Language Students (88 hours) — If your first language is not English and you have good writing skills, this course is for you. It includes the writing, reading, speaking, and listening skills needed for BCIT full-time programs. Sentence and paragraph development, reading comprehension, vocabulary expansion, speaking skills and library skills are emphasized. Grammatical skills are taught in conjunction with writing assignments. You'll also practice proofreading for major errors in sentence structure, grammar and vocabulary. 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 for technologies (a C+ standing in English 12). COMM 0005 Prerequisite: All applicants will be registered in COMM 0009 COMMUNICATION PLACEMENT to write an English Proficiency Test on the first night of class to determine their eligibility for continuation. If your language skills need upgrading, you will be required to complete COMM 0004 before enrolling in COMM 0005. **non credit**

COMM 0008 (COMM 003) Comprehensive Reading, Writing and Learning Skills (88 hours) — This course is designed for students whose first language is 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 speaking skills. 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). COMM 0008 Prerequisite: All applicants will be registered in COMM 0009 Communication Placement to write an English Proficiency Test on the first night of class to determine their eligibility for continuation. **non credit**

COURSE DESCRIPTIONS AND CREDITS

COMM 0020 (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 0021 (COMM 001) Effective Writing (24 hours) — Develop the basic skills needed for business and technical writing at BCIT. Course concentrates on paragraph development, organization and effective sentences in memo and letter writing. **non credit**

COMM 0022 (COMM 900) English Fundamentals (36 hours) — Sentence structure, word choice, common grammatical problems, presentation techniques, paragraph structure and simple presentation strategies. For students whose first language is English. **non credit**

COMM 0023 (COMM 190) Writing for Results (24 hours) — Overview of techniques used to make writing clearer, better organized and more effective in getting the job done in the workplace. **1.5 credits**

COMM 0035 (COMM 012) Inter-Cultural Communication (18 hours) — Differing cultural values, beliefs and assumptions often lead to breakdown in communication, negative stereotyping, failed interpersonal relationships and business deals and even racism. This course will enable you to develop the cultural awareness and sensitivity to cross-cultural diversity you need to communicate more effectively in our increasingly diverse communities and workplaces. You will learn the fundamentals of cross-cultural communication through brief lectures and readings. You will then experience the pitfalls and rewards of cross-cultural communication and have a chance to practice new communication strategies through case studies, writing, videos, discussions and role-playing. The course will particularly emphasize the cultures of the Pacific Rim. **non credit**

COMM 0036 (COMM 036) Career Management Course (12 hours) — This course is designed for technologists who see their work as more than a job. You will define what career success means, plan continuing professional development to reach your goals and build a track-record of your achievements. This course is primarily for employed technologists. **non credit**

COMM 0037 (COMM 037) Competitive Communication (18 hours) — Communicating competitively in business and industry requires clear and effective communication skills. This course will give you the basics to develop your letter and memo writing skills. You will learn key strategies to write quickly, accurately and with confidence. **non credit**

COMM 0038 (COMM 038) Technical Proposal Writing (18 hours) — Develop a strategic approach to writing proposals that sell! Discussion and development will involve the design phase strategies for selling ideas, the development phase for drafting the document and the finishing phase strategies for revision. The course includes developing appropriate professional graphics to enhance your presentation. Participants are encouraged to write proposals based on their work. **non credit**

COMM 0039 (COMM 039) Presentation Skills (18 hours) — This workshop is video-based to provide immediate and constructive feedback towards successive development of individual performances. This highly intensive workshop has one major goal ... to make you confident and competent in front of a group. **non credit**

COMM 0040 (COMM 040) Making Meetings Work (18 hours) — This course will help you practise the necessary skills to get the results you want from your meetings. Learn the technical pieces that get a meeting started right. What to do before, during and after the meeting. Learn the leadership skills in controlling and motivating a group, working with conflict to achieve desired results to unite, to focus and to mobilize the group. **non credit**

COMM 0041 (COMM 910) Telephone Techniques (6 hours) — Brush up on your telephone manners! Learn techniques for making positive first impressions with customers and for handling those angry callers who want to complain. Record calls efficiently. Discussion, sample calls (on video) and role-playing are used. **non credit**

COMM 1103 (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. Routine memos, instructions, procedures, graphics, summaries and oral presentation. **3 credits**

COMM 1139 (COMM 101) Communication for NDT (36 hours) — This course will teach you how to communicate quickly, clearly and effectively. You will learn practical writing techniques including correct formats for instructions, process descriptions, correspondence and some short informal reports. You will also complete a resume and letter of application. **3 credits**

COMM 2202 (COMM 175) Business and Technical Correspondence (36 hours) — Improve your writing capabilities at work. Several types of memos and letters commonly used in the office including requests, complaints, sales and job applications; preparation and revision of resumes using different formats are covered. Prerequisite: COMM 1103 or permission from the instructor. **3 credits**

COMM 2203 (COMM 178) Business Reports (36 hours) — Emphasizes the persuasive skills needed to sell ideas, methods and products. Comparison and recommendation reports, proposals, feasibility studies, executive summaries, formal report format, presentations and use of graphics. Prerequisite: COMM 1103 and COMM 2202 or permission from the instructor. **3 credits**

COMM 2204 (COMM 183) Technical Reports (36 hours) — Emphasizes written skills needed when solving engineering problems. Comparison and feasibility reports, technical proposals, journal reviews, executive summaries, graphics and formal report format. Prerequisite: COMM 1103 and COMM 2202 or permission from the instructor. **3 credits**

COMM 2205 (COMM 196) Writing Manuals for the Computer Industry (18 hours) — For anyone who writes user manuals. Planning, researching, organizing, formatting and writing a manual; testing and packaging the finished product; translating technical material for the nontechnical reader. **1.5 credits**

COMM 3300 (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 with the C.E. Coordinator is 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 Technical Communication requirements for a diploma. **3 credits**

COMM 4400 (COMM 202) Advanced Business and Technical Communication 2 (36 hours) — This course builds on the skills developed in COMM 3300. 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 with the C.E. Coordinator is 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 4 Technical Communication requirements for a diploma. Prerequisite: COMM 3300. **3 credits**

MATHEMATICS

MATH 0001 (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 0001. Prerequisite: C or better in Math 11, or equivalent. **non credit**

MATH 0002 (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 0002. 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 MATH 0001. Prerequisite: A pass in Math 11 or an approved equivalent mathematics course. **non credit**

MATH 0004 (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 0141 (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**

MATH 1011 (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 0001 or equivalent, with C+ or better. **3 credits**

MATH 1012 (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 0001 (or equivalent), with a C+ or better. **3 credits**

MATH 1021 (MATH 125) BASIC 1: Introduction to Microcomputers IBM PCs (36 hours) — Designed for engineering technology students with no previous BASIC programming or microcomputer 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 1041 (MATH 123) Trigonometry — Equivalent to MATH 1011, 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 0001 or equivalent with C+ or better. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

MATH 1042 (MATH 122) Logarithms — Equivalent to the logarithms portion of MATH 1012, 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 1043. Prerequisite: Recent Math 12 or MATH 0001 or equivalent, with a C+ or better. **1.5 credits**

MATH 1043 (MATH 124) Analytic Geometry — Equivalent to the analytic geometry portion of MATH 1012, 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 1042. Prerequisite: Recent Math 12 or MATH 0001 or equivalent with C+ or better. **1.5 credits**

MATH 1301 (MATH 130) Technical Mathematics 1 for NDT (69 hours) — A review and application of algebra, functions and graphs in cartesian and polar coordinates in two and three dimensions; trigonometry of right and general triangles, graphs of trigonometric functions, vectors and applications; logarithmic and exponential functions, growth and decay, decibels, plotting graphs with logarithmic scales. A short introduction to descriptive statistics may be included if time permits. **5 credits**

MATH 1434 (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 1434 and MATH 1435 replace MATH 1431. Prerequisite: Recent Math 12 or 65% or higher in MATH 0001 or equivalent. **4 credits**

MATH 1435 (MATH 115) Mathematics for Electronics: Part B (63 hours) — The second of two parts. See MATH 1434 for details. MATH 1434 and MATH 1435 replace MATH 1431. Prerequisite: MATH 1434 or equivalent. **4 credits**

MATH 1491 (MATH 149) Basic Technical Mathematics for Mechanical (78 hours) — Introduction to differential and integral calculus of polynomial functions including appropriate support topics from algebra, analytical geometry, plane geometry, solid geometry, trigonometry and the theory of logarithms and exponential functions. There will be strong emphasis on illustrating the mathematics with applications from technology, engineering and the physical sciences. Prerequisite: Recent Math 12 or equivalent with a C+ or better or 65% or higher in MATH 0001. **5 credits**

MATH 2011 (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 1011 and MATH 1012 or equivalent. **6 credits**

MATH 2041 (MATH 221) Calculus: Part 1 — Equivalent to the first part of MATH 2011, 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 1042, 1041 and 1043, or equivalents. **3 credits**

MATH 2042 (MATH 222) Calculus: Part 2 — Equivalent to the second part of MATH 2011, 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 anti-differentiation. Prerequisite: MATH 2041 or equivalent. **3 credits**

MATH 2043 (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 2042 or equivalent. **3 credits**

MATH 2434 (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 2434 and 2435 replace MATH 2431. Prerequisite: MATH 1435, 1431 or equivalent. **3.5 credits**

MATH 2435 (MATH 117) Calculus for Electronics: Part B (54 hours) — The second of two parts. See MATH 2434 for details. MATH 2434 and 2435 replace MATH 2431. Prerequisite: MATH 2434 or equivalent. **3.5 credits**

MATH 2491 (MATH 249) Calculus for Mechanical — A continuation of the differential and integral calculus which was presented in MATH 1491. Topics include calculus of the transcendental functions; curve sketching; maxima and minima; areas and volumes; centroids and moments of inertia; calculation of work and force due to fluid pressure; functions of several variables and partial derivatives; elementary first order differential equations. There will be a strong emphasis on illustrating the mathematics with applications from technology, engineering and the physical sciences. Prerequisite: MATH 1491 or equivalent. **5.5 credits**

MATH 3011 (MATH 204) Technical Mathematics 4: Calculus (72 hours) — A continuation of MATH 2011. 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 2011. **6 credits**

MATH 3431 (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 2431 or MATH 2434/2435. **3 credits**

MATH 3491 (MATH 349) Numerical Methods — The application of numerical methods to engineering problems is introduced. Topics include numerical integration, solution of non-linear equations, linear programming, numerical differentiation, solution of systems of linear equations and differential equations. Prerequisite: MATH 2491 or equivalent. **4 credits**

PHYSICS

PHYS 0304 (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. **This course is not a substitute for PHYS 0309.** 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 who need to review. Prerequisite: Physics 11 or equivalent. **non credit**

PHYS 0309 (PHYS 009) Pre-entry Physics (93 hours) — This course meets the Physics 11 entrance requirement for BCIT programs. A grade of 65% or higher in this course meets the prerequisite for programs specifying a C+ in physics. Topics include kinematics, dynamics, equilibrium, energy, fluids, heat, electrostatics and direct current circuits. Prerequisite: You are advised to have completed any necessary mathematics upgrading courses **before** taking PHYS 0309. **non credit**

PHYS 1143 (PHYS 106) Physics for Electronics Technology (84 hours) — Translational and rotational motion, (force, mechanical energy, power); simple harmonic motion; basic electrostatics and dynamics (electric charge, potential, field and energy). Prerequisite: Math 12 and Physics 11. **7 credits**

PHYS 1301 (PHYS 131/132) General Physics (72 hours) — Includes kinematics, statics, linear and rotational dynamics, properties of matter, heat and thermodynamics. Prerequisite: MATH 0001 or equivalent. Physics 11 is also recommended. **3 credits**

PHYS 1302 (PHYS 136) Physics 1 (Correspondence) — Equivalent to PHYS 1301 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 2143 (PHYS 206) Physics for Electronics Technology (72 hours) — Continuation of PHYS 1143. 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 1143 or equivalent, algebra, trigonometry and some calculus. **4.5 credits**

PHYS 2301 (PHYS 231/232) General Physics 2 (72 hours) — Formerly PHYS 133 and 134. First part of sound, light and optics, basic electricity and magnetism, basic semi-conductor theory, atomic and nuclear phenomena. Prerequisite: PHYS 1301 or equivalent. **3 credits**

PHYS 2302 (PHYS 236) Physics 2 (Correspondence) — The sequel to PHYS 1302. Topics include wave motion; sound and light sources; propagation and reflection of light; refraction and dispersion; interface and diffraction; illumination and colour; electrostatics; direct and alternating current; magnetism; atomic and nuclear physics. Prerequisite: PHYS 1302 or equivalent. Must seek approval to register in course. **4.5 credits**

PHYS 5305 (PHYS 465) Electro-optics (42 hours) — Intended for the technologist with a background in electrical technology. Both introduction and applications are covered in the areas of radiometry, geometric and physical optics, solid-state properties of matter, sources, detectors, solar cells, lasers, fibre optics and modulators. Prerequisite: Grade 11 Math and Physics. A BCIT Electronics Technology Diploma, second-year Engineering Technology, or equivalent is recommended. **3 credits**

ADVANCED DIPLOMA IN APPLIED WASTE MANAGEMENT

CIVW 6700 (CIVW 700) Environmental Case Studies — This course provides an introduction to the major areas of study in Applied Waste Management/Environmental Engineering. Case studies will be presented by senior engineers currently active in the environmental engineering field. Topics covered: industrial and municipal liquid waste management; solid waste management; contaminated site investigation and management; environmental law; principles of environmental risk assessment and environmental impact assessments; ground water flow and contaminant transport. Prerequisite: Diploma of Technology in Civil and Structural or Chemical Science or departmental approval. **1 credit**

COURSE DESCRIPTIONS AND CREDITS

CIVW 6710 General And Physical Chemistry 1 — This course will be the first course in a series involving the structure of atoms, compounds, stiochiometry, oxidation and reduction and electrochemistry. Prerequisite: CIVW 6700. **1 credit**

CIVW 6711 General And Physical Chemistry 2 — This second course will build on earlier material and will include solutions, acids, bases and salts, solubility of compounds and the laws relating to gases. Prerequisite: CIVW 6710. **1 credit**

CIVW 6712 Principles of Organic Chemistry — This course will introduce the student to organic chemistry. The nomenclature, physical properties, and reactivities of the more common classes of organic compounds are discussed with special attention given to industrial chemicals and organics that are environmental hazards. Prerequisite: CIVW 6711. **1 credit**

CIVW 6713 Environmental Analytical Chemistry — Most waste management or environmental assessment projects depend significantly on results obtained from analytical laboratories. Laboratories now specialize in environmental testing and it is important for engineering project personnel to have a technical appreciation of how such labs operate. This unit provides an overview of the environmental laboratory discipline. Prerequisite: CIVW 6712. **1 credit**

CIVW 6714 Methods of Wastewater Analysis — This laboratory course will introduce the student to some of the analytical methods used to determine common pollutants in water and wastewater. The theoretical aspects of each analysis as well as typical industrial pollution problems related to local industry are discussed during the lab periods. Prerequisite: CIVW 6713. **1 credit**

CIVW 6715 Hydraulics 1: Waste Management 1 — The first course in a series of four courses to upgrade basic geotechnical, geological and hydraulics skills. For people who do not have a civil engineering background. Prerequisite: CIVW 6700. **1 credit**

CIVW 6716 Geotech/Geology: Waste Management 2 — The second course in a series of four courses to upgrade basic geotechnical, geological and hydraulics skills. For people who do not have a civil engineering background. Prerequisite: CIVW 6715. **1 credit**

CIVW 6717 Hydrology 2: Waste Management 3 — The third course in a series of four courses to upgrade basic geotechnical, geological and hydraulics skills. For people who do not have a civil engineering background. Prerequisite: CIVW 6716. **1 credit**

CIVW 6718 Hydraulic 2: Waste Management 4 — The fourth course in a series of four courses to upgrade basic geotechnical, geological and hydraulics skills. For people who do not have a civil engineering background. Prerequisite: CIVW 6717. **1 credit**

CIVW 6719 Survey Techniques for Waste Management — Construction survey, location survey including global positioning stationing. Surface drainage basin surveys including geographical information systems and data management. Prerequisite: CIVW 6700. **1 credit**

CIVW 6720 Applied Microbiology — Microbiology is the study of microorganisms and their activities. This course will present the types and functions of microorganisms and provide examples as to where microbiology is used within the engineering field to reduce impact to the environment and for the protection of human health. **1 credit**

CIVW 6721 Applied Toxicology — Applied toxicology brings together a selectively representative view of many facets of the subject of toxicology. This includes a review of biological, organic and inorganic substances and their properties and behaviour in the environment. The principles of toxicology will then be explored as it pertains to the biological responses of cells and animals to toxic substances. The ramifications of toxicology in engineering will be described as it pertains to risk assessment and the development of water quality guidelines. **1 credit**

CIVW 6740 Groundwater Hydrology — Groundwater hydrology is the study of water beneath the surface of the earth. This course provides an overview of the occurrence and movement of groundwater in a variety of geologic settings and the effect of human activity on that movement. Prerequisite: C & S Diploma or a BSc in Civil Engineering or completion of CIVW 6718. **1 credit**

CIVW 6741 Contaminant Transport — This course is a continuation of CIVW 6740. It examines the major sources of groundwater contaminants and the flow of contaminants in groundwater. It presents the processes by which contaminants are transported through the subsurface as free-phase products or dissolved aqueous constituents. Prerequisite: CIVW 6740. **1 credit**

CIVW 6742 Groundwater Modelling — This course will cover the terminology of groundwater modelling and the derivation of the basic governing equations for field phenomena with special reference to groundwater flow and groundwater hydrology. Examination will be carried out of the similarities between some field flow phenomena such as the analogy between elasticity in continua and groundwater flow. Students set up matrices representing finite elements of field flow phenomena such as groundwater flow and set up assembled total field flow matrices. Students will set up relaxation nets and related relaxation equations for solutions to Laplace differentials governing groundwater flow. They will rearrange and transform spatial coordinates-and-groundwater-properties data files in varying formats to suit varying computer programs. Students will write simple FORTRAN or BASIC and C programs to solve governing equations. Some techniques for generating groundwater data graphically such as the use of AUTOCAD (R) will be taught. **1 credit**

CIVW 7750 (CIVW 750) Municipal Liquid Waste Management — The topics covered in this course are quantifying the sources of municipal waste water, measurement of waste water strength, impacts of waste water treatment unit operations, primary waste water treatment. Prerequisite: CIVW 6700. **1 credit**

CIVW 7752 (CIVW 752) Industrial Waste Water — The first of a three-course series addressing industrial liquid waste management. Provides an understanding of the nature of industrial wastewater and its environmental significance. Topics include: comparison of municipal and industrial wastewater and its physical, chemical, and biological characteristics; estimation of wastewater strength; analysis of variable flow data; composition of wastewater generated by various industries; environmental impact of wastewater discharges; industrial wastewater survey; waste minimization; and environmental regulations. Includes some economic analysis of competing options. Critical elements of the course will be emphasized through in-class and homework assignments reflecting real life and practical applications. Prerequisite: CIVW 6700. **1 credit**

CIVW 7760 (CIVW 760) Municipal Solid Waste Management — Describes the scope of municipal solid waste management, collection, transfer and transport. Methods of processing and disposal options and facilities. Economics and funding of systems and subsystems and the environmental issues of solid waste management and systems. Prerequisite: CIVW 6700. **1 credit**

CIVW 7761 Recycling and Reduction Techniques — Introduction to the three Rs, recycle, recovery and reduction of solid waste. Course will emphasize methods and economics of recycling as well as landfills and incineration. Public policy and regulations will also be discussed. Prerequisite: CIVW 7760. **1 credit**

CIVW 7770 (CIVW 770) Environmental Site Assessment — Environmental site assessment (ESA) involves the investigation of sites for potential soil and groundwater contamination from past or recent site activities. Environmental audit (EA) involves a review of current operation practices at a site to assess the exposure to environmental risks and liabilities, and to determine compliance with current laws and regulations. Provides an overview of current practice of the ESA and EA and outlines the "due diligence" requirements. Case histories will be reviewed to demonstrate ESA and EA. Principles of environmental emergency planning and health and safety. Prerequisite: CIVW 6700. **1 credit**

ADVANCED DIPLOMA PROGRAM IN INTEGRATED RESOURCE MANAGEMENT

See **Renewable Resources**, page 123, for course descriptions.

ADVANCED DIPLOMA PROGRAM IN SOFTWARE DEVELOPMENT

COMP 7495 (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 will be 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 will be discussed, including Hebb, Hopfield, BSB, Kohonen and Generalized Delta. While the course must investigate theoretical issues in some details, the overall emphasis is on applying NN theory to real applications. 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 3485 (Applied AI) or equivalent and admission into the ADP Program. **5 credits**

COMP 7651 (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 seven-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. Proficiency in algebra, trigonometry, and elementary physics is recommended. Prerequisite: COMP 3720 or equivalent and admission into the ADP Program. **5 credits**

COMP 7655 (COMP 700) Technical Issues 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 assurance; performance analysis; prototyping; user interfaces; software implementation, testing and maintenance; information engineering. Knowledge in programming, systems analysis and design, and database principles is recommended. Prerequisite: Admission into ADP Program. **5 credits**

COMP 7656 (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. Completion of COMP 7655 is recommended. Prerequisite: Admission into the ADP Program. **3 credits**

COMP 7660 (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. Physical data organization and implementation of relational operations are also examined. Students design and implement a database project, and submit a term paper that analyzes an existing database product or deals with a topic of an applied research nature. Prerequisite: COMP 3710 or equivalent, and admission into the ADP Program. **5 credits**

COMP 8660 (COMP 871) Selected Topics in Database — Examines current developments in database: integration of classical database concepts with the emerging developments in object-oriented database systems and knowledge-base systems; first-order logic for relational and deductive databases. Other topics may include database machine architectures and uniformization, logic-based query optimization, database administration and/or distributed databases. Prerequisite: COMP 7660. **5 credits**

COMP 7830 (COMP 702) Applied Research Methods Comp 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 modelling. Covers suitable statistical methods. Prerequisite: Admission into ADP Program. **3 credits**

COMP 7840 (COMP 711) Computer Graphics Fundamentals — Introduces IRIX, X Windows and Motif on Indy Silicon Graphics Inc. (SGI) Workstations; writing, compiling, linking and debugging C programs. Covers computer graphics primitives such as basic line drawing and curve drawing algorithms; 2D/3D transformations, clipping, viewing projections and wireframe modelling. Object hierarchy, PHIGS (Programmer's Hierarchical Interactive Graphics System), PHIGS+ and the GL (Graphics Library) are also covered. Proficiency in C Programming, Trigonometry and Linear Algebra is recommended. Prerequisite: Admission in the ADP Program. **5 credits**

COMP 7845/7846 (COMP 780/880) Practicum 1 and 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. Permission from the ADP program head is required. An information sheet on the Policy on ADP Practicums is available at Part-time Studies, School of Engineering Technology. Prerequisite: COMP 7830 and COMP 7000/8000-level Specialization courses in the ADP. **20 credits**

COMP 8495 (COMP 857) Selected Topics in Applied AI — Covers the latest practical applications in this fast-changing field. Prerequisite: COMP 7495 and 4970. **5 credits**

COMP 8651 (COMP 805) Data Communications Applications — Presents practical issues involving the use and implementation of modern communications systems. Topics include both hardware and software issues, serial data transmission, communications protocols, network configuration and network administration. Students gain practical experience by developing communications 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 communications program. Prerequisite: COMP 7651. **5 credits**

COMP 8840 (COMP 811) Topics in Computer Graphics — Introduces IRIX and Motif on an Indy SGI graphics workstation; writing, compiling, linking and debugging C++ programs. Explores graphics object representations, hidden surface removal, polygon meshes, spline curves/surfaces and NURBS. Concepts are tested using the GL (Graphics Library). Also covered are lighting/shading models, ray tracing, radiosity techniques, fractals, particle systems and computer animation. Prerequisite: COMP 7840. **5 credits**

ELECTIVE (COMP 703) Upper Division Administrative Science — The ADP candidate can choose from a BCIT course in Administrative Science of level 3000 or higher (Equivalent of 300 Level OLA course) or courses in the 7000/8000 level of the Technology Management Advanced Diploma Program. Verification of course acceptability should be obtained from the program head prior to enrolment. Prerequisite: Admission into ADP Program. **3 credits**

BUILDING

BLDG 1700 (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. A study of the various approving authorities and their influence over architectural design services. **6 credits**

BLDG 1730 (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 1805. **6 credits**

BLDG 1760 (BLDG 256) Construction Estimating 1 — Introduces the student to reading construction drawings and specifications and the measurement of construction work. Specific study of particular methods of measurement techniques applicable to sitework, concrete and masonry. Prerequisite: BLDG 1970 or some knowledge of building construction. **3 credits**

BLDG 1800 (BLDG 181) Fire Protection Systems in Buildings — Covers the fundamentals of fire protection engineering and will focus on construction for fire protection, sprinkler systems, special extinguishing systems and industrial fire protection. Some construction or building code experience is desirable. **3 credits**

BLDG 1805 (BLDG 253) B.C. Building Code: Housing — Gives students a working knowledge of Part 9 of the 1992 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. Students must bring B.C. Building Code to the first class. Prerequisite: BLDG 1970 and BLDG 2970 or knowledge of building construction. **3 credits**

BLDG 1815 (BLDG 353) B.C. Building Code: Part 3 — Examines the purpose, scope and contents of the B.C. Building Code with specific study of Part 3: Use and Occupancy. Based on the changes effective as of 1992, this course will be of special interest to persons in design, drafting, construction, inspection and financing of buildings. Students must bring B.C. Building Code to the first class. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

BLDG 1820 (BLDG 363) B.C. Building Code: General — Examines the purpose, scope and contents of the B.C. Building Code, Parts 1 to 8, with specific study of Part 3, Use and Occupancy. Based on the changes effective 1992, this course will be of special interest to persons in design, drafting, construction, inspection and financing of buildings. Students must bring B.C. Building Code to the first class. **4.5 credits**

BLDG 1900 (BLDG 154) Construction Industry Procedures — An overview of the established methods and procedures vital to the construction industry today. Topics include the basis of building development; bidding and contracting construction contracts, specifications and estimating. **3 credits**

BLDG 1905 (BLDG 114) Construction Site Processes and Scheduling — Job site management. Planning, implementation and control of site construction processes. Scheduling and supervision of construction activities. **3 credits**

BLDG 1910 (BLDG 159) Architectural Illustrations — Introduces students to the fundamentals of perspective: perspective construction, photo perspective, shadows and reflections, perspective sketching and rendering in various media. **3 credits**

BLDG 1970 (BLDG 113) Construction Materials and Methods 1 — Fundamental course introducing students to the basic materials and methods used in construction. Acquaints the student with the physical and chemical properties, the manufacturing process of various materials and the way in which the materials and methods are implemented in a construction project. Part 1 includes: earth works, concrete works including reinforcing steel, masonry and metals. Prerequisite for BLDG 1805 and BLDG 2970. **3 credits**

BLDG 2700 (BLDG 251) Drafting and Design 2: Architectural Presentation — Continuation of BLDG 1700. Develops skills to produce presentation drawings required for building development permits. Covers techniques necessary for creating three-dimensional graphics in scale. Enables the student to recognize and distinguish between the various building systems employed in different historical periods. This course will be of special interest to persons in design, drafting, planning and construction of buildings. Prerequisite: senior secondary school graduation plus elementary drafting or BLDG 1700. **6 credits**

BLDG 2730 (BLDG 262) Construction 2A — A continuation of BLDG 1730. Topics include western frame and modified post and beam construction, details for fireplaces, stairs, doors and windows, further development of working drawings to include these elements. Prerequisite: BLDG 1730. **4.5 credits**

BLDG 2735 (BLDG 263) Construction 2B — Further development of working drawings to include the elements covered in BLDG 2730. Prerequisite: BLDG 2730. **4.5 credits**

BLDG 2760 (BLDG 356) Construction Estimating 2 — This course is a continuation of the studies introduced in BLDG 1760 and covers the construction details found in more sophisticated structures. Expands on the topics of BLDG 1760 and introduces sections 5, 6 and 7 covered by the CIQS Standard Method of Measurement in preparation for CIQS exam 202. Prerequisite: BLDG 1760 or departmental approval. **3 credits**

BLDG 2830 (BLDG 218) Architectural CAD (Auto Arch) — Emphasizes the production of 2D/3D drawings for the architectural environment, using SoftDesk Auto Architect, an AutoCAD third party software package. The student will progress from basic drawings to the generation of more advanced projects using the customized SoftDesk template. Prerequisite: AICO 1000. **3 credits**

BLDG 2835 (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. Prerequisite: An understanding of building construction estimating and costing. **3 credits**

BLDG 2915 (BLDG 257) House Inspection — Gives students the essential skills required for inspecting existing houses for potential or hidden defects or deficiencies. Prerequisite: Grade 12, Industry experience, and an understanding of building construction. **3 credits**

BLDG 2970 Construction Materials And Methods 2 — A continuation of BLDG 1970 acquainting students with the manufacturing process of various materials and emphasizing the methods in which these materials are implemented in a construction project. Materials and methods dealing with wood and plastics, thermal and moisture protection, doors, windows and glazing, interior and exterior finishes will be covered. This course is a prerequisite for BLDG 1805. **3 credits**

BLDG 3200 (BLDG 302) Building Construction 3 — A continuation of BLDG 2735. Examination of typical systems of construction in heavy timber, steel and concrete. Site fabrication and assembly; prefabrication. Selection and location of materials in buildings. Extensive preparation of working drawings. Field trips to building sites and fabrication plants. Prerequisite: BLDG 2735. **6 credits**

BLDG 3350 (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 3700 (BLDG 351) Drafting and Design 3: Fundamentals of Architectural Design — Studies specific aspects of design principles - simple design problem 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 2700. **6 credits**

BLDG 3760 (BLDG 456) Construction Estimating 3 — A continuation of BLDG 2760. 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 2760 or departmental approval. **3 credits**

BLDG 3835 (BLDG 358) Computer Applications in Building Technology 2 — A continuation of BLDG 2835 focusing on the further applications of spreadsheets in construction estimating, cost control and accounting. Course especially useful to small contractors, estimators and individuals concerned with construction costs and scheduling. Prerequisite: An understanding of building construction estimating and costing and some working knowledge of spreadsheets. **3 credits**

BLDG 3840 (BLDG 359) Computer Construction Estimating — Measurement and pricing of construction work using TIMBERLINE Precision Estimating Software. This course will cover take-off procedures, building databases and designing simple work packages. Prerequisite: BLDG 1760 or construction estimating experience with departmental approval. Use of DOS is desirable. **3 credits**

BLDG 3870 (BLDG 254) Project Management: Introduction to Building Development — Introduces students to the considerations of the project process; the development of raw land from the recognition of the need for a building through feasibility studies, financing, budget control and design evolution. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 3875 (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; labour law and industrial relations; builders' liens; delay and acceleration claims; and sale of goods legislation. Prerequisite: Knowledge of construction industry procedures. **3 credits**

BLDG 3880 (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, subtrade coordination, field supervision, cost control, equipment management, purchasing controls, warehousing and labour relations. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 3885 Cost Control and Scheduling — Using knowledge gained in prerequisite courses, the student is introduced to the concept of financial control over the project utilizing estimating, productivity and cost data obtained from completed projects. This course also includes the basic principles of scheduling to enable the preparation of schedules from given or calculated data. Prerequisites: FMGT 1100, BLDG 1760, 2760, 3760. **3 credits**

BLDG 3970 Construction Materials and Methods 3 — This course covers the construction materials and methods associated with master format specification divisions 10 to 16. Additional studies comprise larger scale site servicing and municipal servicing including water supplies and sewers. **3 credits**

CHEMICAL SCIENCES

CHSC 1156 (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 1246 (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 2156 (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. This course is an expanded version of CHSC 1156. **8 credits**

NDTE 2171 (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 ration, 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 credits**

CHSC 2173 (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**

COURSE DESCRIPTIONS AND CREDITS

CHSC 2260 (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 2267 (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 — infra-red, gas chromatography and atomic absorption. **3 credits**

CHSC 2268 (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; and laboratory analysis of water samples. **4.5 credits**

CHSC 2274 (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 3301 (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 3306 (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 3314 (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 4301 (CHSC 301) Physical Metallurgy — A continuation of CHSC 3301. Strain measurements, strain gauge and photo-elastic 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 4301. **8 credits**

CHSC 4414 (CHSC 414) Mineral Processing — A continuation of CHSC 3314. Prerequisite: CHSC 3314. **4.5 credits**

CHSC 9000 (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**

NDTE 1169 (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; 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**

NDTE 1170 (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 are covered. Meets the requirements of CGSB Standard 48-GP-7M, condition (b) for classroom training. **3 credits**

NDTE 1172 (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**

COURSE DESCRIPTIONS AND CREDITS

NDTE 2269 (CHSC 269) NDT Radiography Level 2 — 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, code standards, specifications and procedures. Meets the requirements of CGSB Standard 48-GP-4M, condition (b) for classroom training. Prerequisite: NDTE 1169 or certified level 1 radiographer. **3 credits**

NDTE 2270 (CHSC 270) NDT Ultrasonics Level 2 — 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. Meets the requirements of CGSB Standard 48-GP-7M, condition (b) for classroom training. Prerequisite: NDTE 1170 or certified level 1 operator. **3.0 credits**

CIVIL AND STRUCTURAL

CIVL 1000 (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 1101 recommended. **6 credits**

CIVL 1001 (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 draftsperson. 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 1080 (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 1580 or departmental approval. **3 credits**

CIVL 1100 (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 1500 (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 the program advisor for further information (432-8467). **3 credits**

CIVL 1520 (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 estimate resources; estimates for various projects; overhead costs; estimate adjustments; cost accounting and job cost control. **3 credits**

CIVL 1540 (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 1580 (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 1580 is a prerequisite for CIVL 1080, 2224 and 2582. **2.5 credits**

CIVL 1621 (CIVL 180) Introduction to Urban Traffic Engineering — Introduces basic traffic engineering concepts. In general, traffic engineering involves 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**

COURSE DESCRIPTIONS AND CREDITS

CIVL 1622 (CIVL 175) Highway Design 1 — Introduces the fundamentals of highway design and 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 1000 or basic drafting ability or departmental approval. **3 credits**

CIVL 2003 (CIVL 208) Graphical Communication 2 — Builds on the material in CIVL 1001 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 1001. **2.5 credits**

CIVL 2224 (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 1580 or departmental approval. **3 credits**

CIVL 2500 (CIVL 250) Stress Analysis 1 — Examines simple stresses, stress/strain relationships and elasticity, material properties, temperature stress, Poilson'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 1000. **3 credits**

CIVL 2501 Road Construction 1 for Inspectors — An advanced course in public works inspection with emphasis on roadwork construction practices, service installations and maintenance management. Prerequisite: CIVL 1500. **3 credits**

CIVL 2510 Public Works Inspection 2 — This course expands on the individual topics presented in CIVL 1500. It will provide the learner with a greater knowledge base in the areas of contracts, materials, inspection techniques and construction techniques. As part of the inspection program, a student would be able to expand his employment opportunities in the public works inspection field. Prerequisite: CIVL 1500 and *SURV 1100 and *PUBW 1141 (*may be taken concurrently). **3 credits**

CIVL 2520 (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 labour 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 1520 or departmental approval. **3 credits**

CIVL 2521 (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 2540 (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 1540. **2 credits**

CIVL 2541 (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, Bernoulli's equation and pipe friction. Prerequisite: CIVL 1001, or 2540. **3 credits**

CIVL 2582 (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 1580 or departmental approval. **3 credits**

CIVL 2622 (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 1622. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

CIVL 3010 (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 1000 or departmental approval. **3 credits**

CIVL 3120 (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 1622, 2003. **3 credits**

CIVL 3121 (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 1622, 2003. **3 credits**

CIVL 3500 (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 2500. **3 credits**

CIVL 3541 (CIVL 373) Hydraulics 2 — A continuation of CIVL 2541 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 2541. **3 credits**

CIVL 3582 (CIVL 270) Soil Mechanics 2 — Basic soil mechanics theory is completed through lectures and laboratory work. This theory is then applied to geotechnical design problems. Topics covered are consolidation, shear strength, shallow and deep foundations and retaining walls. Prerequisite: CIVL 2582. **3 credits**

CIVL 3620 (CIVL 278) Municipal Services 1 — Illustrates the detail design process and 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 2541, 3120 or departmental approval. **3 credits**

CIVL 3621 (CIVL 282) Land Use Planning — This course provides a working knowledge of the terms, definitions, criteria and process for 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 3622 (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 2622. **3 credits**

CIVL 4010 (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 3010 or departmental approval. **3 credits**

CIVL 4160 (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 3500. **6 credits**

CIVL 4161 (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 4160. **6 credits**

CIVL 4170 Structural General — The course contains two areas of studies: structural analysis and reinforced concrete design analysis. Subjects covered: statistical indeterminacy, moment distribution, computer solutions for indeterminate structures using P-Frame software. The reinforced concrete design part of the course will cover flexural and analysis of slabs, Tee-beams and rectangular beams, designing for shear, deflections, column analysis, walls and footing design. **6 credits**

CIVL 4541 (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 3541. **3 credits**

CIVL 4582 (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 3582. **3 credits**

CIVL 4620 (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 2541, 3620. **3 credits**

CIVL 5500 (CIVL 712) Natural Hazard Assessment — Commences with a review of the nature, origin and classification of soils and rocks. Geomorphology topics include processes, breakdown of rocks, talus development, landslides soils creep, debris flows and torrents, glaciology and slope wash. Natural hazards topics include instability evidence, earthquakes, tsunamis, volcanism, floods, mass movements and snow avalanches. Concludes with the introduction of risk and hazard assessment and acceptability determination methods. Prerequisite: Diploma in civil or geotechnical soils courses or departmental approval. **3 credits**

CIVL 5521 (CIVL 703) 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 1621, 1622. **3 credits**

CIVL 5522 (CIVL 710) 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 1621. **3 credits**

CIVL 5523 (CIVL 711) 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 5522. **3 credits**

CIVL 5561 (CIVL 701) 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 4160. **3 credits**

CIVL 5580 (CIVL 702) 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 behavioural 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 1080 or departmental approval. **3 credits**

CIVL 5582 (CIVL 709) 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 4582 or departmental approval. **3 credits**

COMPUTER AIDED ENGINEERING

AICO 1000 (AICO 213) AutoCAD 1 — An introduction to the AutoCAD workstation including basic 2D drawing creation, editing, view manipulation, text, dimensioning, hatching and plotting. Prerequisite: Basic drafting knowledge and computer literacy recommended. **3 credits**

AICO 1001 (AICO 113) Basic AutoCAD — An introduction to AutoCAD including basic 2D drawing creation, editing, view manipulation, text, dimensioning, hatching, plotting, blocks and digitizing. Also includes a review of computer fundamentals and is intended for those with limited computer experience. Prerequisite: basic drafting knowledge. **5 credits**

AICO 1009 Microstation Intergraph 1 — Introduction to Microstation Intergraph including machine log-on procedures and creation of simple 2D drawings. Emphasis on orthographic projection, dimensioning and text. Prerequisite: Basic drafting knowledge and computer literacy recommended. **3 credits**

AICO 1010 (AICO 220) SmartCAM — Use of SmartCAM software for automatic tool path generation from CAD models produced with AutoCAD software. Programs are proven on CNC milling machines and lathes. **3 credits**

AICO 1070 (AICO 730) 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. Taught on workstations using a hybrid system V/BSD UNIX. Prerequisite: Computer experience. Previous operating system experience a definite asset. **2 credits**

AICO 2000 (AICO 214) AutoCAD 2 — A continuation of AICO 1000 with the focus on increasing production by customizing the AutoCAD environment. Topics include digitizing, blocks, attributes, external references, command and menu customization slides and scripts. Class assignments may be tailored to discipline areas depending on student background. Prerequisite: AICO 1001 or AICO 1000 or equivalent. **2.5 credits**

COURSE DESCRIPTIONS AND CREDITS

AICO 2009 (CDCM 216) Microstation Intergraph 2 — A continuation of AICO 1009. Covers advanced topics including reference files, cell library creation and use, multi-lines and patterning. Prerequisite: AICO 1009. **3 credits**

AICO 2010 AutoCAD for Windows — Students will be introduced to many of the productivity tools available in AutoCAD for Windows. Topics include: interface customization, import/export using Clipboard, Dynamic Data exchange, Object Linking and Embedding, render tools and development tools. For experienced AutoCAD users. Prerequisite: AICO 2000 or equivalent. **1.5 credits**

AICO 2070 (AICO 732) Introduction to UNIX Shell Script Programming — Covers basic shell script programming based on the Bourne and C shell. Includes control structures, shell variables and commands, as well as the user shell environment. The kernel and its relationship to the shell is introduced. Prerequisite: AICO 1070 or equivalent industry experience (minimum one year). **2 credits**

AICO 3000 (AICO 225) AutoCAD 3 — An introduction to the 3D capabilities of AutoCAD. Covers the fundamentals of 3D construction, surface generation and shading using AutoSHADE. Prerequisite: AICO 2000. **1.5 credits**

AICO 3005 (AICO 312) Introduction to AutoLISP — An introductory course in AutoLISP programming for those with no programming experience. Includes AutoLISP programming concepts, development of applications in parameterized drawings, user defined commands and interfacing with the drawing file database. Prerequisite: AICO 2000 or equivalent. **3 credits**

AICO 3070 (AICO 722) Introduction to C Programming — An introductory course in C programming with emphasis on algorithm development and structural programming techniques. Includes engineering applications and is a required prerequisite for AutoCAD users interested in the AutoCAD Development System (ADS). **3 credits**

AICO 3075 (AICO 712) CAD Customization Using AutoLISP — An introduction to AutoLISP programming for those with programming experience. Includes AutoLISP programming concepts, the development of applications in parameterized drawings, user defined commands and interfacing with the drawing file database. Prerequisite: AICO 2000 or equivalent and programming experience. **2.5 credits**

AICO 4000 Solid Modelling — Students will use the Advanced Modelling Extension (AME) to create and edit composite solid models, generate 2D profiles for working drawings and analyze solids for mass and area properties. Prerequisite: AICO 3000. **1.5 credits**

AICO 4010 (AICO 711) Engineering Presentation Graphics Using 3D Studio — The student will be instructed in the production of quality computer graphics such as rendered images and graphic animations. Three dimensional models will be rendered and animated with AutoDesk's 3D Studio software. Applications using 3D rendering and animation include engineering and product design as well as architectural modelling. Prerequisite: AICO 3000. **1.5 credits**

AICO 4070 (AICO 823) Data Structures in C — A continuation of MECH 7070. C software techniques with emphasis for CAD and GIS users. Examples and problems based on file translation, 2D and 3D graphics, windows and image processing using structured code and libraries. Prerequisite: AICO 3070 or equivalent experience. **3 credits**

AICO 4075 (AICO 814) Advanced AutoLISP — This course gives programmers the tools required to improve CAD productivity and customize the user interface. Topics covered are: the drawing database, complex entity access, symbol table, access error checking and handling, extended entity data, hooking to non-graphic databases and dialog box programming. Prerequisite: AICO 3000 or AICO 3075. **2.5 credits**

MECH 7040 (AICO 761) Introduction to the Finite Element Method — An introduction to the FEM (Finite Element Method) for engineers and technologists who wish to perform computer aided design or analysis of machine components and structures. FEM theory and computer modelling techniques will be covered. Practical problems will be solved by building FEM models using commercial software. Prerequisite: Diploma of Engineering Technology or equivalent. **3 credits**

MECH 7045 (AICO 765) Industrial Design 1 — The design process will be discussed in detail with the intent of developing an awareness of common design considerations and providing a framework for conceptual design. This course is designed for individuals with an engineering background. Prerequisite: Diploma of engineering technology or equivalent. **3 credits**

MECH 7051 (AIC0 751) Introduction to Machine Vision — 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. Prerequisite: Departmental approval. **3 credits**

MECH 7052 (AICO 752) Digital Image Processing 1 — 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. Prerequisite: MECH 7051. **3 credits**

MECH 8012 (AICO 819) Advanced CAM Applications — Acquaints the student with advanced multi-axis machining including 3D surface applications. A number of CAM software packages are utilized including SmartCAM 3D. Prerequisite: AICO 1010 or equivalent. **2.5 credits**

COMPUTER SYSTEMS TECHNOLOGY

COMP 0001 (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 and disks. Gives hands-on experience on IBM PC's to familiarize the student with computers.
non credit

COMP 1001 (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 0001 or equivalent. **1.5 credits**

COMP 1005 (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 0001 or equivalent.
1.5 credits

COMP 1010 (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 1001/1005 or equivalent. **1 credit**

COMP 1015 (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 1001/1005 or equivalent. **1 credit**

COMP 1020 (COMP 116) Micro 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 1001/1005 or equivalent. **1 credit**

COMP 1027 MAC Essentials — Presents the MAC method of word processing, spreadsheets, database and desk top publishing. A mix of lecture and hands-on using Microsoft and Aldus Software is designed to give the student the basic skills and understanding of the software programs quickly. **3 credits**

COMP 1201 (COMP 117) WordPerfect 5 Level 1 — Introduces WordPerfect and its 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 1001/1005.
1 credit

COMP 1202 (COMP 118) WordPerfect 5 Level 2 — Continues from COMP 1201. 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 1201. **1 credit**

COMP 1203 (COMP 119) WordPerfect 5 Level 3 — Continues from COMP 1202. Topics include columns, outlines, sorting, indexing, table of contents, line drawing, math or graphics. Prerequisite: COMP 1202. **1 credit**

COMP 1205 WordPerfect 6 for DOS Level 1 — Explains WordPerfect's new mouse features by utilizing the button bars, pull-down menus and ribbon, and speed function keys. Topics include create and save documents, edit text, enhance text, change fonts, speller, thesaurus, Grammatik (checks grammar), search and replace, create headers and footers, and the merge feature. Prerequisite: COMP 1005.
1.5 credits

COMP 1206 WordPerfect 6 of DOS Level 2 — Continues material covered in COMP 1205. Topics include outline and paragraph numbering, create and edit tables, the graphics feature, style sheets, line draw and basic math as well as the advanced features of macros, columns, sort and select, and the set-up menu. Prerequisite: COMP 1205.
1.5 credits

COMP 1210 (COMP 138) Ventura Level 1 — deals with the exciting application of producing "typeset-quality" documents/forms/flyers without using a print shop. Topics include creating textual materials, incorporating pictures with texts, working with style sheets and producing "typeset-quality" outputs. Prerequisite: COMP 1201/1265 or equivalent. **1 credit**

COMP 1211 (COMP 139) Ventura Level 2 — Continues from COMP 1210 to cover fine tuning capabilities and special effects. Topics include importing pictures and data bases, advanced type and page formats, and text file conversion. Prerequisite: COMP 1210. **1 credit**

COMP 1212 (COMP 183) Working With Windows — Provides knowledge of the Windows environment for those who have basic PC knowledge and exposure. Covers all the Windows fundamentals including use of menus, icons, the program manager, file manager, clipboard and the control panel basics. Prerequisite: COMP 1005.
1.5 credits

COMP 1213 WordPerfect 5.2 for Windows L1 — Explains WordPerfect's new mouse features by utilizing the button bars, pull-down menus and ribbon, and speed function keys. Topics include create and save documents, edit text, enhance text, change fonts, speller, thesaurus, Grammatik (checks grammar), search and replace, create headers and footers, and the merge feature. Prerequisite: COMP 1005,1212.
1.5 credits

COMP 1214 WordPerfect 5.2 for Windows L2 — Continues material covered in COMP 1213. Topics include outline and paragraph numbering, create and edit tables, and the graphics feature, style sheets, line draw and basic math as well as the advanced features of macros, columns, sort and select, and the set-up menu. Prerequisite: COMP 1213. **1.5 credits**

COURSE DESCRIPTIONS AND CREDITS

COMP 1215 (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 1001/1005. **1 credit**

COMP 1216 (COMP 148) Lotus 1-2-3 Level 2 — Continues from COMP 1215. Focuses on managing a database using database functions and graphics capabilities to produce graphs. Prerequisite: COMP 1215. **1 credit**

COMP 1217 (COMP 149) Lotus 1-2-3 Level 3 — Continues from COMP 1216. 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 1216. **1 credit**

COMP 1220 (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 1001/1005. **1 credit**

COMP 1221 (COMP 158) dBASE IV Level 2 — Continues from COMP 1220. 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 1220. **1 credit**

COMP 1222 (COMP 159) dBASE IV Level 3 — Continues from COMP 1221. 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 1221. **1 credit**

COMP 1225 (COMP 164) Microsoft WORD for DOS — This six-week course introduces the fundamentals of a powerful word processor to students with little or no word processing experience. 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 1230 (COMP 167) WordPerfect — Covers all levels of word processing and features such as spell check, thesaurus, graphics and mail merge. It 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 1001/1005. **3 Credits**

COMP 1235 (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 with computers is required but keyboard skills are desirable and access to Framework in the work environment is a considerable asset. **3 credits**

COMP 1240 (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 1245 (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 various financial reports. The financial statement report writer is explored. Prerequisite: COMP 1001/1005 and a basic understanding of accounting principles. **1 credit**

COMP 1246 (COMP 186) Accpac A/R and A/P — 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 1245. **1.5 credits**

COMP 1255 (COMP 187) Computerized Accounting — Uses IBM PCs or equivalent, and the "Simply for DOS Integrated Accounting Package" (Bedford) 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 1001/1005 and FMGT 1100, or equivalent. **3 credits**

COMP 1261 Excel Level 1 — Provides in-depth comprehensive coverage of this award-winning Windows word processing program. Student create, edit and print single- and multi-column documents; format with fonts, borders, and shading; set tabs and indents; create styles; set up headers and footers; use search and replace and the spell checker; work with multiple documents and windows; and use the ribbon ruler, toolbar, and "drag-and drop" to speed up work. Prerequisite: COMP 1005. **1.5 credits**

COURSE DESCRIPTIONS AND CREDITS

COMP 1262 Excel Level 2 — Covers advanced techniques for designing professional-looking documents. Topics include creating and using Templates; combining Pictures with text, sizing and scaling pictures, and using Frames to place pictures; creating and formatting Tables; using Print Merge to create form letters and mailing labels; using Outline view to organize and manipulate documents; creating Macros to speed up work; customizing the Toolbar; and using Field codes. Prerequisite: COMP 1261. **1.5 credits**

COMP 1266 Word for Windows Level 1 — Provides in-depth comprehensive coverage of this award-winning Windows word processing program. Student create, edit and print single- and multi-column documents; format with fonts, borders, and shading; set tabs and indents; create styles; set up headers and footers; use search and replace and the spell checker; work with multiple documents and windows; and use the ribbon ruler, toolbar, and "drag-and drop" to speed up work. Prerequisite: COMP 1005. **1.5 credits**

COMP 1267 Word for Windows Level 2 — Covers advanced techniques for designing professional-looking documents. Topics include creating and using templates; combining pictures with text, sizing and scaling pictures, and using frames to place pictures; creating and formatting tables; using Print Merge to create form letters and mailing labels; using Outline view to organize and manipulate documents; creating Macros to speed up work; customizing the Toolbar; and using Field codes. Prerequisite: COMP 1261. **1.5 credits**

COMP 1270 Microsoft Access 1 — Begins with an overview of Access and its object oriented approach to relational database management. Introduces the basic terms and definitions including fields, data types, and primary keys. Focuses on creating and using tables via forms and queries, creating relationships with tables, view records with a form, and design a basic query using single and multiple tables. Provides the experience and skill to create a database with multiple tables, forms, reports and queries. Prerequisite: COMP 1212. **1.5 credits**

COMP 1271 Microsoft Access 2 — Expands on COMP 1270. Covers advanced topics in form and query creation, relational database design, object linking and embedding (OLE). Topics include displaying values in a list, validating data entry, displaying default values, sorting records, calculating totals, creating filters, adding graphs and pictures to reports (using OLE), macros, importing and exporting data. Provides the experience and skills to view, print and save a report, use advanced features of form and query creation, and add graphs and pictures from other applications. Prerequisite: COMP 1270. **1.5 credits**

COMP 1401 (COMP 126) Programming Concepts/Methods — 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 1001/1005, 1010, 1015, 1020. **3 credits**

COMP 1405 (COMP 130) Mainframe Assembler Programming Language 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 1401 or equivalent data processing experience. **3 credits**

COMP 1410 (COMP 144) Micro PC Assembler Programming Language 1 — Introduces programming to persons intending to program in the Assembler language on the IBM PC. Lectures and practical hands-on experience using IBM PCs introduce the fundamentals of the PC Assembler Language. Prerequisite: COMP 1401. **3 credits**

COMP 1415 (COMP 132) FORTRAN IV Programming Language 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 2415. Prerequisite: Grade 12 mathematics and COMP 1401. **3 credits**

COMP 1420 (COMP 135) RPG Programming Language 1 — Teaches the fundamentals of programming in RPG 2 to people with an understanding of data processing concepts. Presents RPG 2 programming concepts and techniques as applied in business batch processing. Students learn to write programs of medium complexity and develop, write, test and run three batch programs. Topics include disk and card input, printed output, the basic RPG 2 logic cycle, control breaks, matching records, arrays, tables and programming techniques. Prerequisite: COMP 1401. **3 credits**

COMP 1430 (COMP 145) Micro PC BASIC Programming Language 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 1401. **3 credits**

COMP 1435 (COMP 162) dBASE IV Programming Language 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 1401. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

COMP 1440 (COMP 233) COBOL Programming Language 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 2440 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 overflow 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 1401. **3 credits**

COMP 1445 (COMP 234) PL/1 Programming Language 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 1405. **3 credits**

COMP 1450 (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) COMP 1401/1405/1415/1440/1445. **3 credits**

COMP 1601 (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 1001, 1010, 1015, 1020 or CGA Tutorial or equivalent. **3 credits**

COMP 1615 (COMP 160) Computer Systems Introduction 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 2615. Prerequisite: COMP 1401. **3 credits**

COMP 1632 (COMP 161) Introducing the IBM AS/400 — Introduces the AS/400 concepts and architecture as it applies to practical business requirements. Where feasible, topics are explained by detailed lectures, examples and machine exercises. Some topics are: libraries and objects; the AS/400 relational database and data management; commands and the 'CL' language; DFU and QUERY utilities; job and output queues; user profiles and AS/400 security. Prerequisite: COMP 0001. **3 credits**

COMP 1815 (COMP 293) Create Multimedia Instruction — Covers developing user friendly interactive multimedia lessons on a computer. The multimedia project developed in the lab uses videodisc technology and implements principles of instructional design, screen design, and other covered topics. Explains the fundamentals of how to teach using multimedia. Note: although the lab is IBM-based, the principles apply to all computer platforms. Prerequisite: Permission from the Instructor. **4 credits**

COMP 2030 (COMP 201) Micro Troubleshooting — Covers the purpose, function, and limitation of key files and hardware components for inexperienced users. Provides a basic understanding of structuring the computer working environment, and ultimately strategies and plans of attack for solving common problems. Includes discussion of config.sys, autoexec.bat and win.ini, hard drive, monitor, processor, modem, printer, fonts, TSR's, utility programs (anti-virus, backup and memory managers). Hands-on not provided. Prerequisite: COMP 1001 or equivalent, working knowledge of MS Windows 3.0 or later, access to a microcomputer. **3 credits**

COMP 2240 (COMP 266) Lotus Macros and Business Apps — 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 1240. **3 credits**

COMP 2405 (COMP 230) Mainframe Assembler Programming Language 2 — Continues COMP 1405 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 1405. **3 credits**

COMP 2410 (COMP 244) Micro PC Assembler Programming Language 2 — Continues from COMP 1410 and provides more detail of 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 1410. **3 credits**

COMP 2415 (COMP 232) FORTRAN IV Programming Language 2 - Provides progression into aspects of FORTRAN IV language beyond those covered in COMP 1415. Students study the use of FORTRAN IV to design, flowchart, write, test and debug assigned programs and programs within their own fields of endeavour, 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 1415. **3 credits**

COMP 2420 (COMP 235) RPG Programming Language 2 — Continues the study of RPG beyond that covered in COMP 1420. Covers interactive programming concepts such as inquiry, inquiry with update, display lists ("subfiles"), and display lists with selection. Students develop several interactive programs on the IBM AS/400 using the RPG/400 programming language and the screen design aid (SDA) utility. Prerequisite: COMP 1420. **3 credits**

COMP 2425 (COMP 137) C Programming Language 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 3425. Knowledge of an Assembler language or PASCAL is required for maximum benefit from this course. Prerequisite: COMP 1410, 1450 or equivalent. **3 credits**

COMP 2430 (COMP 245) Micro PC BASIC Programming Language 2 — Expands on the knowledge obtained in COMP 1430. 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 1430. **3 credits**

COMP 2435 (COMP 263) dBASE IV Programming Language 2 — Broadens the student's 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 1435, or a thorough knowledge of the dBASE IV command language. **3 credits**

COMP 2440 (COMP 333) COBOL Programming Language 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 the associated COBOL instructions. Disk libraries, DOS utility support, and sort programs are also taught. Prerequisite: COMP 1440 or previous programming experience in COBOL. **3 credits**

COMP 2445 (COMP 334) PL/1 Programming Language 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 1445 and includes tapes and disk processing, more advanced programming techniques and language features. Prerequisite: COMP 1445. **3 credits**

COMP 2455 (COMP 287) Smalltalk and OOPs — Addresses the issues of programmer productivity, graphical interfaces, data modelling, 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 2460 (COMP 247) LISP Programming Language — Examines LISP origins and uses in industry, language features, and various AI programming techniques (e.g. inference engines). Intended for programmers interested in the development of AI/KS applications. LISP is a very popular language for Artificial Intelligence/Knowledge Systems (AI/KS) work. Its expressiveness and flexibility are highly prized by AI programmers, and LISP 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 2465 (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**

COURSE DESCRIPTIONS AND CREDITS

COMP 2470 (COMP 249) POWERHOUSE Programming Language 1 — Provides a solid base in programming with POWERHOUSE, a fourth generation language. Includes the use of all the modules of the language; 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 2605 (COMP 241) Data Communications Concepts 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 2610 (COMP 242) Exploring Technical Aspects — Provides a theoretical perspective of the microcomputer 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 microcomputer technology. Topics include definition of microcomputer, microprocessor; LS or VLS technology; micro CPU concepts; microcomputer families, popular real devices; introduction to the pin-outs of a microprocessor, data-bus, address bus, control lines, clock memory (RAM, ROM, PROM); integration of microcomputer system, connection of memory, I/O ports, common buses (e.g. S-100), power supplies, peripherals, other hardware; 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 1401. An understanding of the computer field from COMP 1405 or other computer language courses is highly recommended. **3 credits**

COMP 2615 (COMP 361) Computer Systems Introduction 2 — Expands on the fundamentals learned in COMP 1615 and develops 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 1615/2615. Scheduling techniques such as Gantt charts, PERT/CPM are introduced. Prerequisite: COMP 1615. **3 credits**

COMP 2620 (COMP 261) Computer Systems 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 actively 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 1615/2615 or an advanced programming course. **3 credits**

COMP 2625 (COMP 284) DSS: Forecasting/Simulation — Utilizes scientific methods to analyze management problems and formulate probabilistic models to simulate the possible outcomes of business decisions and to forecast and make decisions based on the scientific method. The results will also 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 1450 or equivalent, plus OPMT 1197. **3 credits**

COMP 2630 (COMP 296) Novell NetWare 386 — Introduces the student to the Local Area Network environment using Novell's NetWare 386 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 1001, OPMT 1188. Familiarity with hardware would be an asset. **3 credits**

COMP 2665 (COMP 265) Local Area Network Theory — Develops the necessary skills to design and implement networks by examining the details of the three most current popular LAN protocols - Ethernet, Arcnet, and Token Ring, and compares them to one or two proprietary protocols. Also covered are file server selection, interface card design, cable and media installation, performance issues, and managing problems particular to today's common sized networks. Various workstation architectures are covered because selection of the correct workstation for the application effects the end user's perception of network performance. Prerequisite: COMP 1001, 2605. **3 credits**

COMP 3425 (COMP 237) C Programming Language 2 —Continues the material covered in COMP 2425. 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 2425 or equivalent. 3 credits

COURSE DESCRIPTIONS AND CREDITS

COMP 3470 (COMP 349) Powerhouse Programming Language 2 — Expands on the material covered in COMP 2470. Topics include procedures, QTP in depth, file linkages, multi-pass programming, and security. Prerequisite: COMP 2470. **3 credits**

COMP 3475 (COMP 289) C++ for Object-Oriented Programming — Emphasizes the Object-Oriented (OO) features of C++ and its use in implementing OO designs. Object technology is a leading trend in software development because it can deliver dramatic improvements in productivity, quality and elegance of design. C++ (the successor to C) and Smalltalk are the dominant languages for OO programming, each with distinctive strengths. Topics include: abstract data types, OO concepts and their C++ expression, OO design, development tools and class libraries. Examples will be drawn from simulation, AI and graphics. Prerequisite: COMP 3425, 3670. **3 credits**

COMP 3480 (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. This course should be of interest to data processing professionals who want to assess the potential of this 4th generation language tool. Prerequisite: COMP 3710 and one high level language. **3 credits**

COMP 3485 (COMP 358) Expert Systems Technology — 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 3490 (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 required processing. Prerequisite: COMP 2440/2445 or equivalent experience. **3 credits**

COMP 3605 (COMP 341) Data Communications Concepts 2 - Continues COMP 2605. Valuable to students involved in 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 modelling of existing and planned networks; future and planned service offerings by common carriers; network control centre operation; common carriers and regulatory matters. Prerequisite: COMP 2605. **3 credits**

COMP 3620 (COMP 361) Computer Systems Level 2 — Expands on material covered in COMP 2620 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 2620. **3 credits**

COMP 3635 (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 various structured techniques, such as creating structured diagrams, maintaining dictionaries, directories, automating data modelling, checking and crosschecking 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 in structured techniques. **3 credits**

COMP 3640 (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 1450, 2610. **3 credits**

COMP 3645 (COMP 367) UNIX Workshop Level 1 — Emphasizes programming under the UNIX environment to achieve proficiency with the UNIX platform. Practical programs are developed to illustrate the multi-user, multi-tasking capabilities of the UNIX operating system. Exercises include executing multiple processes under UNIX using C; programming with the Bourne and Korn shells; UNIX system administration; UNIX systems programming using various IPC facilities; UNIX file system; UNIX utilities (grep, sed, awk, etc.); UNIX E-Mail and uucp. Prerequisite: COMP 2425. **3 credits**

COMP 3670 (COMP 305) Understanding Objects — Focuses on understanding object-oriented concepts, and covers fundamentals such as objects, classes, inheritance and polymorphism without commitment to any particular development language or environment. Introduces the essentials of the Object Model and covers analysis of real world problems using object-oriented data models, behaviour models, and process models. Examples and class exercises are used throughout to reinforce concepts. No previous knowledge of object-oriented techniques is required. Prerequisite: COMP 2615, 3620 or equivalent. **3 credits**

COMP 3710 (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 2615, 2710, 3620. **4 credits**

COURSE DESCRIPTIONS AND CREDITS

COMP 4425 (COMP 337) C Programming Language 3 — Covers more about advanced C programming techniques. Programmers learn how to increase their programming skills and to write carefully constructed, readable programs, high-quality, error-free software. Topics include practical uses of preprocessors, programming tips on bit operations, advanced disk input/output operations, dynamic memory allocation, double linked list, binary tree, techniques to improve execution efficiency, advanced debugging techniques, writing portable codes, and working with larger programs. Prerequisite: COMP 3425. **3 credits**

FISH HARVESTING AND PROCESSING

FISH 0121 (FISH 921) - Quality Management Program (QMP) Inspection — A one-day workshop (7 hours) designed to provide fish processors with the training and tools necessary to carry out a QMP inspection within their own plant. It is jointly instructed by the Department of Fisheries and Oceans and BCIT. Topics include principles of the QMP; records; approval documentation for additives, cleaners, etc.; cleanup procedures; TDU; principles of National Shellfish Sanitation Program; QMP Submission Guide; use of "Handbook of Compliance"; how to do plant surveys and inspections; QMP forms. **non-credit**

FISH 0140 (FISH 940) Double Seam Workshop — A one-day workshop (7 hours) primarily for QC inspectors in B.C. fish canneries and secondarily, the line staff. Participants learn to identify possible causes of problems with seam integrity (double seam defects and teardown measurements), and the appropriate action to take within their plant. Experts from industry and government will instruct the workshop. Topics include: definitions and terminology; double seaming as one critical control point in canning process; double seam formation; potential defects; defect severity and risk analysis; actions to take. **non-credit**

FISH 0141 (FISH 941) Canned Salmon: Screening Line Theory and Operation Workshop — A two-day (14 hours) workshop for canned salmon labeling warehouse personnel, on-line QC inspectors, importers, government inspectors and canned food processors. Jointly instructed by industry experts and Department of Fisheries and Oceans. Topics covered: the importance of screening low-acid foods; interpreting statistical results from a screening run; the design, calibration and operation of checkweigher and double dud detector (DDD) equipment; set-points for checkweigher and DDD equipment; performing screening audit; difference between rejects and defects; assessing a screening run; importance of screening documentation and records, utilizing defects data to achieve good manufacturing practices. A Certificate of Completion is issued to students who successfully complete this workshop. **non-credit**

FISH 1900 (FISH 900) Seafood Processing and Quality — An eight-week (48 hours) hands-on course jointly instructed by industry experts and BCIT, and endorsed by the Fisheries Council of British Columbia. Designed for those presently working in the fish processing industry or seeking employment in this area. Participants learn to: identify major B.C. fish species; understand and evaluate seafood quality; handle seafood with minimal quality loss; describe processing techniques in B.C.'s salmon, herring and groundfish industries; understand product safety and apply basic plant sanitation principles; understand the principles of a quality assurance program; describe government processing regulations. A Certificate of Completion is issued to students who successfully complete this course. **4 credits**

FOOD TECHNOLOGY

FOOD 0130 (BISC 903) Canned Foods: Thermal Processing and Container Evaluation — (30 hours) Designed to provide certification to individuals who must properly evaluate double seams on metal cans and glass container closures which are used for canning foods. Supervisors, canning line employees, government inspectors and others involved with thermal processing low-acid foods and/or container evaluation would benefit from this intensive four-day workshop. Topics include: microbiology of canning; retort operation (still and agitating); thermal processing systems; food container handling; food plant sanitation; government regulations; processing of acidified foods; records for product protection; chlorination of cooling water; closure evaluation of metal and glass containers; principles of heat processing. A Certificate of Completion is issued to students who successfully complete this workshop. Prerequisite: a working knowledge of the industry. **non-credit**

FOOD 0140 (BISC 904) Sanitation for Food Processing Plants — (18 hours) Designed to provide a basic understanding of sanitation principles and practices to food processing line personnel, supervisors and regulatory staff. Offered as a three-day workshop, BCIT instructors and experts from industry and regulatory agencies will cover the following topics: basic microbiology; food spoilage and safety; hazard analysis and critical control point systems; personal hygiene; correct manufacturing practices; cleaning and disinfecting agents; chemical safety and WHMIS; cross-connection plumbing hazards; processing plant waste management; manual and cleaning-in-place systems; setting up a sanitation program; Food Safety Enhancement Program; insect and rodent pest management. A Certificate of Attendance is issued to students who complete this workshop. Prerequisite: must be employed or associated with the food processing industry. **non-credit**

FOOD 0150 (BISC 907) Dairy Processing Correspondence — Provides the beginning dairy plant worker with an overview of the milk processing industry, with emphasis on product safety. Topics include: the Milk Industry Act regulations; basic processing and sanitation principles, and applications of microbiology in the milk processing plant; pasteurization; cleaning principles and practices. Prerequisite: registration in the course is limited to persons presently employed in the dairy industry or by permission of the B.C. Ministry of Health, Milk, Meat and Fish Safety Programs. **non-credit**

FOOD 0250 (BISC 908) Dairy Processing 1 — (35 hours) A one-week review of the information from Dairy Processing Correspondence (FOOD 0150) course. Additional material (product safety, cleaning, sanitizing procedures, processing and pasteurization techniques for a variety of milk products) will be presented by instructors from industry, government and BCIT. The successful completion of this course will enable the dairy plant worker to apply for provincial licensing. A Certificate of Completion is issued to students who successfully complete this workshop. Prerequisite: FOOD 0150. **non-credit**

FOOD 0350 (BISC 909) Dairy Processing 2 — (30 hours) Designed for the processing plant worker involved in the pasteurization of fluid food products, such as milk. A review of milk microbiology, thermal processing and sanitation principles will precede a detailed presentation of "vat" and "HTST" pasteurizer systems and procedures. System components, and the operation and sanitation of pasteurizer systems will be discussed in detail, with emphasis on government regulations for these systems. Industry, government and BCIT will jointly instruct the course. A Certificate of Completion is issued to students who successfully complete this workshop. Prerequisite: FOOD 0250 or instructor's approval. **non-credit**

GEOGRAPHIC INFORMATION SYSTEMS

GIST 5100 (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 5108 (GIST 708) Fundamentals of Photogrammetric Mapping — Examines the technologies associated with the acquisition and modelling of primary coordinate data for GIS base maps. Topics covered include coordinate systems and map projections, mapping systems, photogrammetric mapping, global positioning systems, accuracy of spatial data. **3 credits**

GIST 5119 (GIST 719) Technology Assessment — Hardware and software for GIS and related technologies. System comparison and evaluation for project implementation. **3 credits**

GIST 5120 (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 5121 (GIST 721) Applied Mathematics 1 — Numerical methods. Floating point computations, matrices, simultaneous linear equations, interpolation and approximation methods, linear algebra, solutions to non-linear equations. **3 credits**

GIST 5125 (GIST 725) PAMAP GIS 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 5126 (GIST 726) Terrasoft GIS 1 — Introduction to operational aspects of TERRASOFT GIS software in a microcomputer 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 5128 (GIST 728) ARC/INFO GIS 1 — Introduction to operational aspects of GIS software using ARC/INFO GIS in a workstation environment. Topics include data entry and editing in ARC EDIT, map design in ARCPLOT, and fundamental GIS operations. Working problems drawn from resource management and urban applications. **3 credits**

GIST 5130 (GIST 730) Technical Topics in Computer Systems — Reviews trends in computer system architecture, hardware and software, operating systems, programming languages, and application programs. Concepts of data communications and networking, and introductory mathematics for computing. **3 credits**

GIST 6100 (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 5100. **3 credits**

GIST 6101 (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 and four dimensional GIS, object-oriented databases and programming, multi-media. Prerequisite: GIST 6100. **3 credits**

GIST 6102 (GIST 802) Applications Modelling/Customization — Raster and vector methods of modelling with GIS software. Customization of GIS software: macro programming, menu development, applications programming interfaces. Prerequisites: GIST 5100; GIST 5126, 6125 **or** GIST 5126, 6126 **or** GIST 5128, 6128. **3 credits**

COURSE DESCRIPTIONS AND CREDITS

GIST 6108 (GIST 808) Digital Mapping — Standard practices for compilation, transformation, editing and storage of digital spatial data. Prerequisite: GIST 5108. **3 credits**

GIST 6110 (GIST 810) Management Issues in GIS — GIS project management, GIS integration with external systems, data acquisition and conversion issues, training issues, spatial data management. Prerequisite: GIST 5100; GIST 6100. **3 credits**

GIST 6118 (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 6121 (may be taken concurrently). **3 credits**

GIST 6120 (GIST 820) Project — Continuation of GIST 5120. Students will implement and manage a major independent project. Prerequisite: GIST 5120 and completion of all course requirements. **9 credits**

GIST 6121 (GIST 821) Applied Mathematics 2 — Spatial statistics. Prerequisite: GIST 5121. **3 credits**

GIST 6125 (GIST 825) PAMAP GIS 2 — A continuation of GIST 5125 covering the interpreter, topographer and file translator utilities and user commands. Prerequisite: GIST 5125. **3 credits**

GIST 6126 (GIST 826) Terrasoft GIS 2 — A continuation of GIST 5126 covering database linkage, coordinate geometry, digital terrain modelling, analytical GIS functions, and data import/export. Prerequisite: GIST 5126. **3 credits**

GIST 6128 (GIST 828) ARC/INFO GIS Level 2 — A continuation of GIST 5128 covering use of ARC macro language programming, database software, coordinate geometry, digital terrain modelling, analytical GIS functions, importing/exporting of data. Prerequisite: GIST 5128. **3 credits**

GIST 6132 GIS Database System — Workstation GIS database systems are examined using Oracle RDMS. Advanced issues in GIS data management such as distributed systems and client server relationships are studied. Prerequisite: COMP 1222. **3 credits**

GIST 6133 (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 4070, or equivalent C Programming skills. **3 credits**

GIST 6134 (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 5130. **3 credits**

GIST 6135 (GIST 735) GIS System Management — Account management, system backup, startup and shutdown procedures, system accounting, system security. Introduction to networking, distributed GIS databases in a heterogenous computing environment. Prerequisite: GIST 5130 or equivalent industry experience. **3 credits**

MECH 7060 (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. **3 credits**

MECHANICAL

MECH TBA (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 TBA (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 1000 (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 1120 (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 1140 (MECH 104) Statics — Vectors, force systems, concurrent and coplanar, non-concurrent 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 1011. **4 credits**

MECH 2000 (MECH 200) Mechanical Drafting 2 — Advanced engineering graphic techniques including sections, isometrics, intersections, developments, single line pipe drawings, structural steel and connections, dimensional limits, tolerances and fits. Course work leads to specific engineering drawing assignments. Prerequisite: MECH 1000. **4 credits**

MECH 2240 (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. Prerequisite: MECH 1140. **6 credits**

COURSE DESCRIPTIONS AND CREDITS

MECH 2245 (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. Introduction to mechanisms. Prerequisite: MECH 1140. **5.5 credits**

MECH 2350 (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 3315 (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 2310. **4 credits**

MECH 3320 (MECH 302) Thermal Engineering 1 — First and second law of thermodynamics. Steady and non-flow energy equations, specific heats of gases, vapour tables, gas and vapour processes. Carnot, Rankine, and basic IC engine cycles. Air compressors. Heat transfer. Prerequisite: MECH 1120, 2245. **4 credits**

MECH 3325 (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 1140. **3 credits**

MECH 3340 (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. Problems are handled in both S.I. and Imperial units. Prerequisite: MECH 2240, 2245. **4 credits**

MECH 3450 (MECH 420) Fluid Power 2 — Provides an understanding of hydraulic control systems and associated electronic controls. 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 2350. **4 credits**

MECH 3460 (MECH 460) Engineering Economics — 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 4080 (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. Prerequisite: MECH 3325 or departmental approval. **3 credits**

MECH 4082 (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 4080. **3 credits**

MECH 4420 (MECH 404) Thermal Engineering 2 — Mixtures of gases and vapours, 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 3320. **5.5 credits**

MECH 4425 (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 3325. **2.5 credits**

MECH 4440 (MECH 401) Machine Design 2 — The sequel to MECH 3340, 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 Imperial units. Prerequisite: MECH 3340. **6.5 credits**

MECHANICAL SYSTEMS

MSYS 1080 (MSYS 103) Plumbing — Topics include codes, basic engineering principles and graphic presentations for plumbing systems design, load calculations, piping methods, sizing of system components for storm and sanitary drainage and water distribution. Some drafting skills will be required. Prerequisite: MECH 1100 or 1000. **4 credits**

MSYS 1082 (MSYS 220) Heating and Ventilating 1: Residential — Covers the principles and practices of air heating systems for residences including 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 1000 or equivalent (may be taken concurrently). **3 credits**

MSYS 1084 (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 commercial buildings. These will be applied to preparation of heat loss estimates, heating and ventilating calculations, working drawings. Prerequisite: MECH 1000 or equivalent (may be taken concurrently). **3 credits**

COURSE DESCRIPTIONS AND CREDITS

MSYS 2082 (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 1000 or equivalent (may be taken concurrently). **3 credits**

MSYS 2084 (MSYS 234) Fire Alarm Systems: Maintenance and Testing — Introduces types and operating characteristics of industrial and commercial fire alarm systems, system configuration and design criteria. Regulations covering the design, installation, testing and maintenance of systems. Methods of inspecting, testing and reporting on installed systems. Prerequisite: MSYS 2080 or departmental approval. **3 credits**

MSYS 3082 (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 1082 and 2082. **3.5 credits**

MSYS 4082 (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 conditioning system design, ductwork layout and links to AutoCAD piping design. Prerequisite: MSYS 3082 or departmental approval. **5 credits**

METALLURGY

See Chemical Sciences Technology, page 103.

NATURAL GAS AND PETROLEUM

PETR 1151 (PETR 151) Fundamentals of Reservoir Fluids — Introduces students to the chemical composition and physical properties of natural gas and crude oil, and their inter-relationship. Covers the fundamental concepts which form the foundation of petroleum engineering. Prerequisite: none. **3 credits**

PETR 1153 (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. A Certificate of Completion will be issued to students who successfully complete both PETR 1153 and PETR 1154. Prerequisite: none. Offered in alternate years. **6 credits**

PETR 1154 (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. A Certificate of Completion will be issued to students who successfully complete both PETR 1153 and PETR 1154. Prerequisite: none. Offered in alternate years. **6 credits**

NONDESTRUCTIVE TESTING

See Chemical Sciences Technology, page 103.

PUBLIC WORKS OPERATIONS

PUBW 1001 (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 watermains. The completion of any activity related to public works construction requires a combination of 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, watermains or roadworks training courses. **1 credit**

PUBW 1101 (CIVL 122) Sewers — Provides an overview of both storm and sanitary sewer collection systems, together with the concepts of treatment and disposal. Trainees will be able to visualize the basic engineering concepts involved in sewer and drainage design and the impact of increased usage on the system. Basic pipe laying procedures will be illustrated with emphasis on the different types of materials used in both sewage and drainage systems. This will also include standard inlet and outfall structures and access procedures to the collection system. Safety and WCB requirements will be clearly identified. The field trip will reinforce all of the above aspects and provide the basis for further discussion on maintenance, blockage removal and main repairs. Prerequisite: PUBW 1001. **1 credit**

PUBW 1111 (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 two 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 hands-on experience will be used to demonstrate various aspects of the subject material. Prerequisite: PUBW 1001. **1 credit**

COURSE DESCRIPTIONS AND CREDITS

PUBW 1121 (CIVL 125) Roadworks Maintenance — The maintenance of a municipal roadway system covers a wide range of activities from pavement repair to street cleaning operations. This new course will include identification of pavement failures and pavement repair techniques, asphalt mixes, crack sealing and a discussion of the types of equipment used. Maintenance management and pavement management systems will be reviewed, along with their integration with job costing. Other aspects of the course will involve street lighting systems, pavement marking and street signs, vegetation control, sweeping and shoulder maintenance. Prerequisite: PUBW 1001. **2.5 credits**

PUBW 1141 (CIVL 111) Municipal Plan Reading — Introduces the student to the basic preparation and organization of a set of engineering drawings used in public works construction. Terminology, abbreviations and standard notes used on roadworks, storm and sanitary sewers, watermains and street lighting will be discussed. Emphasis will then be placed on interpretation of the information. This will involve the correlation between construction layout, construction procedures, specifications and standard drawings. In comprehending this information, the student will also be involved in calculating elevations and sewer grades from the information shown on the drawings. **2.5 credits**

PUBW 1151 (CIVL 123) Computers for Public Works — For those with little or no knowledge of computers. Each student will have hands-on opportunity to become familiar with the fundamental operations. Topics include initial startup, terminology, disks, operating system, executable programs, data transfer, program managers and routine maintenance procedures. **1 credit**

PUBW 1161 (CIVL 115) Construction Records — This short, intensive course is intended for those wishing to improve their basic written communication skills as they applies to the general civil engineering industry. Many day-to-day communication requirements involve short memos, completion of activity reports, job diaries and claim forms. Instruction will focus on the ability to write short reports and instructions in a concise manner, with suitable grammar and punctuation. Emphasis on exercises involving a logical thought pattern in presenting written material and some take-home assignments. Oral presentations may also be included. **1 credit**

PUBW 1201 (CIVL 225) Pumps: Electrical and Controls — Provides a general knowledge of the electrical and controls systems commonly used in pumping stations. Covers electrical supply, starters, switches and lock-out procedures. Hands-on sessions will be incorporated for motors, bearings and maintenance procedures. Various control devices will be demonstrated for level and flow control. Aspects of record keeping, public relations, safety and some design considerations will complete the course. Prerequisite: Grade 10 math and supervisor's written approval. **3 credits**

PUBW 2101 (CIVL 193) Sanitary Sewers — Repairs, maintenance and preventive maintenance of the sanitary sewer systems are routine functions that need to be performed by municipal sanitary sewers crews. Includes all aspects of each of these functions including tools, records, material and response to complaints and alarms. Routine maintenance operations such as blockage removal and repairs and sewer construction will be illustrated. The preventive maintenance portion will discuss sewer cameras, system testing and introduction to sewer rehabilitation. Concludes with introduction to lift station terminology and operation. Prerequisite: PUBW 1101. **2.5 credits**

PUBW 2102 (CIVL 192) Storm Sewers 1 — A continuation of PUBW 1101. Detailed operation and maintenance of all storm drainage aspects, including inlet/outlet structures. Detention facilities, catch basins and culverts. Emphasis will be placed on safety, record keeping, responding to the public complaints and public relations. Prerequisite: PUBW 1101. **2.5 credits**

PUBW 2111 (CIVL 191) Waterworks 2 — Factors and techniques for maintaining water quality, suitability of materials for different working environments and an introduction to rehabilitation techniques will be discussed. Detailed maintenance procedures associated with the system and its fittings, use and operation of pressure regulating devices together with an understanding of design and construction principles, including record keeping, will conclude the course. Throughout these sessions, emphasis will be placed on safety procedures and the need for numerical calculations. At least two field trips are planned to review system control and monitoring techniques and the manufacture of watermain appurtenances. Prerequisite: PUBW 1111. **2.5 credits**

PUBW 2201 (CIVL 227) Pumps: Sanitary — Covers both dry well and wet well waste water pumping facilities. Routine and annual maintenance procedures for submersible pumps, seals, impellors, grinders. Operational aspects of suction and discharge lines, valves, hangers and couplings. Opportunity given to dismantle and reassemble pumps to clarify maintenance requirements and procedures. Maintenance of dry well pumps includes shaft alignment, seals, lubrication, pump alignments, impellors, odour control and related tasks. Prerequisite: PUBW 1201. **3 credits**

PUBW 2202 (CIVL 228) Pumps: Water — Covers both pumping stations and wells. Includes cooperation of control valves and identification, maintenance and troubleshooting of pumps. Demonstrations and hands-on maintenance of seals, packing, impellors, bearing and shaft alignment. Operational procedures for pumping, screening and treatment will be discussed together with preventive and predictive maintenance programs. Prerequisite: PUBW 1201. **3 credits**

PUBW 2203 (CIVL 226) Pumps: Storm — The operation and maintenance of storm drainage pumping facilities requires a broad knowledge of mechanical, electrical and the instrumentation components of the facility. This course will demonstrate common types of pumps and typical maintenance procedures. Examples of mechanical components will be clearly demonstrated, including dismantling of pumps. Consideration will also be given to stilling wells, flood boxes, flap gates, ditches, canals and box culverts. Prerequisite: PUBW 1201. **3 credits**

RENEWABLE RESOURCES

RENR 1561 Using Aerial Photographs for Resource Management — Topics include viewing photos in 3-D; use of photos in resource management; matching photo type and scale for intended use, and accessing photos. **1 credit**

RENR 1570 Basic Field Surveying — An introductory course on the use of typical field survey equipment and the procedures used in timber cruising and resource surveys. It is intended as an entry level course for students considering a career in the renewable resources area. **2 credits**

RENR 2131 (FSTR 212) Soils: An Introduction — An introduction to soils, physical properties, chemistry and fertility. The course will deal with parent materials, rocks and minerals, soil development, classification and land use issues. **3 credits**

RENR 2171 (FSTR 158) Metric Log Scaling — Prepares candidates for B.C. Scalers Exam (Coastal). Learn the skills involved in accurate measurement, volume estimation and value grading coastal logs. Course includes "practical scaling" (at various locations along the Fraser River) and classroom sessions. Metric scale sticks and life vests supplied; students must supply suitable caulk boots. Appropriate for persons with knowledge or experience in the logging industry. **7 credits**

RENR 2500 (FSTR 130) Fundamentals of Fire Control (S130) — Designed for inexperienced persons involved in logging crews, fire department crews, park crews, initial attack crews, stand-by and correctional crews, and fire wardens and others who may become involved in forest fire suppression. **1 credit**

RENR 2505 (FSTR 230) Crew Boss (S230/S270) — Designed for people who have experience in forest fire control and have shown, or require, leadership capabilities in organizing and supervising crews for fire control activities. This course includes fire line organization, supervision and safety around aircraft. **1 credit**

RENR 2510 (FSTR 430) Log Residue and Waste Survey Certification — BCIT offers this five-day course in conjunction with the Ministry of Forests. A background in cruising or scaling would be a definite asset. Suitable experience or a temporary Residue and Waste Certificate is a prerequisite to writing the examination for certification. **2 credits**

RENR 2515 (FSTR 921) B.C. Log Scale FBM — For licensed log scalers who require endorsement in imperial measurement (foot board measure). Course includes "practical scaling" (at various locations along the Fraser River) and classroom sessions. Scale sticks and life vest supplied; students must supply suitable caulk boots. Prerequisite: RENR 2171 or equivalent, or log scaling ticket. **5 credits**

RENR 2516 Introduction to Timber Cruising — A course for individuals with experience in the renewable resources area or other suitable background experience to enter into a career as a timber cruiser. The course will be consistent with level 2 of the proposed accreditation standards. **2 credits**

RENR 2520 (FSTR 922) Log Scaling Refresher — A five-day course which prepares candidates for the B.C. Scalers Exam (Coastal). Course includes "practical scaling" (at various locations along the Fraser River) and classroom sessions. Scale sticks and life vest supplied; students must supply suitable caulk boots. Emphasis is on the B.C. government metric scale and current coastal log grades. Prerequisite: RENR 2171 or equivalent, or log scaling experience. **3 credits**

RENR 2525 (FSTR 923) Call Grading/ Scaling Short Course — An intensive scaling course aimed at coastal timber cruisers and residue/waste surveyors. The course is a mix of log scaling and call grading. Emphasis is on variable length, statutory log grades and net factors. Prerequisite: Experience in coastal cruising, scaling, and waste and residue sampling will be a definite asset. **3 credits**

RENR 2540 (FSTR 962) B.C. Coast Appraisal Cruising — A two-day professional cruising course for coastal timber cruisers. Emphasis on sampling principles and professional cruising techniques. Prerequisite: Experience in coastal cruising, scaling, and waste and residue sampling will be a definite asset. **1 credit**

RENR 2562 Principles of Aerial Photo Interpretation — Provides a methodology for interpreting aerial photographs. Various exercises related to integrated resource management issues will be used to demonstrate this. Prerequisite: RENR 1561 or equivalent. **1 credit**

RENR 2563 Tree Identification from Aerial Photographs — Introduces the principles involved in identifying tree species from 70 mm aerial photographs. Applications in forest inventory and wildlife habitat assessment will be discussed. **Prerequisite:** RENR 1561 or equivalent. **1 credit**

RENR 2564 Geology and Landforms from Aerial Photographs — Reviews the major types of landforms found in B.C. through the use of aerial photographs. Discusses the application of their recognition to resource development. Prerequisite: RENR 2562 or equivalent. **2 credits**

RENR 3531 3-P Sampling — A hands-on course on the principles and applications of 3-P sampling for forest measurements. FORSITE hand-held software will be utilized for project design, data collection, analysis and reporting. **1 credit**

RENR 3532 Provincial Vegetation Inventory Field Procedures — A combination field/classroom course aimed at instructing timber cruising professionals on the field techniques required for the proposed provincial vegetation inventory. **2 credits**

RENR 3535 (FSTR 961) Variable Plot and 3-P Short Course — A five-day cruising course for the professional cruiser. It introduces, discusses and demonstrates proven techniques using a variety of instructors and approaches. The opportunity to demonstrate and discuss equipment, communicate with others and use field applications are important components of this course. **3 credits**

RENR 4545 (FSTR 963) Advanced Forest Sampling — A three-day workshop oriented toward variable plot cruising. Emphasis on understanding statistics; variable plot design and sampling principles; and an introduction to 3-P sampling. Experience in coastal cruising, scaling, and waste and residue sampling will be a definite asset. **1.5 credits**

RENR 5570 (RENR 700) Integrated Resource Management and Planning — Summarizes the development of integrated resource management in B.C.; reviews the essential skills required to participate in the I.R.M. process. Topics include: computer application, negotiation and mediation principles, planning theory and applications. Participation from various agencies and interest groups, as well as a six-hour field trip are all part of this 30-hour course. Prerequisite: BCIT Engineering Technology Diploma or equivalent. **2 credits**

RENR 5571 Aerial Photo Interpretation for Land-use Planning — Describes the use of aerial photos for planning residential, recreational and industrial developments in rural environments. Prerequisites: RENR 5572 and 5573 or equivalent work experience. **1 credit**

RENR 5572 Using Aerial Photographs for Vegetation Mapping — Describes various techniques used to assess vegetation from aerial photos. Its application to wildlife habitat, land use, urban/rural interface, fire management, range and forest inventory will also be discussed. Prerequisite: RENR 2564 or equivalent work experience. **1 credit**

RENR 5573 Aerial Photo Interpretation of Geohazards — The use of aerial photos for geohazard assessment. Topics include the recognition of avalanches; floodplains; previous mass movements and the assessment of an area's potential for future mass movements; fire damage; the development of danger trees in parks. Prerequisite: RENR 2564 or equivalent work experience. **1 credit**

RENR 5574 Principles of Aerial Photo-based Inventory — Concentrates on photo use for developing a resource inventory. Emphasizes options available for achieving statistically sound inventory estimates. Applications will be from a variety of resource areas. Prerequisites: RENR 5571 and 5572 or equivalent work experience. **1 credit**

RENR 5575 Skills for Practicing Integrated Resource Management — Develops fundamental skills for understanding and integrating information and people involved in resource management. Issues related to the acquisition and analysis of both biophysical and socio-economic information for development planning will be discussed. Two all-day field trips to a local watershed will be scheduled into the course by mutual agreement of students and instructor. Prerequisite: RENR 5570 or equivalent work experience. **2 credits**

RRET 3277 (RRET 277) Computer Applications in Forest Road Design — Starting with an introduction to Microsoft Windows 3.1, the course focuses on elements of forest road design, analyzing field data, horizontal and vertical alignment, and mass haul diagrams. Participants will use ROADENG software and actual field data to complete the design of a forest haul road. Prerequisite: some knowledge of the principles of forest road design including field surveys, horizontal and vertical alignment, and mass haul diagrams is recommended. **3 credits**

A number of courses with the designation RRET have been developed and are available as distance education (correspondence) courses. Please refer to the **Distance Education** section in the flyer, or call Shari Monsma at 432-8784.

ROBOTICS AND AUTOMATION

ROBT 0010 (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 1100 (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 1101 (SURV 101) Survey Instrument Operations: Levels — Designed for beginners who want to learn to use the level and levelling procedures. Various types of levels will be covered, reinforced with practical field projects. Emphasis will be placed on sound field practice, note keeping, note reductions, detection of errors, field tests and adjustments for levels. **3 credits**

SURV 1102 (SURV 102) Survey Instrument Operations: Transit and EDM — Introduction to the transit. Use of first and second order types of transits. Setting up and centering procedures. Horizontal and vertical angle measurements; note keeping and reductions, field testing and checks on instrumental errors. Introduction to distance measuring methods: chaining, stadia measurement, EDM (Electronic Distance Measurement). EDM reductions, setting out points by transit and chain/EDM. Field projects. **4 credits**

COURSE DESCRIPTIONS AND CREDITS

SURV 1108 (SURV 108) Engineering Survey 1 — 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 and volumes, and undertake field surveys. **7 credits**

SURV 1112 (SURV 112) 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 coordinates, missing parts; adjustments of traverses; area by coordinates; 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 1115 (SURV 115) Global Positioning Systems 1 — Basic concepts of GPS; point and differential positioning; static, semi-kinematic and kinematic positionings; 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). **1.5 credits**

SURV 1118 (SURV 118) Programming the HP48S: Engineering Applications — Covers models HP48S, HP48SX, HP28; manual operations with emphasis on the use of mathematical tools to solve engineering problems; calculus, statistics and input/output (I/O) capabilities. Development of programs for engineering applications and programming with the HP48SX PC interface. **2 credits**

SURV 1190 (SURV 190) Survey CAD: Rapid Transit — Custom survey application software for coordinate geometry and CAD plans. Survey routines include traversing, inversing, areas, intersections, transformations, curve calculation, contouring and volumes. Most routines are designed to produce a plan through a computer-driven plotter or printer. **2 credits**

SURV 1200 (SURV 200) Surveying With Total Stations — Covers all aspects of the total station in order to take advantage of its capabilities; operation of the instrument; field measurements; data acquisition with the data collector; data processing, and use of computer softwares to produce final plans. **2.5 credits**

SURV 1310 (SURV 310) Highway Design/ Layout Surveyor — 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 2108 or departmental approval. **3 credits**

SURV 2105 (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 1101, 1102 and 1108 or departmental approval. **3 credits**

SURV 2108 (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 field aspects of the total station instrument. Prerequisite: SURV 1108. **7 credits**

SURV 2112 (SURV 312) 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 1112 or Departmental approval. **3 credits**

SURV 2115 (SURV 210) Global Positioning Systems 2 — Transformations between astronomic traditional geodetic and GPS (NAD 27 and NAD 83 and WGS 84) coordinate systems. Use of TRIMNET adjustment software and analysis of results. Computation of carrier phase design matrices. Computation of tropospheric and ionospheric corrections. Introduction to kinematic and semi-kinematic GPS. Prerequisite: SURV 1115 or industrial familiarity with GPS. **1.5 credits**

SURV 2267 Photogrammetry 1 — Introduction to aerial photographs and other remote sensing acquired data; use of map and air photo; geometry of the air photo (scale, displacement and parallax); optics for photogrammetry (refraction, reflection, prisms and lenses); stereoscopy and stereoscopes; radial line triangulation and planimetric map compilation; aerial cameras. **2 credits**

COURSE DESCRIPTIONS AND CREDITS

TECHNOLOGY MANAGEMENT

TMGT 7101 Engineering, Technology and Management — This course will examine the framework within which technologists and others move from a technical specialist role to responsibilities in management. It will also examine the linkages between technology and management. It will offer an overview to the Technology Management Program as a whole in order to provide the candidate with an appreciation of the issues involved. This will be done through class sessions, lectures and discussions with appropriate assignment and projects to be completed. **1 credit**

TMGT 7102 Project Management and Resource Utilization — The focus of this course is project management applied to research and development programs; project management software to manage production line processes, system engineering and installation contracts. Emphasis will be placed on effective, motivated teamwork, good time and cost control. **1 credit**

TMGT 7103 Research and Development Management — An examination of the scientific basis for R&D activities in an organization and the relationship between science and technology. This course will also examine research that focuses on managing R&D activities, which includes: the role of communication in R&D, organizing R&D teams, inter-organizational dynamics, architectural design of the R&D environment, the impact of new communication technologies on R&D work, technology transfer and manufacturing. **1 credit**

TMGT 7104 The Management of Technological Change — An examination of the nature of change in high technology including factors leading to change; major forces affecting resistance to change; effects of change and proactive approaches to change. **1 credit**

TECHNOLOGY MANAGEMENT — MARKETING MANAGEMENT

TMGT 7111 High Technology Marketing Strategies — The objective of this course is to understand the marketing function and how it relates to strategic management decisions in high tech organizations. The course will focus on problems and issues of marketing industrial products and processes. **1 credit**

TMGT 7112 Market Research — This course will explore the scope of marketing research, the nature of research designs, the technical processes used in conducting surveys and experiments, and the problems of data presentation and analysis. The course will also focus on an understanding of marketing plans that encourage a systematic situation appraisal by the manager including background, normal forecast, opportunities and threats, and strengths and weaknesses. **1 credit**

TMGT 7113 Marketing Programs and Plans — This course is concerned with how to identify the key issues and important factors in selecting a strategy for high technology companies and how to do strategic analysis and planning. **1 credit**

TMGT 7114 Product Development and Product Management — This course will deal with the total development process that begins with strategic needs and concludes with the new product in production. Topics include product requirements, concept generation and selection, design, product optimization, tolerances, prototype development, design for manufacturability, process optimization, on-line quality control, and management. The course will emphasize improved methods of bringing in new products as part of the complete process. **1 credit**

TECHNOLOGY MANAGEMENT — FINANCIAL MANAGEMENT

TMGT 7121 Principles of Finance — An in-depth understanding of financing business undertakings, exploring sources of money, the role of business plans, equity capital, the role of debt financing, R&D funding, taxation issues, the role and responsibilities of directors and officers. **1 credit**

TMGT 7122 Management Accounting — This course will explore the basic concepts that underlie the collection, processing and reporting of financial information in business. Emphasis will be placed on understanding and using corporate financial statements and internal financial data as a basis for decision making. Specific attention will be given to the skills in reading and understanding various key financial reports such as the balance sheet, the income statement, receivables and payables reports, cash-flow analysis, and project tracking reports. **1 credit**

TMGT 7123 Technology Information Systems — This course will review the various essential information systems needed in high technology companies that are coping with rapid technological change and intense competition in the marketplace. Skills will be developed in reading and using reports at all levels based on the uses of and relationships between CAD/CAM, Manufacturing, Human Resources and Technology Information Systems. Understanding will be gained on the importance of the accounting department's data gathering process and using this information for generating more effective solutions for problems as well as improving effectiveness in dealing with structured tasks. **1 credit**

TMGT 7124 Control Techniques in Technology Management — This course deals with the measurement of accomplishment against plans and the correction of deviations to assure attainment of objectives. To measure performance, the technologist and engineer manager must be familiar with return on investment, control charts, break-even analysis, marginal costs, and average variable costs. **1 credit**

TECHNOLOGY MANAGEMENT — BUSINESS DEVELOPMENT MANAGEMENT

TMGT 7131 Business Strategy and Structure — This course examines the field of strategic management including the general management tradition, the use of various analytical and conceptual tools for strategic planning and the employment of internal structure and support systems for the implementation of strategic decisions. Focus will be placed on the integration of technology and business strategy. **1 credit**

TMGT 7132 Managing Technological Innovation/Entrepreneurship — Examines the nature of innovation and entrepreneurship as it relates to technical content; the changing relationships among technological, scientific, economic and marketing considerations; an integrative approach to the conditions and relationships in the environment. **1 credit**

TMGT 7133 The Legal and Governmental Environment — An examination of law as it relates to the technological environment including the legal system, patents, government policy regulations (e.g. CRTC, FCC), international standards, contracts, sales of goods, consumer protection, business organizations, negotiable instruments, administrative law, ethics and the relationship to the physical environment. **1 credit**

TMGT 7134 Technology and International Trade and Competition — Examines the elements of trade and the methods used; competition and how best to meet and deal with it; the Free Trade Agreement; the European Economic Community; Hong Kong and China in 1997; introduces the various international government and private agencies which can assist the growing technological company in opening new markets. **1 credit**

TECHNOLOGY MANAGEMENT — HUMAN RESOURCE MANAGEMENT

TMGT 7141 Managing in a Technical Environment — This course emphasizes the skills necessary to manage in a technical environment. It will examine the role and scope of team leadership and supervision including motivation, leadership, coaching, counselling and delegating; skill practices in giving constructive feedback, handling disruptive behaviour, giving and receiving information and providing positive feedback; the role and function of training and development in an organization. It will use the project management skills acquired in optimizing effective performance. **1 credit**

TMGT 7142 Technology Management Communication — This is an in-depth course on key theories and skills needed for communicating effectively in a technology-based organization. Time will be given to considering various models of interpersonal communication; practicing skills for effective, two-way communication; understanding one's own communication style and skills; identifying barriers to effective communication and ways to address those barriers. The class format will include lectures, small group work, discussions and experiential exercises. **1 credit**

TMGT 7143 Problem-solving and Decision-making — This course deals with a practical, hands-on approach to problem-solving and decision-making using an analytical, process-oriented approach. Tools and techniques are used to better maximize the problem-solving and decision-making skills of the participant. **1 credit**

TMGT 7144 Human Resource Planning and Control — This course deals with human resource long-range planning including goals, staffing, job analysis and design, recruitment and job search, selection, orientation, career planning and development including dual career systems and plateauing, succession planning and performance evaluation. **1 credit**

TECHNOLOGY MANAGEMENT — GRADUATION PROJECT

TMGT 8101 Directed Studies — This course will provide a means, through directed studies, to enhance and integrate courses previously taken in the candidate's area of specialization in technology and management. The aim is to assist the candidate in the definition and application of the graduation project. **3 credits**

TMGT 8102 Applied Research Methods — This course covers research methodologies and approaches appropriate to applied research projects in the area of the candidate's specialization. It includes research frameworks, role of theory and empirical approaches such as field study, survey, controlled experiment and modelling. It covers suitable statistical methods. **3 credits**

TMGT 8103 Technology Assessment — This course will provide the candidate with the necessary tools to effectively assess the current technological implications of the Graduation Project. Issues include the provability and stability of the project regarding sustainability of production operations, the affordability of the project, the impact of the project on production changes and the environment, the feasibility of the project, alternative technologies, comparison to conventional methods, compatibility with existing equipment, and the operating skills and security features required to assess implementation. **3 credits**

TMGT 8104 Project — The project is the capstone of the Advanced Diploma Program and is focused on the integration of management and technical issues that reflect their relationship applied to a real-life situation in the candidate's workplace. The project will address a significant problem or explore innovative ideas for improvement within the candidate's organization. **6 credits**

TRANSPORTATION SYSTEMS (HIGHWAYS)

COMMUNICATION

TSYH 1101 (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 1102 (TSYH 102) Introduction to Technical Communication Part 2 — Applies the techniques learned in TSYH 1101 to specific forms of written communication. **2 credits**

TSYH 2103 (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**

COURSE DESCRIPTIONS AND CREDITS

TSYH 2104 (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. **2 credits**

TSYH 4199 (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**

MATHEMATICS

TSYH 1120 (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 that 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 1126 (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 1127 (TSYH 127) Statistics Part 2 — Continuation of TSYH 1126. **2 credits**

TSYH 1132 (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 2123 (TSYH 123) Technical Mathematics Part 2 — The second of two courses in technical mathematics, as described in TSYH 1120. **3 credits**

TSYH 2128 (TSYH 128) Statistics Part 3 — Continuation of TSYH 1127. **2 credits**

TSYH 2129 (TSYH 129) Network Analysis — An introduction to the mathematics involved in operations research. Course includes linear programming, transportation, assignment and queuing theory; and their applications in the decision-making process. **3 credits**

TSYH 2134 (TSYH 134) Calculus Part 2 — A continuation of the series in calculus. **2 credits**

TSYH 2136 (TSYH 136) Calculus Part 3 — A continuation of the series in calculus. **2 credits**

ENGINEERING SCIENCE

TSYH 1150 (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 1151 (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 in preparation to introducing design theory. **3 credits**

TSYH 2152 (TSYH 152) Strength of Materials Part 3: Resistance of Materials — Builds on the foundation laid in TSYH 1150 and 1151, and completes the basic theory of the behaviour of simple members under load. It is intended as a transition for more advanced structural courses, and as preparation for TSYH 2153. **2 credits**

TSYH 2153 (TSYH 153) Strength of Materials Part 4: Testing Practices and Analysis — Reinforces the concepts learned in TSYH 2152 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**

GRAPHICAL COMMUNICATION

TSYH 1160 (TSYH 160) Graphical Communication Part 1: Basic Drafting — Students will be introduced to the standard layout of engineering drawings. Topics include the relationship among 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 1162 (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 1165 (TSYH 165) Graphical Communication Part 3: Interpreting Construction Drawings — A companion course to TSYH 1162 dealing with construction drawings for highways, bridges, culverts, retaining structures and other auxiliary works. **3 credits**

TSYH 2168 (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**

COURSE DESCRIPTIONS AND CREDITS

TSYH 2170 (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**

COMPUTER TECHNOLOGY

TSYH 1180 (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**

HYDROLOGY

TSYH 3140 (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 runoff estimation, precipitation measurement, stream flow measurement, calculation of flows and stream gauging are covered in preparation for TSYH 3142 and 3143. **2 credits**

TSYH 3142 (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 3143 (TSYH 143) Hydrology Part 3: Rational Method Application — An expansion of TSYH 3142. 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**

HYDRAULICS

TSYH 3145 (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 3146 (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 3147 (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**

SOILS TECHNOLOGY

TSYH 3201 (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 describes 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 3203 (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 3206 (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 in a detailed investigation are also covered. Sampling methods and current in situ tests are fully discussed. **3 credits**

TSYH 3209 (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**

CONSTRUCTION MATERIALS

TSYH 3220 (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 3221 (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 3222 (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 3230 (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 3231 (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 3232 (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 3233 (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 3240 (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 3220 as a prerequisite. **1 credit**

TSYH 3241 (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 3242 (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**

ENGINEERING SURVEYING

TSYH 3301 (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 3302 (TSYH 302) Surveying Fundamentals Part 2: Methods and Procedures — A continuation of TSYH 3301. 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 3303 (TSYH 303) Surveying Fundamentals Part 3: Basic Computations — A continuation of TSYH 3302. 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 3304 (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 3301, 3302 and 3303. 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 3310 (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 3311 (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**

COURSE DESCRIPTIONS AND CREDITS

TSYH 3312 (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 3313 (TSYH 313) Mapping Systems and Route Reconnaissance — An introduction to mapping systems used in B.C. 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 3314 (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 skills in applying theory learned in TSYH 3311 and 3312. Students will be required to demonstrate, to the satisfaction of an approved evaluator, competency in a series of surveying tasks related to vertical and horizontal survey computations and layout. **1 credit**

TSYH 3315 (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 3330 (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 3335 (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**

ESTIMATING AND CONTRACTS

TSYH 3450 (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 to establish a base for costing. **2 credits**

TSYH 3453 (TSYH 453) Estimating Part 2: Costing — A continuation of TSYH 3450. The cost elements of quantities including labour, materials, handling, inventory, overhead, etc., are determined or applied to take-off quantities in preparing bid estimates and summarizing project costing. **2 credits**

TSYH 3460 (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 3461 (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**

GEOTECHNICAL DESIGN

TSYH 4210 (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 4212 (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 4214 (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 4216 (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**

HIGHWAY CONSTRUCTION

TSYH 4401 (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 4402 (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 4403 (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 4404 (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 4405 (TSYH 405) Highway Construction Part 5: Rock Drilling and Blasting — An introductory course to the terminology and concepts of explosives used for rock removal in highway construction. Topics include properties of rock, explosive types, detonation, safety, and basic blast design. **1 credit**

TSYH 4440 (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 4442 (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**

HIGHWAY DESIGN

TSYH 4501 (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 T.A.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 4503 (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 of a section of highway including the selection of radii; superelevation and visibility standards for a particular design speed or road classification; calculation of data for horizontal curves (circular arcs and transitional spirals) and vertical curves; calculation of the attainment and removal of superelevation. **4 credits**

TSYH 4507 (TSYH 507) Highway Design Part 3: Earthworks — This course is based on the student project in TSYH 4503. 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 4510 (TSYH 510) Highway Design Part 4: Drainage and Culvert Design — A course on highway 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**

PAVEMENT DESIGN

TSYH 4520 (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, internal angle of friction, allowable sub-grade reaction, and the Benkleman Beam. **2 credits**

TSYH 4522 (TSYH 522) Pavement Design Part 2: Specifications — A continuation of TSYH 4520 where design criteria are examined in terms of construction practices, job specifications and construction inspection. **1 credit**

SUBDIVISION PLANNING AND DESIGN

TSYH 4530 (TSYH 530) Subdivision Planning/Design Part 1: Land Use Planning — Discusses 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, 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 4532 (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 4535 (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**

COURSE DESCRIPTIONS AND CREDITS

TSYH 4537 (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**

TRAFFIC

TSYH 4560 (TSYH 560) Traffic Technology Part 1: Introduction to Traffic Engineering — This course is the first course in the Traffic Technology series. Its contents are structured to introduce you to the basic terminologies in traffic engineering. Since traffic engineering affects every driver on the road, the driver behaviour and the rules of the road are stipulated in legislation and any violations resulting in penalties (or summary offense penalties) are dealt with by the court of law. This aspect is unlike other disciplines of engineering where acceptable and traditional standards, not law, are the rules of practice. **1 credit**

TSYH 4561 (TSYH 561) Traffic Technology Part 2: Traffic Control Devices and Traffic Studies — This course covers the basic approach and methodology of collection and reviewing traffic data for traffic volumes, spot speeds, and motor vehicle accidents. It also deals with the types and meanings of traffic control devices, the review of the Manual of Uniform Traffic Control Devices, the relevant parts of the Motor Vehicle Act, and installation procedures. **1 credit**

TSYH 4562 (TSYH 562) Traffic Technology Part 3: Highway Geometry and Capacity — The previous two courses, TSYH 4560 and TSYH 4561, dealt with traffic, human and vehicle characteristics, the use of traffic control devices, and the legal aspects of traffic engineering and administration. The information contained in these two courses form the basis of highway design. Highway design includes the elements that allow a vehicle to travel safely, and also with adequate capacity to meet travel demands. The design of highways, therefore, needs to consider the geometry design elements such as the horizontal and vertical alignments, and cross sections, as well as the provision of adequate capacity. **1 credit**

TSYH 4563 (TSYH 563) Traffic Technology Part 4: Parking, Transit and Environmental Issues — This is the last course in the Traffic Technology and it includes the topics of on-street and off-street parking, transit operations, transportation planning and travel demand management issues, air and noise pollution, and energy consumption by automobiles. **1 credit**

STRUCTURAL

TSYH 4570 (TSYH 570) Structural Design Part 1: Loads on Structures — The structural design series is a continuation of TSYH 1150, 1151, 2152 and 2153. 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 4571 (TSYH 571) Structural Design Part 2: Structural Analysis — The first part of this course continues shear force and bending moment diagram development from TSYH 1151 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 4572 (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**

TRANSPORTATION PLANNING

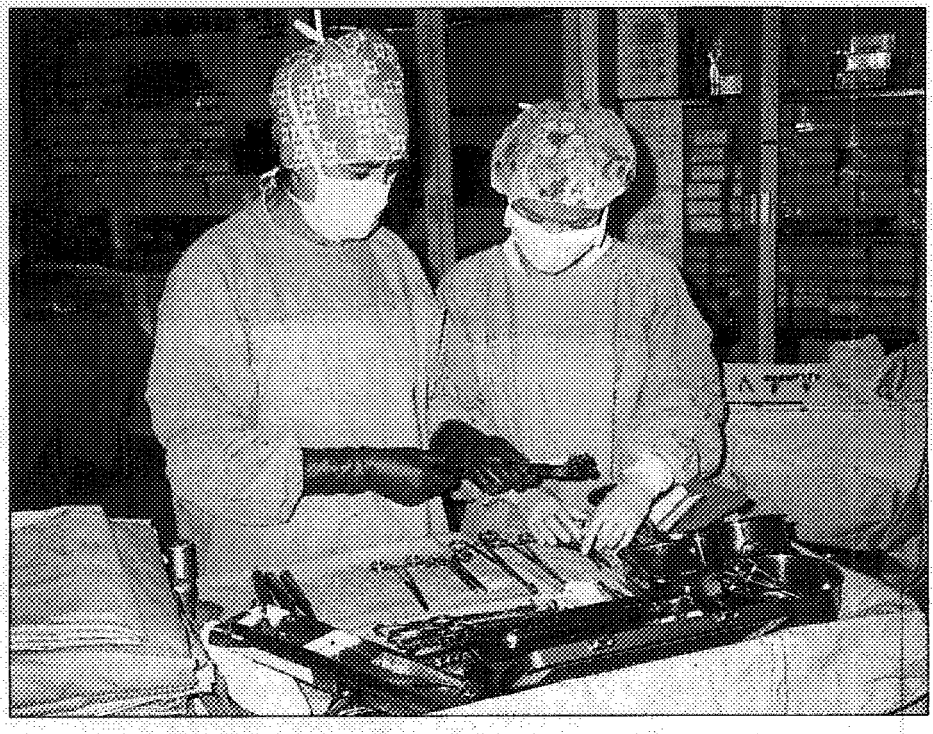
TSYH 4580 (TSYH 580) Transportation Planning Part 1 — Presents the basic terminology and travel forecasting procedures in urban transportation planning. **2 credits**

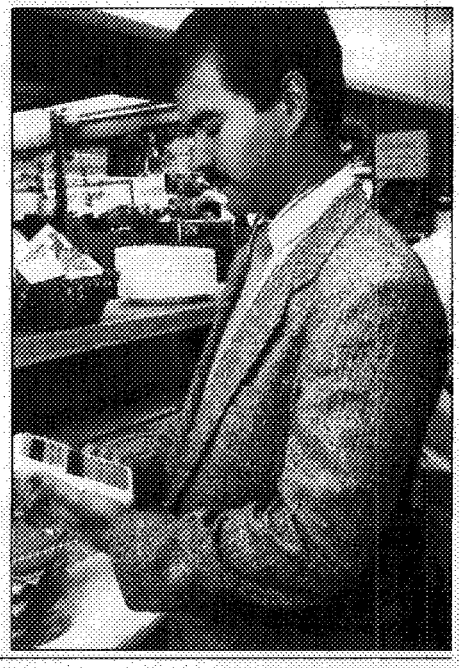
TSYH 4582 (TSYH 582) Transportation Planning Part 2 — Presents the transportation analysis, process and discusses the theoretical basis for highway planning, travel demand management and the evaluation of choices. **2 credits**

ENGINEERING ECONOMICS

TSYH 4720 (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 is presented. **2 credits**

TSYH 4721 (TSYH 721) Engineering Economics Part 2: Introduction to Engineering Economics — Applies the principles learned in TSYH 4720 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**





HEALTH SCIENCES

SCHOOL OF HEALTH SCIENCES

Jannie M. Scriabin, M.Sc., A.R.T., Dean
School of Health Sciences
Kathleen Bach, B.A., Director,
Health Part-time Studies,
Associate Dean, Environmental Health,
Occupational Health & Safety
Verna Magee Shepherd, M.Sc., C.H.E.,
Associate Dean, Medical Laboratory
Sciences, Medical Imaging, Basic Health
Sciences, Health Care Management
Bernadet Ratsoy, B.Sc.N., M.Sc., R.N.,
Associate Dean Nursing, Biomedical
Engineering, Prosthetics & Orthotics
Moira Barnetson, R.N., Program Head,
Health Part-time Studies
Leslie Colquhoun, Supervisor,
Health Part-time Studies

HEALTH SCIENCES

GENERAL INFORMATION

DELIVERY METHODS

Courses are delivered in a variety of formats.

a) 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.

b) Guided Learning — home study supplemented by teletutoring, seminars or labs.

c) Clinical — short intensive periods of full-time study and clinical practice; may be clinical preceptorship or supervised practicum.

d) Challenge Courses — self-directed study as defined by course outline, objectives, and sample examination questions, for students with on-the-job knowledge and experience.

e) Compressed Time Frames — offered for independent student registration or cooperatively with hospitals. Full-time clinical and classroom instruction, together with Guided Learning, enables students to complete a specialty program in a shorter time.

f) Advanced Clinical Placement — credit may be granted for experiential learning to allow student placement in advanced clinical courses.

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.

a) Introductory Certificate — courses offered at an introductory level for those entering a health science discipline.

b) Diploma — courses equivalent to Diploma of Technology or Diploma in Nursing.

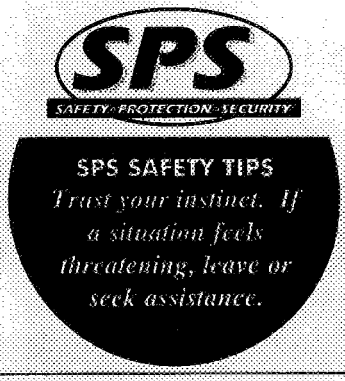
c) Advanced Specialty Certificate — as a component of the Advanced Diploma program, courses are designed for technologists and registered nurses in practice to provide advanced level specialization.

d) Advanced Diploma — an advanced level program designed to provide practicing technologists and nurses with the knowledge, skills and attitudes required for further professional competence, advanced technological and clinical roles, management, and individual growth.

e) Bachelor of Health Science — offered by the B.C. Open University component of the Open Learning Agency 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 who wish to complete a 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 component of the Open Learning Agency 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 through Health Part-time Studies. Tel. 439-4100.

	Credits
Health Science Discipline	24 - 36
Management	3 - 12
Health Care Systems	3 - 6
Educational Skills	3 - 6

Total of 45 credits required for an Advanced Diploma

Transfer credits may be awarded for academic work completed at other recognized institutions according to the policy established for Health Part-time Studies.

		Credits
Health Care Systems		
HMGT 5180	Canada's Health Systems	3.0
Educational Skills		
ADHS 5110	Clinical Teaching	3.0
Management		
HMGT 3110	Health Care Supervisory Skills	3.0
HMGT 4110	Health Care Organizational Behaviour I	3.0
HMGT 5120	Health Care Principles of Management	3.0
Generic Courses		
ADHS 5120	Understanding Research in Health Sciences	3.0
ADHS 5121	Preparing a Health Science Research Proposal	3.0

HEALTH SCIENCES

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 behavioural sciences.

			Credits
BHCE	5601	Sectional Anatomy of the Abdomen and Pelvis	3.0
BHCE	5602	Cross Sectional Anatomy of the Thorax	3.0
BHCE	5610	Pathology	2.0

HEALTH CARE MANAGEMENT

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

There are two levels of Health Care Management Studies (Level 1 and Level 2) 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 an existing program of courses, approved by the Program Head. 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 page 8 in this calendar or contact the Health Care Management program head at BCIT. Tel. 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 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 catalogs published three times a year.

Students who have completed HMGT 3110 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
HMGT	4110	Health Care Organization Behaviour 1	3.0	36
HMGT	4130	Health Care Operations Management	1.5	18
HMGT	4140	Budgeting in Health Care	1.5	18
HMGT	4150	Human Resource Management	3.0	36
HMGT	4160	Health Labour Relations 1 or	1.5	18
HMGT	4161	Community Care Labour Relations	1.5	18
HMGT	4180	Health Care Systems 1	1.5	18
HMGT	5120	Health Care Principles of Management	3.0	36

Recommended Electives

108 hours of elective course work from:

Administrative (General) Management			Credit	Hrs
BUSA	2105	Management 2	3.0	36
BUSA	3405	Problem-solving/ Decision-making	3.0	36
COMP	1001	Understanding PC/MS DOS	1.5	18
COMP	1010	Word Processing Concept	1.0	12
COMP	1015	Spreadsheet Concepts	1.0	12
COMP	1020	Microcomputer Database Concepts	1.0	12
FMGT	1152	Accounting for the Manager	3.0	36
HMGT	3110	Health Supervisory Skills (should be completed before HMGT 4110 and 5120)	3.0	36
HMGT	4210	Health Organizational Behaviour 2	3.0	36
HMGT	4250	Counselling for Health Care Managers	3.0	36

Education (Training)				
ADHS	5110	Clinical Teaching	3.0	36
HRMG	3505	Training Techniques	3.0	36

Financial Management				
BUSA	3405	Problem-solving/ Decision-making	3.0	36
COMP	1010	Word Processing Concepts	1.0	12
COMP	1015	Spreadsheet Concepts	1.0	12
COMP	1020	Microcomputer Database Concepts	1.0	12
ECON	2100	Microeconomics	3.0	36
FMGT	1100	Accounting 1	4.0	42
FMGT	2100	Accounting 2	5.5	54

Human Resource Management				
HRMG	3105	Human Resource Management	4.0	45
HRMG	3305	Selection Interviewing	4.0	36
HRMG	4405	Salary Administration	4.0	36
HRMG	4605	Human Resource Planning	4.0	36

Systems			Credits	/ Hrs
COMP	1010	Word Processing Concepts	1.0	12
COMP	1015	Spreadsheet Concepts	1.0	12
COMP	1020	Microcomputer Database Concepts	1.0	12
COMP	1615	Computer Systems Introduction 1 or	3.0	36
OPMT	1188	Management Information Systems	2.0	36
OPMT	1191	Purchasing	3.0	36
OPMT	1192	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	0021	Effective Writing	0.0	24
COMM	0143	Technical English for Second Language Students	0.0	80
MKTG	1323	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 4161 Community Care Labour Relations is compulsory for all those selecting the long-term care stream.

Recommended Electives			Credit	/ Hrs
BUSA	2105	Management 2	3.0	36
BUSA	3405	Problem-solving/ Decision-making	3.0	36
HMGT	4250	Counselling for Health Care Managers	3.0	36
HRMG	3705	Counselling 1	3.0	36
OCHS	1461	Fire Protection 1	3.0	36
OPMT	1191	Purchasing	3.0	36
OPMT	1192	Inventory Planning and Control	3.0	36
ORGB	2305	Organizational Behaviour 2	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			Credits	/ Hrs
HMGT	5130	Information Systems in Health Care 1	1.5	18
HMGT	5140	Financial Administration for Health Care Managers	1.5	18
HMGT	5160	Health Labour Relations 2	1.5	18
HMGT	5170	Health Care Law	1.5	18
HMGT	5230	Information Systems in Health Care 2	1.5	18
HMGT	5320	Application of Theory to Selected Health Care Problems	1.5	18

Elective Course

HMGT	4280	Health Care Systems	21.5	18

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: David P.K. Chui, B.Eng., M.Sc., Ph.D., P.Eng.

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 and offered when needs are identified to provide specific skills for immediate job application.

ENVIRONMENTAL HEALTH (PUBLIC HEALTH INSPECTION)

Program Head: Lorraine Woolsey, B.Sc., C.P.H.I.(C), R.P.H.I.

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.

			Credits
ENVH	5601	Hydrogeology	3.0
ENVH	5604	Epidemiology and Biostatistics	3.0
ENVH	5605	Basic Soils Science	3.0

HEALTH SCIENCES

ENVIRONMENTAL MANAGEMENT OF REAL ESTATE ASSETS: CERTIFICATE PROGRAM

Program Coordinator: Betty-Ann Lee, B.Sc., Cer. Tech.

			Credits
OCHS	5101	Environmental Management 1	1.5
OCHS	5109	Emergency Preparedness/Response	3.0
OCHS	5110	Future Trends	3.0
OCHS	5111	Environmental Law 1	1.5
OCHS	5112	Environmental Law 2	3.0
OCHS	6103	Land Use Research	3.0
OCHS	6104	Site Investigation and Remediation	3.0
OCHS	6105	Assessment of Buildings and Facilities	3.0
OCHS	7106	Environmental Finance	3.0
OCHS	7107	Environmental Management 2	3.0
OCHS	7108	Environmental Audits	3.0

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. Health Care Management., 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			Credits
MRAD	0101	Medical Radiography Refresher Program	0.0

Advanced

ADMI	6111	Computed Tomography (Advanced Certification Credit 0.5)	3.0
ADMI	6112	Technological Advances in X-ray Imaging	3.0
ADMI	6113	Microcomputers for Medical Imaging	3.0
ADMI	6114	Understanding Radiation Risks (Advanced Certification Credit 0.5)	3.0
ADMI	6115	Magnetic Resonance Imaging 1 (Advanced Certification Credit 0.5)	3.0
ADMI	6117	Medical Radiation Protection	3.0
ADMI	6119	Digital Imaging	3.0
ADMI	6330	Imaging Digestive Tract 1	3.0
ADMI	6339	Clinical Computed Tomography	3.0
BHCE	5601	Sectional Anatomy Abdomen/Pelvis	3.0
BHCE	5602	Cross Sectional Anatomy of the Thorax	3.0

MEDICAL LABORATORY SCIENCE

Program Head: Karen Nicolson, B.Sc., A.R.T. (Clin. Micro.)

Advanced

BHCE	5610	Pathology	2.0

NURSING

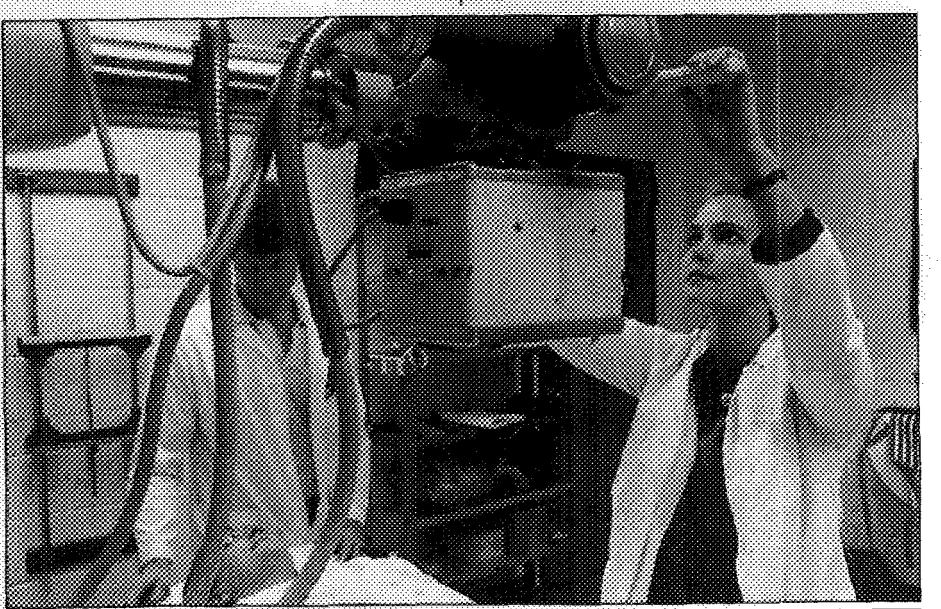
Nursing courses are offered at the diploma and advanced diploma level. Advanced level (post-basic) programs are available in Critical Care Nursing, Operating Room Nursing, Emergency Nursing, Occupational Health Nursing, Neonatal Nursing, Nephrology Nursing, Obstetrical Nursing, Pediatric Critical Care, Pediatric Nursing. Clinical application courses may be full-time study practicums or preceptorships.

CREDIT COURSES FOR DIPLOMA NURSING PROGRAM

Program Head: Moira Barnetson, R.N.

These are guided learning courses offering tutorial assistance in English, behavioural sciences and biological sciences to meet the requirements of the BCIT Nursing Diploma curriculum. More information is available in the Part-time Studies catalog.

			Credits
BHSC	1105	Anatomy and Physiology Nursing	3.5
BHSC	1118	Personal Fitness Management Nursing	2.0
BHSC	1140	Human Development 1 Nursing	3.5
BHSC	1239	Sociology	1.5
BHSC	2205	Physiology Nursing	3.5
BHSC	2227	Microbiology Nursing	2.0
BHSC	2240	Human Development 2 Nursing	1.5
BHSC	3328	Immunology Nursing	2.0
COMM	1376	Writing for Nurses	3.5



HEALTH SCIENCES

ADVANCED NURSING

Program Head: Moira Barnetson, R.N.

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			Credits
ADHS	5130	Ethics in Health Sciences	2.0
ANGE	5100	Pathophysiology	5.0
ANGE	5120	Interpersonal Skills	3.0
ANGE	5130	Family Nursing	3.0
ANGE	5145	Mental Status Assessment	3.0
ANGE	5150	Multicultural Nursing	3.0
ANGE	5160	Legal Issues in Nursing	3.0
ANGE	5180	Psychological Aspects Nursing Care	4.0
ANGE	6120	Individual Counselling Skills	3.0
ANGE	6125	Group Counselling Skills	3.0
BMET	2670	Patient Care Technology	2.0

CRITICAL CARE NURSING

Program Head: Colleen Varcoe, R.N., B.Sc.N., M.Ed.

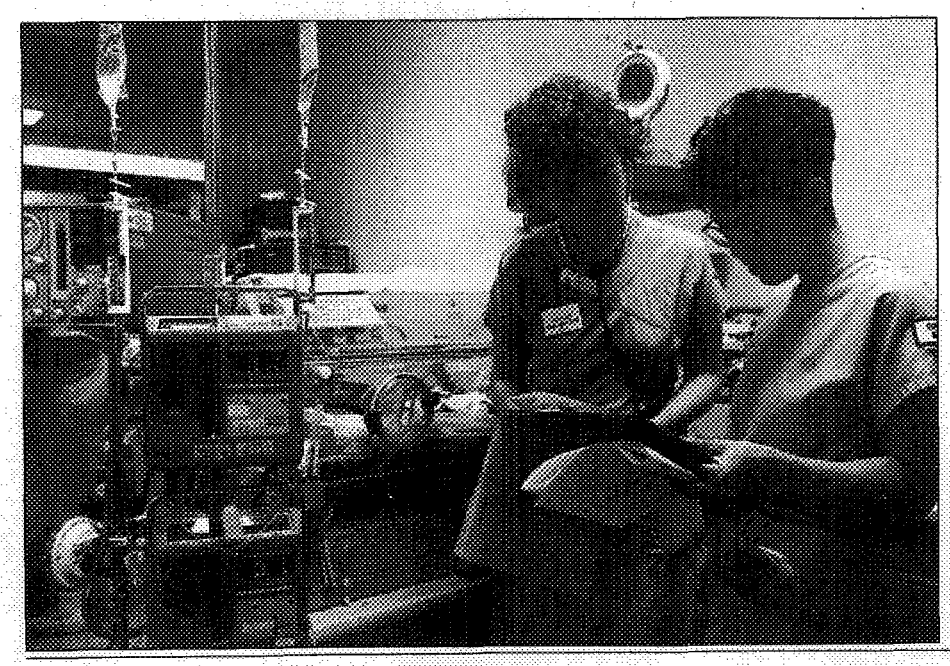
			Credits
ANCC	5100	Pathophysiology for Critical Care Nursing	5.0
ANCC	5200	Critical Care Nursing: Theory 1	5.0
ANCC	5250	Critical Care Nursing: Theory Modified	2.0
ANCC	5300	Critical Care Nursing: Clinical 1	7.0
ANCC	5400	Critical Care Nursing: Clinical Introduction	3.5
ANCC	5450	Critical Care Nursing: Clinical Completion	3.5
ANCC	5700	Post-anesthetic Theory	2.0
ANCC	5800	Post-anesthetic Clinical	7.0
ANCC	6200	Critical Care Theory 2	5.0
ANCC	6300	Critical Care Clinical 2	7.0
ANCC	7100	Clinical Study: Trauma or	3.0
ANCC	7110	Clinical Study: CVS Surgical or	5.0
ANCC	7120	Clinical Study: PARR or	5.0
ANCC	7130	Independent Clinical Study or	5.0
ANCC	7140	Clinical Study: CVS Medical	5.0
ANCC	7150	Preceptorship: Pediatric Patient in the Adult ICU	5.0
ANER	6200	Trauma Management for Nurses	2.0

COMBINED CRITICAL CARE/ EMERGENCY SPECIALTY

			Credits
ANGE	5100	Pathophysiology	5.0
ANER	5200	Emergency Nursing Theory 1	5.0
ANCC	5250	Critical Care Nursing: Theory Modified or	5+2
ANCC	5200	Critical Care Nursing: Theory 1 and	5.0
ANER	5250	Emergency Theory 1 Adapted	2.0
ANER	5300	Emergency Nursing Clinical 1	7.0
ANCC	5300	Critical Care Nursing: Clinical 1 and	7.0
ANCC	6200	Critical Care Theory 2	5.0
ANCC	6300	Critical Care Clinical 2 or	10-12
ANER	6100	Emergency Nursing Theory 2 and	3.0
ANER	6300	Emergency Nursing Clinical 2 and	7.0
ANER	6200	Trauma Management for Nurses	2.0
ANCC	7100	Clinical Study: Trauma	3.0

And any of the following Preceptorship courses:

ANCC	7100	Clinical Study: Trauma	3.0
ANCC	7110	Clinical Study: CVS Surgical	5.0
ANCC	7120	Clinical Study: PARR	5.0
ANCC	7130	Independent Clinical Study	5.0
ANCC	7140	Clinical Study: CVS Medical	5.0
ANCC	7150	Preceptorship: Pediatric Patient in the Adult ICU	5.0
ANER	6200	Trauma Management for Nurses	2.0
ANER	7100	Emergency Preceptorship	5.0



HEALTH SCIENCES

EMERGENCY NURSING

Program Head: Caroline Howe, R.N.

			Credits
ANER	5100	Pathophysiology for Emergency Nursing	5.0
ANER	5200	Emergency Nursing Theory 1	5.0
ANER	5250	Emergency Theory 1 Adapted	2.0
ANER	5300	Emergency Nursing Clinical 1	7.0
ANER	6100	Emergency Nursing Theory 2	3.0
ANER	6200	Trauma Management For Nurses	2.0
ANER	6300	Emergency Nursing Clinical 2	7.0
ANER	7100	Emergency Preceptorship	5.0

NEONATAL NURSING

Program Head: Seonag Cresswell, R.N., M.S.N.

			Credits
ADHS	5130	Ethics in Health Sciences	2.0
ANGE	5130	Family Nursing	3.0
ANNE	5100	Neonatal Theory 1	5.0
ANNE	5200	Neonatal Clinical 1	3.0
ANNE	6100	Neonatal Theory 2	5.0
ANNE	6200	Neonatal Clinical 2	4.0
ANNE	7100	Neonatal Theory 3	3.0
ANNE	7200	Neonatal Clinical 3	4.0

The following courses are available as continuing education for those who do not wish to proceed to clinical courses.

ANNE	0100	Neonatal Theory 1	5.0
ANNE	0150	Neonatal Theory 2	5.0
ANNE	0200	Neonatal Theory 3	3.0

NEPHROLOGY NURSING

Program Head: Colleen Varcoe, R.N., B.Sc.N., M.Ed.

			Credits
ANNN	5101	Adult Physiology for Nephrology Nursing	3.0
ANNN	5102	Human Behaviour in Illness	2.0
ANNN	5103	Nephrology Nursing Theory	5.0

OBSTETRICAL NURSING

Program Head: Reina Van Lagen, R.N., B.S.N., S.C.M.

			Credits
ANOB	5100	Obstetrical Nursing: Theory 1	6.0
ANOB	5200	Obstetrical Nursing: Preceptorship 1	4.0
ANOB	6100	Obstetrical Nursing: Theory 2	6.0
ANOB	6200	Obstetrical Nursing: Preceptorship 2	8.0
ANOB	7100	Obstetrical Nursing: Theory 3	6.0
ANOB	7200	Obstetrical Nursing: Clinical	6.0

OCCUPATIONAL HEALTH NURSING

Program Head: Stephanie Wilson, R.N., B.N., C.C.O.H.N.

Phase 1			Credits
ANOH	5100	Introduction to Occupational Health Nursing	3.0
ANOH	5200	Fundamentals of Industrial Hygiene	3.0
ANOH	5300	Health Assessment for Occupational Health Nurses	3.0
ANOH	5400	Occupational Health Nursing: Clinical 1	5.0
HMGT	5110	Organizational Behaviour for Occupational Health Nurses	3.0
Phase 2			
ANOH	6100	Occupational Toxicology	3.0
ANOH	6200	Health Surveillance	3.0
ANOH	6300	Health Promotion in the Workplace	3.0
ANOH	6400	Advanced Concepts in Occupational Health Nursing	3.0
ANOH	6500	Occupational Health Nursing: Clinical 2	2.5
Phase 3			
ANOH	7100	Occupational Health Nursing Preceptorship or	2.5
ANOH	7150	Guided Independent Clinical in Occupational Health Nursing and	2.5
ADHS	5130	Ethics in Health Sciences	2.0

Note: The nurse will require current certification in Industrial First Aid prior to the final clinical course.

OPERATING ROOM NURSING

Program Head: Marnie Simon, R.N., B.G.S.

			Credits
ANOR	5100	Operating Room Theory 1	4.0
ANOR	5200	Operating Room Skills Laboratory	1.0
ANOR	6100	Operating Room Theory 2	4.0
ANOR	6200	Operating Room Clinical 1	11.0
ANOR	7100	Operating Room Theory 3	5.0
ANOR	7200	Operating Room Clinical 3	8.0
ANOR	7300	Operating Room Independent Clinical Study	1.0

PEDIATRIC CRITICAL CARE NURSING

Program Head: Seonag Cresswell, R.N., M.S.N.

ADHS	5130	Ethics in Health Sciences	2.0
ANGE	5130	Family Nursing	3.0
ANPC	5150	Pediatric Critical Care Theory 1	4.0
ANPC	5250	Pediatric Critical Care Nursing: Theory 2	6.0
ANPC	5350	Pediatric Critical Care Nursing: Clinical 1	8.0
ANPC	6150	Pediatric Critical Care Nursing: Theory 3	5.0
ANPC	6250	Pediatric Critical Care Clinical 2	3.0

PEDIATRIC NURSING

Program Head: Seonag Cresswell, R.N., M.S.N.

ANPE	5100	Pediatric Nursing: Theory 1	3.0
ANPE	5200	Pediatric Nursing: Theory 2	4.0
ANPE	5300	Pediatric Nursing: Theory 3	2.0*
ANPE	5400	Pediatric Nursing: Clinical 1	8.0*

COURSE DESCRIPTIONS AND CREDITS

ADHS 5110 (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 one-day workshop allows practice of communication, questioning and problem-solving skills. **3 credits**

ADHS 5120 (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**

ADHS 5121 (RESH 602) Preparing a Health Science Research Proposal — Builds on the knowledge and skills of ADHS 5120. Students will be expected to select an appropriate research question or problem, plan a research project, write a research proposal. Prerequisite: ADHS 5120. **3 credits**

ADHS 5130 (ADNU 650) Ethics in Health Sciences — Provides the practicing 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**

ADMI 6111 (ADMI 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. 0.5 AC credit. **3 credits**

ADMI 6112 (ADMI 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. 1 AC credit. **3 credits**

ADMI 6113 (ADMI 613) Microcomputers for Medical Imaging — For Medical Radiographers, Nuclear Medicine Technologists and Diagnostic Medical Sonographers, this course offers hands on experience with microcomputers. First, an overview of computers in radiology is presented followed by a study of a wide variety of microcomputer topics related to Radiology Information Systems. Emphasis is placed on Hardware (CPU and Peripheral Devices), Software (Logic preparation and programming languages) and applications software such as Wordprocessing, Spreadsheets, Database Management, Graphics Networking and Telecommunications. Finally, the course concludes with a brief look at the future of Medical Computing (artificial intelligence and expert systems applications) as well as an identification and demonstration of software packages currently available for Radiology, particularly Information Systems Software. Prerequisites: Registered Radiological, Nuclear Medicine and Diagnostic Medical Sonographers. **3 credits**

ADMI 6114 (ADMI 614) Understanding Radiation Risks — 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. 0.5 AC credit. **3 credits**

ADMI 6115 (ADMI 615) Magnetic Resonance Imaging 1 — 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. 0.5 AC credit. **3 credits**

ADMI 6117 (ADMI 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, dose limits, 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 1990s. **3 credits**

ANCC 5100 (ADNU 604) Pathophysiology for Critical Care Nursing — Reviews cellular organization and response to disease. Organized by systems covering cardiovascular, respiratory, neurological, endocrine, renal and gastrointestinal physiology and diseases. **5 credits**

ANCC 5200 (ADNS 630) Critical Care Nursing: Theory 1 — 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: ANGE 5100 or ANCC 5100 or ANER 5100 (65%). **5 credits**

COURSE DESCRIPTIONS AND CREDITS

ANCC 5250 (ADNS 631) Critical Care Nursing: Theory Modified — Adapted from ANCC 5200 for graduates of Critical Care Level 1 (UBC/VCC/Malaspina), graduates of the GVHS critical care program or students who have completed ANER 5200 Emergency Nursing Theory. Prerequisites: Graduate of Critical Care Level 1 of completed ANER 5200. **2 credits**

ANCC 5300 (ADNS 632) Critical Care Nursing: Clinical 1 — A five-week clinical course designed to prepare students to care for stable, critically ill patients. Includes a supervised clinical experience and labs on cardiac arrest management, mechanical ventilation, hemodynamic monitoring and physical assessment. Focuses on the application of theory from ANCC 5100 and ANCC 5200. Seminars emphasize the integration of theory related to communication, family and pain management. Prerequisite: ANCC 5200 (75%), B.C.L.S. Level C. **7 credits**

ANCC 5400 and ANCC 5450 may be taken instead of ANCC 5300 by students wishing to begin practice in a small hospital Critical Care Unit.

ANCC 5400 (ADNS 531) Critical Care Nursing: Clinical Introduction — This two-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 ANCC 5200 to the care of patients requiring ECG monitoring, intensive assessment and mechanical ventilation. Includes labs on airway management, mechanical ventilation, physical assessment, ECG monitoring and cardiac arrest management. Prerequisite: ANCC 5100 (65%), ANCC 5200 (75%). **3.5 credits**

ANCC 5450 (ADNS 532) Critical Care Nursing: Clinical Completion — This two-week clinical course permits students who have completed ANCC 5400 to complete the equivalent of ANCC 5300. 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 ANCC 5300 but not covered in ANCC 5400. The emphasis will be on the nursing of patients with hemodynamic monitoring and drugs. Prerequisite: ANCC 5400. **3.5 credits**

ANCC 5700 (ADNS 536) Post-anesthetic 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: ANCC 5100 (65%), ANCC 5200 (75%). **2 credits**

ANCC 5800 (ADNS 537) Post-anesthetic Clinical — A four-week clinical course designed to permit application of ANCC 5200 and ANCC 5700 theory. Includes cardiac arrest management and skill practice in airway management, EKG monitoring, ventilator management and hemodynamic monitoring. Also includes three weeks of supervised clinical practice in both a post anesthetic care unit and intensive care unit. Seminars are held to integrate theory related to specific post operative care, pediatric nursing and psychosocial and legal aspects of PAR nursing. Prerequisite: ANCC 5700 (75%), ANCC 5200 (75%). **7 credits**

ANCC 6200 (ADNS 633) Critical Care Theory 2 — Introduces more complex health problems such as hepatic failure, sepsis, ARDS, multiple trauma and DIC. Includes advanced therapeutic measures such as ICP monitoring, hemofiltration and advanced cardiopulmonary monitoring. Prerequisite: ANCC 5200 (75%) and ANCC 5300 or equivalent recommended. **5 credits**

ANCC 6300 (ADNS 634) Critical Care Clinical 2 — Focuses on the integration of all previous theory, the development of critical thinking and communication skills and leadership behaviours in the critical care setting. In a five-week combination of advanced nursing practice laboratories and instructor supervised clinical experience in a tertiary setting, the student will work toward the provision of independent, comprehensive care for unstable patients. Student learning experiences also include observational activities, library research, student presentations and an active role in planning and evaluating their own learning. A minimum of six months of critical care nursing experience with ventilated patients and hemodynamic monitoring is recommended. Prerequisites: ANCC 5300, ANCC 6200 (75%), BCLS Level C, ACLS or Cardiac Arrest Management Course. **7 credits**

ANCC 7100 (ADNS 635) Clinical Study: Trauma — Building on principles of trauma management presented in ANER 6200, this course focuses on the care of the multiply injured patient beyond the emergency unit. Eighty-five hours of clinical and observational experiences are arranged individually. Prerequisite: ANCC 6300 Prerequisite/Corequisite: ANER 6200. **3 credits**

ANCC 7110 (ADNS 636) Clinical Study: CVS Surgical — Theory related to pre-, intra- and post-operative management of adult cardiac surgical patients, the pathophysiology and surgical management of valvular diseases and many other cardiac conditions is presented. Psychosocial concepts and teaching/learning process related to cardiac surgical patients is also examined. Ninety-six hours of clinical practice include observational experiences in the cardiac catheterisation lab, and the operating room, and clinical experiences in a cardiac surgical intensive care unit. Prerequisite: ANCC 6300 and current ACLS or cardiac arrest management lab. **5 credits**

ANCC 7120 (ADNS 637) Clinical Study: PARR — 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. Prerequisites: ANCC 5300, and one year nursing experience in a critical care area; current cardiac arrest management or ACLS. **5 credits**

ANCC 7130 (ADNS 638) Independent Clinical Study — Highly motivated, self-directed critical care nurses may elect to focus on an area of clinical study not offered in existing preceptorships or clinical studies. Admission to the course is dependent upon submission and approval of a learning contract which outlines the objectives, learning activities and evaluation of the equivalent of 20 hours of classroom theory and 96 hours of clinical study. Prerequisite: ANCC 6300. **5 credits**

COURSE DESCRIPTIONS AND CREDITS

ANCC 7140 (ADNS 639) Clinical Study: CVS Medical — Theory related to 12 lead ECG interpretation and nursing care related to cardiovascular diagnostic tests, thrombolytic therapy, angioplasty, dual chamber pacemaking. Ninety-six hours of clinical practice will include observation of diagnostic and therapeutic measures and supervised clinical in a tertiary coronary care unit. Prerequisite: ANCC 6300, current ACLS and employer reference. **5 credits**

ANCC 7150 (ADNS 730) Preceptorship: Pediatric Patient in the Adult ICU — This course will assist the experienced Critical Care nurse to care for a child in the adult ICU setting. Assessment of children of different ages, an appreciation of the physical and psychosocial effects of critical illness on the child, and an understanding of the most common problems presented will be included. The course will build on the nurse's knowledge of critical care nursing (eg. airway management, hemodynamics, communication, etc) by focusing on specific application of the care of the child in the adult ICU. This course is NOT intended to prepare the student to work in a pediatric ICU. Through independent study, the student will complete modules on theory related to areas such as: growth and development; pediatric drug dosages; family support; and common disease processes. During 96 clinical hours the student will apply the theory under the guidance of a preceptor in a pediatric critical care setting. Prerequisites: a) ANCC 6200 and ANCC 6300 or ANCC 5300 and one year nursing experience in a critical care area.
b) Current ACLS or CAM Certification.
c) Current employer reference. **5 credits**

ANER 5100 (ADNU 607) Pathophysiology for Emergency Nursing — Reviews cellular organization and response to disease. Organized by systems covering cardiovascular, respiratory, neurological, endocrine, renal and gastrointestinal physiology and diseases. **5 credits**

ANER 5200 (ADNS 610) Emergency Nursing Theory 1 — Presents basic theory pertinent to emergency nursing care. Integrates theory of disease processes and injury commonly seen in emergency care settings with appropriate assessment, priorities of care, therapeutic interventions and specific skills, such as dysrhythmia interpretation, ABG analysis and basic airway management. Prerequisite: ANGE 5100, ANCC 5100, or ANER 5100 (65%). **5 credits**

ANER 5250 (ADNS 616) Emergency Theory 1 Adapted — Adapted from ANER 5200 Emergency Care Nursing Theory 1, for graduates of the UBC/VCC Level 1 Critical Care Nursing Program, or students who have successfully completed ANCC 5200 Critical Care Nursing: Theory. Appropriate for students interested in obtaining a combined specialty certificate in Critical Care and Emergency. **2 credits**

ANER 5300 (ADNS 611) Emergency Nursing Clinical 1 — This four-week clinical course is designed for the application of ANER 5200 theory. The emphasis of the clinical experience is on the development of sound patient assessment skills including subjective, and objective assessments. 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 three and a half weeks of clinical practice under the supervision of a clinical instructor in an Emergency Department. Prerequisite: ANER 5200 or ANER 5250 (75%). BCLS Level C. **7 credits**

ANER 6100 (ADNS 612) Emergency Nursing Theory 2 — Presents more advanced multi-dimensional concepts and therapeutic measures such as triage, psychiatric disorders, shock, burns, ventilator management and hemodynamic pharmacology. Prerequisites: ANER 5100 and ANER 5200. ANER 6200 may be taken concurrently. **3 credits**

ANER 6200 (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**

ANER 6300 (ADNS 613) Emergency Nursing Clinical 2 — Integrates advanced concepts and therapeutic measures into clinical practice. Emphasizes establishing priorities and organizing nursing care for patients with varying types and complexities of illness and injury. Nurses will apply and integrate knowledge and skills through four-weeks of clinical practice under the supervision of a clinical instructor in a Tertiary/Regional Emergency Department. Laboratories on advanced clinical skills will be included in this clinical component. Prerequisites: ANER 6100 (75%) and ANER 6200 (75%). **7 credits**

ANER 7100 (ADNS 614) Emergency Preceptorship — Focuses on integration and refinement of previously learned theory and skills through a three-week (112.5 hrs) 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 behaviour expected of a beginning practitioner in an Emergency Department. An individual contract may also be arranged for experienced emergency nurses. Prerequisite: ANER 6300. **5 credits**

ANGE 0930 (ADNS 930) Cardiac Arrest Management Lab — ACLS training offered to critical care students.

ANGE 5100 (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**

COURSE DESCRIPTIONS AND CREDITS

ANGE 5120 (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**

ANGE 5130 (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 courses is primarily directed towards nurses working in acute care settings, however, the concepts presented are applicable to all areas of family nursing. **3 credits**

ANGE 5140 (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**

ANGE 5145 (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**

ANGE 5150 (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**

ANGE 5160 (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**

ANGE 5170 (ADNS 902) Introduction to Dysrythmia Interpretation — A review of cardiac physiology will emphasize electrophysiology. Study of the origin of cardiac dysrythmias will be followed by a systematic approach to dysrythmia interpretation. Cardiac drugs will be reviewed and correlated with dysrythmias. **2 credits**

ANGE 5180 (ADNU 624) Psychological Aspects of Nursing Care — Covers identification and assessment of behaviour. Emphasizes theory related to the development of inappropriate responses associated with specific behaviour patterns. **4 credits**

ANGE 6120 (ADNU 631) Individual Counselling Skills — Introduces health care practitioners to the application of interpersonal skills for the interviewing and counselling of individuals. Prerequisite: ANGE 5120. **3 credits**

ANGE 6125 (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: ANGE 5120. **3 credits**

ANNE 5100 (ADNS 680) Neonatal Theory 1 — 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 2 nursery. In order to proceed to ANNE 5200 you must obtain at least 75% in this course. **5 credits**

ANNE 5200 (ADNS 681) Neonatal Clinical 1 — Full-time clinical experience (approximately two 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: ANNE 5100 (minimum 75%). **3 credits**

ANNE 6100 (ADNS 682) Neonatal Theory 2 — Builds on theory covered in ANNE 5100. 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 ANNE 6200, you must obtain at least 75% in this course. Prerequisite: ANNE 5100. **5 credits**

ANNE 6200 (ADNS 683) Neonatal Clinical 2 — A full-time clinical course (approximately three weeks). This course will build on clinical skills practised in ANNE 5200 emphasizing the care of high-risk newborns. Use of a variety of equipment including mechanical ventilators will be included. Prerequisite: ANNE 5200 (or approved exemption), ANNE 6100 (minimum 75%), BMET 2670 or granted exemption. **4 credits**

ANNE 7100 (ADNS 684) Neonatal Theory 3 — Presents the theory required to care for critically ill newborns in a Level 3 nursery. Emphasis will be on the care of infants with multisystem failure and the pathophysiology of life threatening disorders. Prerequisite: ANNE 6100. Corequisite: ADHS 5130. **3 credits**

ANNE 7200 (ADNS 685) Neonatal Clinical 3 — A full-time clinical course (approximately three weeks). Emphasis is on complete nursing care of critically ill newborns. Prerequisite: ANNE 6200. Corequisite: ANNE 7100. **4 credits**

ANNN 5101 (ADNS 590) Adult Physiology for Advanced Nursing — This course provides an understanding of physiology specific to nurses entering the advanced nursing specialties which focus on the care of adults. The cardiovascular, neurological, renal, respiratory, endocrine, immune and gastrointestinal systems will be emphasized. The student uses knowledge of these systems to study and practise physiological systems assessment. May be taken concurrently with ANNN 5102 Human Behaviour in Illness. **3 credits**

ANNN 5102 (ADNS 591) Human Behaviour in Illness — The use of a nursing model in practice will be introduced. Using Johnson's behaviourial system model, selected concepts related to the impact of illness on human behaviour will be examined. Concepts will include sick role behaviour, uncertainty, power and powerlessness, loss and grief, isolation and body image. The student will select and study a related behaviourial concept. The course will also include the study and practice of behaviourial assessment using the model. **2 credits**

ANNN 5103 (ADNS 592) Nephrology Nursing Theory — This course will focus on the nursing care of the adult with renal disease. By focusing on four client cases, the student will integrate knowledge of the etiology of renal disease, the physiology and behavioural manifestations of renal disease and the treatment options with the nursing role. Technological skills and knowledge related to peritoneal dialysis, hemodialysis and renal transplantation will be studied and integrated. Prerequisites: ANNN 5101 and 5102. **5 credits**

ANOB 5100 (ADNS 644) Obstetrical Nursing: Theory 1 — 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 ANOB 5200 you must obtain at least 75% in this course. **6 credits**

ANOB 5200 (ADNS 645) Obstetrical Nursing Preceptorship 1 — Full-time clinical experience (approximately three weeks) with a preceptor in a labour 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: ANOB 5100 (75% minimum). **4 credits**

ANOB 6100 (ADNS 646) Obstetrical Nursing: Theory 2 — 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 ANOB 6200 you must obtain at least 75% in this course. Prerequisite: ANOB 5200. **6 credits**

ANOB 6200 (ADNS 647) Obstetrical Nursing: Preceptorship 2 — A six-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 four weeks on a labour and delivery unit and two weeks on a postpartum unit. Advanced fetal monitoring is included. Dates arranged individually. Prerequisite: ANOB 6100, and Neonatal Resuscitation program. **8 credits**

ANOB 7100 (ADNS 648) Obstetrical Nursing: Theory 3 — 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. In order to proceed to ANOB 7200 you must obtain at least 75% in this course. Prerequisite: ANOB 6200. **6 credits**

ANOB 7200 (ADNS 649) Obstetrical Nursing: Clinical — A four-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: ANOB 7100. **6 credits**

ANOH 0200 (ADNS 962) Advanced Counselling Skills — This two-day workshop provides counselling skills practice. Practice will focus on listening, exploration and clarification skills as well as challenging skills. Students are required to complete two theory modules prior to the workshop. Prerequisites: Basic Level Counselling Practice. **non credit**

ANOH 5100 (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 labour 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**

ANOH 5200 (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: ANOH 5100 or permission from the program head. **3 credits**

ANOH 5300 (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: ANOH 5100 or permission from the program head. **3 credits**

ANOH 5400 (ADNS 661) Occupational Health Nursing: Clinical 1 — A full-time, 19-day session provides laboratory and supervised clinical practice of interviewing and health assessment skills. A three-day audiometric course will be given at WCB, Richmond, B.C. A variety of OH settings in the Lower Mainland will be visited on an individual basis. Prerequisite: ANOH 5100 (75%), HMGT 5111 (65%), ANOH 5300 (75%), ANOH 5200 (65%). **5 credits**

ANOH 6100 (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: ANOH 5200 or permission from the program head. **3 credits**

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ANOH 6200 (ADNS 664) Health Surveillance — Presents theory related to monitoring the health of employees in specific work settings. The role of the occupational health nurse in employee assistance programs, primary care, rehabilitation and job demands analysis is addressed. Prerequisite or corequisite: ANOH 6100. **3 credits**

ANOH 6300 (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 complete needs assessment and will include detailed plans for implementation and evaluation. Education and change processes will be addressed. Prerequisite: ANOH 6200 or permission from the program head. **3 credits**

ANOH 6400 (ADNS 666) Advanced Concepts in Occupational Health Nursing — Builds on previous courses with theory required to establish, administrate, promote and evaluate an OH service. Prerequisite: ANOH 6100, 6200, 6300. **3 credits**

ANOH 6500 (ADNS 665) Occupational Health Nursing: Clinical 2 — A ten-day, full-time experience in the Lower Mainland. A lab on environmental monitoring and workshops on counselling and presentation skills are provided. The WCB Rehabilitation Center in Richmond will be visited. Group field visits under the guidance of Industrial Hygienists and Safety Professionals will be arranged. Prerequisite: ANOH 6100 (65%), ANOH 6200 (75%), ANOH 6300 (75%), ANOH 6400 (75%), ANOH 5400. **2.5 credits**

ANOH 7100 (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 occupational health nurse. Seventy-five hours of clinical experience focuses on one industry and will be arranged individually. Prerequisite: ANOH 6500, current Industrial First Aid Certificate. **2.5 credits**

ANOH 7150 (ADNS 763) Guided Independent Clinical in Occupational Health Nursing — Seventy-five hours of clinical experience for practicing OHN's. The course provides an opportunity for in-depth study of an area of concern or interest. Activities will be based on a study proposal with a learning plan and specific objectives. Prerequisite: ANOH 6500, Current IFA Certificate, experience as OHN. **2.5 credits**

ANOR 5100 (ADNS 501) Operating Room Theory 1 — 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. One day of classroom review is offered at the completion of the directed independent study. **4 credits**

ANOR 5200 (ADNS 502) Operating Room Skills Laboratory — Application to the theory and principles of perioperative nursing in the performance of selected basic skills. The basic psychomotor skills are demonstrated and practised in a laboratory setting. **1 credit**

ANOR 6100 (ADNS 503) Operating Room Theory 2 — A review of basic gross anatomy and physiology is presented in modular form for directed independent study and tested at the end of the first three weeks of the course. An introduction to the surgical techniques and related perioperative nursing practices used for general, gynecological, plastics and selected urological, orthopedic, ENT and ambulatory care surgeries for adult and pediatric patients is also presented. Prerequisite: ANOR 5100 and ANOR 5200. **4 credits**

ANOR 6200 (ADNS 504) Operating Room Clinical 1 — Nine-week (full-time study) combination of supervised clinicals and laboratories to provide basic skills in perioperative nursing. Scrubbing and circulating for general, gynecological, urological, plastics and selected ENT orthopedic ambulatory care surgeries. Prerequisite ANOR 5100 and ANOR 5200. Corequisite: ANOR 6100. **11 credits**

ANOR 7100 (ADNS 506) Operating Room Theory 3 — 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, management, and leadership are also presented. **5 credits**

ANOR 7200 (ADNS 507) Operating Room Clinical 3 — This clinical course combines a four-week instructed practicum and one week 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 are also practice in major surgical suites. **8 credits**

ANOR 7300 (ADNS 505) Operating Room Independent Clinical Study — This four-day clinical preceptorship offers the introductory level student who has successfully completed ANOR 6100 and ANOR 6200 preceptored experience in introductory pediatric perioperative nursing a pediatric operating room. Prerequisites: ANOR 5100, 6200 or Advanced Placement to ANOR 7200. **1 credit**

ANPC 5150 (ADNS 650) Pediatric Critical Care Theory 1 — 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**

ANPC 5250 (ADNS 651) Pediatric Critical Care Nursing: Theory 2 — 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**

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ANPC 5350 (ADNS 652) Pediatric Critical Care: Clinical 1 — A full-time clinical experience approximately five weeks (181.5 hrs). Emphasis will be placed on development of assessment skills and application of principles of care learned in ANPC 5250. Prerequisite: ANPC 5250. **8 credits**

ANPC 6150 (ADNS 653) Pediatric Critical Care Nursing: Theory 3 — Builds on theory covered in ANPC 5250. 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: ANPC 5250 (75%). **5 credits**

ANPC 6250 (ADNS 654) Pediatric Critical Care: Clinical 2 — A two-week, full-time clinical course (112.5 hrs), building on skills practised in ANPC 5350, emphasizes the care of children experiencing more complex problems. Includes advanced hemodynamic monitoring. Prerequisite: ANPC 5350, 6150. **3 credits**

ANPE 5100 (ADNS 550) Pediatric Nursing: Theory 1 — A guided learning course which reviews anatomy and physiology related to children and the pathophysiology of selected diseases frequently seen in Pediatric Nursing. This course is organized by systems, covering the respiratory, cardiovascular, renal, gastro-intestinal, endocrine, musculoskeletal, and neurological systems. **3 credits**

ANPE 5200 (ADNS 551) Pediatric Nursing: Theory 2 — Part 2 of a guided learning course which presents basic theory related to nursing care of children who require hospitalization. The content addresses common problems experienced by hospitalized children/youth and their families. Particular emphasis is placed on assessment of the child/youth, communication skills, and growth and development issues. **4 credits**

ANPE 5300 (ADNS 552) Pediatric Nursing: Theory 3 — Part 3 of a guided learning course which presents basic theory related to nursing care of children/youth who require hospitalization. This is a continuation of ANPE 5200. **2 credits**

ANPE 5400 (ADNS 553) Pediatric Nursing: Clinical 1 — A full-time clinical experience, approximately five weeks (190 hrs) primarily in an acute care hospital pediatric unit. Emphasis will be placed on development of assessment skills and application of principles of care learned in ANPE 5200. Approximately one week of this experience will be an observational experience in an ambulatory clinic or community setting. **8 credits**

BHCE 5601 (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 5602 (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. CAMRT AC credit 0.5. Prerequisite: Medical Imaging Technologist with RT Certification. **3 credits**

BHCE 5610 (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 courses 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. This course is transferable to UBC BMLSc program. **2 credits**

BHSC 1105 (CTCR 101) Anatomy and Physiology Nursing — 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 1140 in the BCIT Nursing program. **3.5 credits**

BHSC 1118 (CTCR 103) Personal Fitness Management Nursing — 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. **2 credits**

BHSC 1140 (CTCR 105) Human Development 1 Nursing — 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**

BHSC 1239 (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 behaviour 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. **1.5 credits**

BHSC 2205 (CTCR 104) Physiology Nursing — A study of physiological regulation and control in the normal individual based on the fundamentals established in BHSC 1105 Anatomy and Physiology (same text as BHSC 1105). Prerequisite: BHSC 1105. **3.5 credits**

BHSC 2227 (CTCR 108) Microbiology Nursing — An introduction to basic microbiological concepts including the distinguishing characteristics of micro-organisms, methods of controlling infectious disease and host-parasite relationships. Prerequisite: BHSC 1105. **2 credits**

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BHSC 2240 (CTCR 106) Human Development 2 Nursing — A continuation of BHSC 1140. This course focuses on growth and development from young adulthood through aging adult. Prerequisite: BHSC 1140 **1.5 credits**

BHSC 3328 (CTCR 109) Immunology Nursing — Provides an understanding of the immune response as it is applied to immunity, surveillance, homeostasis, hypersensitivity, auto-immunity 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. Prerequisite: BHSC 2205 and BHSC 2227. A guided learning course. **2 credits**

BMET 2670 (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**

COMM 1376 (CTCR 102) Writing for Nurses — Teaches general writing skills and their specific application to professional writing tasks in the clinical area. **3.5 credits**

DSON 7101 (MRCE 904) Peripheral Vascular Sonography — The course will provide students with the necessary didactic knowledge, and some of the practical skills needed to perform vascular doppler ultrasound examinations of the neck and leg. Prerequisites: Registered (or Registry eligible) Ultrasound Technologist. **3 credits**

ENVH 5601 (ADEH 601) Hydrogeology — Examines the nature and characteristics of ground water. Topics include ground water movement, velocity of, direction of flow plus variation in ground water composition through chemical interactions and contamination related to ground water exploitation. **3 credits**

ENVH 5604 (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**

ENVH 5605 (ADEH 605) Basic Soils Science — Provides an introductory soils course to P.H.I.'s covering processes of development, properties (thermal, physical, biological and chemical). Methods of determining soils capacity to treat and move liquid wastes/domestic sewage. This determination to include basic geological information, soil formation, profiles, structures, textures, porosity, PH, permeability, etc. Interpretation of soil and air photo maps relative to waste disposal in soils. To include pre-reading, field trips, assignments and to follow course final exam by proctor. **3 credits**

HMGT 3110 (HMGT 600) Health Supervisory Skills — May be used as an elective course in the Level 1 Program, but is not a preferred elective. Students would 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 HMGT 4110 & 5120.** 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**

HMGT 4110 (HMGT 601) Health Care Organizational Behaviour 1 — Examines components influencing individual behaviour in organizational settings including attitudes, values and theories of leadership. Text: Robbins, Organizational Behaviour fourth edition. (36 hours.) **NOTE: Early registration required to allow mailing of prereading. 3 credits**

HMGT 4130 (HMGT 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 two weeks after last day of course. (18 hours.) **1.5 credits**

HMGT 4140 (HMGT 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**

HMGT 4150 (HMGT 605) Human Resource Management — Examines total staffing process including job analysis and description, interviewing, training and performance appraisal. (36 hours.) **3 credits**

HMGT 4160 (HMGT 606) Health Labour Relations 1 — Introduces the development of industrial relations in B.C.'s public sector and health care unions. It examines B.C. Labour legislation and the function of bargaining units. It continues with collective bargaining, the application of the contract and resolving disputes. By the end of this course, the student will be able to apply the Industrial Relations Model to any labour issue. (18 hours.) Plus 9 credits (108 hrs) of elective subjects. **1.5 credits**

HMGT 4161 (HMGT 607) Community Care Labour Relations — For long-term care personnel. Examines labour relations in the long-term care setting. Emphasizes negotiation, interpretation, application of negotiated contracts, grievances and arbitration. **1.5 credits**

HMGT 4180 (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. (18 hours.) **1.5 credits**

HMGT 4210 (HMGT 621) Health Care Organizational Behaviour 2 — This course will continue from Organizational Behaviour 1 with more emphasis on group behavioural concepts and organizational concepts that impact on proper management. Group dynamics variables such as conflict, power and politics are studied. The concept of a behaving organization is introduced. This concept provides the student of organizations with an overall perspective of the effects generated by the internal and external variables influencing organizational behaviour upon people. May be used as an elective. **3 credits**

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HMGT 4250 (HMGT 625) Counselling for Health Care Managers — Enhances the performance of health care managers in the workplace through the development of counselling skills as a tool for understanding employee behaviour. Develops a practical knowledge of counselling skills in health care management and examines in depth the required values which are a base in the counselling situation. Includes the direction, conclusion and evaluation of the counselling process. Prerequisite: HMGT 4110. **3 credits**

HMGT 4280 (HCSY 620) Health Care Systems 2 — Continues the examination of Health Care Systems in Canada. Prerequisite: HMGT 4180 or equivalent. May be used as an elective. **1.5 credits**

HMGT 5110 (HMGT 611) Organizational Behaviour for Occupational Health Nurses — Examines components influencing individual behaviour in organizational settings including attitudes, values and theories of leadership. Note: credit will not be given for both HMGT 4110 and HMGT 5110. **3 credits**

HMGT 5120 (HMGT 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 fourth edition (36 hours). **NOTE: Early registration required to allow mailing of prereading.** **3 credits**

HMGT 5130 (HMGT 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**

HMGT 5140 (HMGT 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.) **1.5 credits**

HMGT 5160 (HMGT 752) Health Labour Relations 2 — In-depth examination of grievance handling. Introduces arbitration process. Prerequisite: HMGT 4160 or equivalent. **1.5 credits**

HMGT 5170 (HMGT 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**

HMGT 5180 (HCSY 630) Canadian Health Systems — Examines development of Canadian Health System at the federal provincial and municipal levels. Introduces systems theory and its use in understanding the health system. Examines acute, and long-term care institutional elements as well as community, environmental and occupational health, ending with health promotion and disease prevention. Analyzes health manpower issues. Examines alternate forms of care and end by discussing future trends. **3 credits**

HMGT 5230 (HMGT 751) Information Systems in Health Care 2 — Continues MIS/HIS project management, needs assessment and specifications, cost benefit analysis, implementation. Prerequisite: HMGT 5130 or equivalent. (18 hours.) **1.5 credits**

HMGT 5320 (HMGT 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**

MRCE 0101 (MRCE 902) Medical Radiography Refresher Program — This program is designed for those radiographers who have not practised for five years or longer. It consists of a pre-reading section (four months) followed by a two-week didactic session at BCIT and concludes with a one-month clinical practicum. Following successful completion of this program, candidates are reinstated with C.A.M.R.T. and become eligible to work as Registered Technologists. Prerequisite: Previous certification with C.A.M.R.T. **non credit**

OCHS 1142 (OHCE 142) OH/S Legislation — Deals with legislation relevant to the safety field, claims management, safety policies, the concept of Workers' Compensation, the structure of the WCB, appeals procedure, the right to know, the right to refuse and the right to participate. **3 credits**

OCHS 1161 (OHCE 161) Principles of Loss Management — The course covers the history of the safety movement, accident investigation, job safety analysis, inspections, how to maintain interest in safety, safety talks, how to deal with problem employees, also, off-the-job safety, and how to measure the effects of the safety program. **3 credits**

OCHS 1461 (OHCE 301) Fire Protection 1 — Examines heating hazards, electrical hazards, chemistry of fire, flammable liquids, fire detection, portable fire extinguishers and sprinkler systems. **3 credits**

OCHS 1462 (OHCE 302) Fire Protection 2 — Includes fire causes, statistics, flammable gases, storage, combustible gases, chemical hazards, fumigants, plastics, fire alarms. Note: Mandatory for OCHS certificate. Prerequisite: OCHS 1461. **3 credits**

OCHS 2271 (OHCE 271) Safety Engineering and Technology — Covers accident prevention for industrial operations. The engineering and technology involved in the various operations is examined. Topics include industrial buildings and plant layouts; construction and maintenance; manual handling and material storage; hoisting apparatus and conveyors, ropes, chains and slings; powered industrial trucks; elevators; principles of guarding; woodworking and metal working machinery; cold forming of metals; hot working of metals; welding and cutting; heating and ventilation. **5 credits**

OCHS 5101 (EHCE 101) Environmental Management 1 — Provides an overview of environmental issues and terminology. No prerequisites. **1.5 credits**

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OCHS 5109 (EHCE 109) Emergency Preparedness/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**

OCHS 5110 (EHCE 110) Future Trends — International (particularly U.S.) trends will be discussed with attention to their potential future impact on Canada and B.C.

OCHS 5111 (EHCE 111) Environmental Law 1 — Introduction to Canadian Environmental Law. **1.5 credits**

OCHS 5112 (EHCE 102) Environmental Law 2 — 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. Prerequisites: OCHS 5101 or permission from the instructor. **3 credits**

OCHS 6103 (EHCE 103) 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: OCHS 5101, 5102, or permission from the instructor. **3 credits**

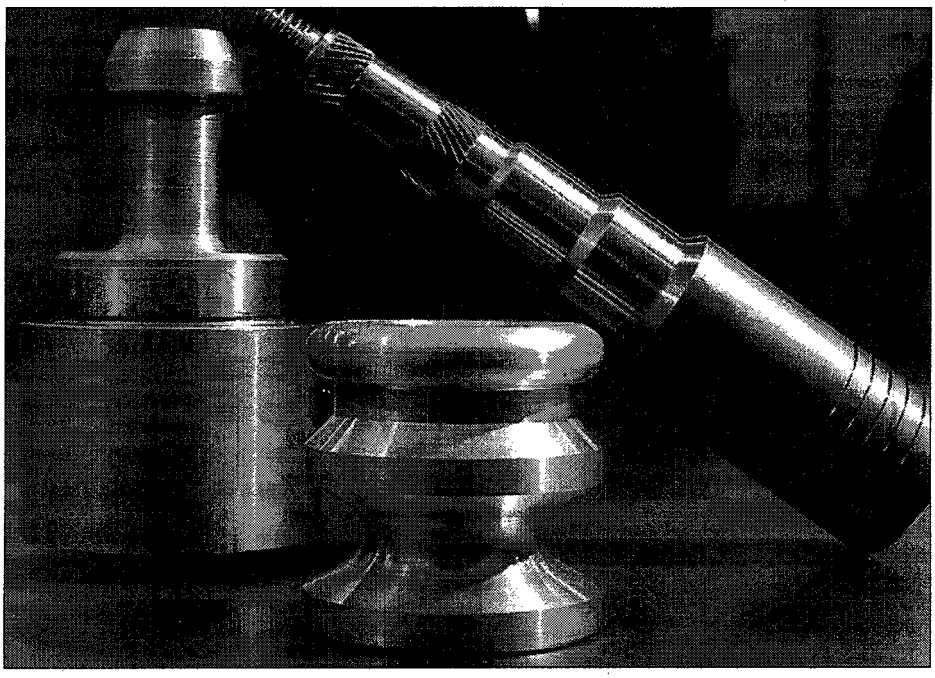
OCHS 6104 (EHCE 104) Site Investigation and Remediation — Describes aspects of contaminated site assessment, investigation, and remediation from initial identification through project completion. Selected case studies will be present to illustrate the topics discussed. Prerequisites OCHS 5101, 5102 or permission from the instructor. **3 credits**

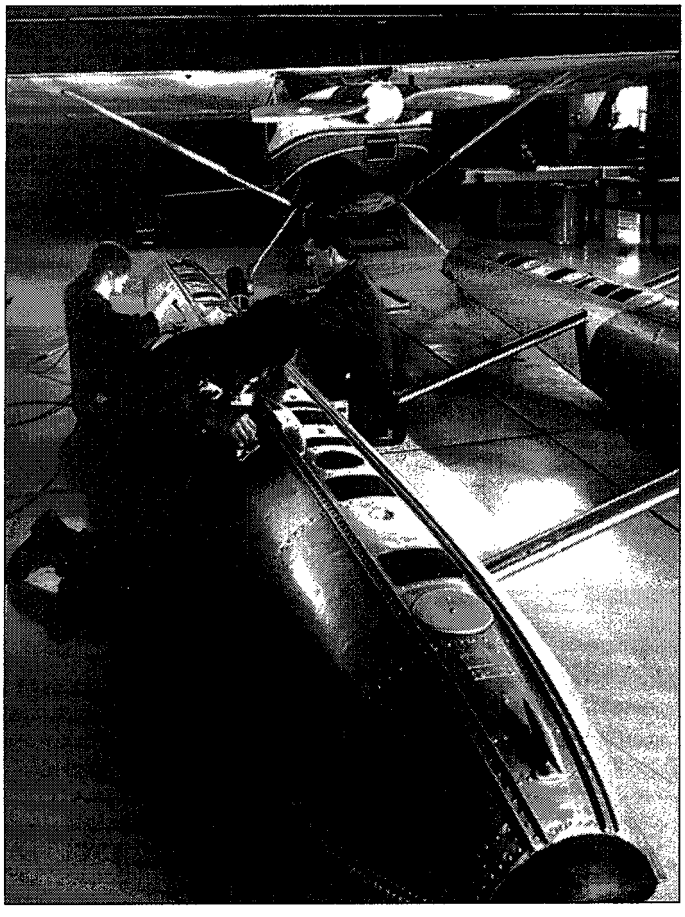
OCHS 6105 (EHCE 105) Assessment of Buildings and Facilities — The following topics will be discussed: basic environment law; consultant-client relationships, construction of an environmental risk inventory; evaluation of environmental risk; toxicology studies; inspection techniques, sampling and laboratory techniques; report preparation and presentation including reporting formats. Prerequisite: OCHS 5101, 5102 or permission from the instructor. **3 credits**

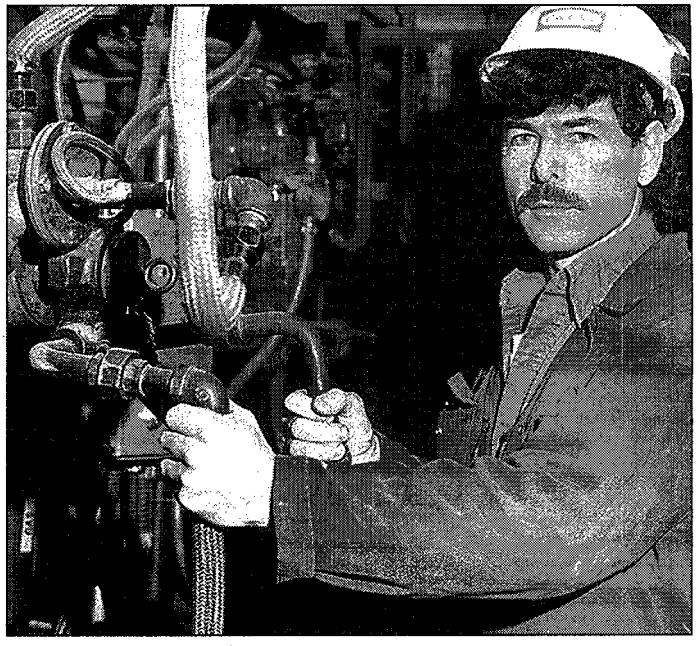
OCHS 7106 (EHCE 106) Environmental Finance — Techniques familiar to the appraiser, lender, or property finance specialist will be extended to the case of properties (real or personal) involving environmental laws, rules, and regulations on property value, finance, and financial institution exposure will be dealt with, including both the risks and opportunities presented by the existence of environmental risk. Prerequisite: OCHS 5103, 6104, 6105 or permission from the instructor. **3 credits**

OCHS 7107 (EHCE 107) Environmental Management 2 — 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: OCHS 5103, 6104, 6105 or permission from the instructor. **3 credits**

OCHS 7108 (EHCE 108) Environmental Audits — Environmental auditing as a management tool to help review deficiencies in an operating facility will be the focus of the course. The scope, design, implementation, and interpretation of audits are covered through theory work and case studies. Prerequisites: OCHS 5106 and OCHS 7107 or permission from the instructor. **3 credits**







TRADES TRAINING

SCHOOL OF TRADES TRAINING

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

TRADES TRAINING

GENERAL INFORMATION

AVIATION

David Mitchell, Associate Dean
Bill Sheppard, Program Coordinator
Tel. 278-4831

Aircraft Maintenance
Aircraft Structures
Avionics
Gas Turbine Engines

CONSTRUCTION AND METAL INDUSTRIES

Mike Cannell, Associate Dean
Nancy Naylor, Program Assistant
Tel. 432-8556

Carpentry
Computer Aided Construction
Drafting
Drywall
Joinery
Painting and Decorating
Piping, Plumbing and Gas
Power Engineering
Steel Fabrication
Welding

MECHANICAL INDUSTRIES TRAINING

Ron Evans, Associate Dean
Shirley Butler, Program Assistant
Tel. 432-8205

Automotive Electronics
Automotive Mechanic
Commercial Transport Mechanic
Heavy Duty Mechanic
Machinist
Mathematics for Trades
Millwright
Power Equipment Mechanic
Refrigeration (Commercial)

WOMEN IN TRADES

Kate Pelletier, Program Coordinator
Tel. 432-8233

AUTOMOTIVE ELECTRONICS 432-8543

Rob MacGregor, Chief Instructor

AUTOMOTIVE ELECTRONICS TECHNICIAN CERTIFICATE 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 mechanical devices: 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 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.

This 480-hour, part-time studies program parallels the full-time, 17-week Automotive Electronics Technician program and can be scheduled over a period of up to four years. Upon successful completion of this program, students will be specialized in advanced automotive electrical diagnosis, troubleshooting and repair.

Program Content

AUTO	2200	Introduction to Electrical Testing (30 hours)
AUTO	2202	Automotive Batteries and Starter Systems (18 hours)
AUTO	2204	Automotive Charging Systems (36 hours)
AUTO	2208	Automotive Carburation and Related Fuel Delivery (30 hours)
AUTO	2209	Automotive Tune-up and Emission Controls (42 hours)
AUTO	2214	Electronic Engine Control/ Fuel Injection (30 hours)
AUTO	2216	General Motors Throttle Body Injection (24 hours)
AUTO	2218	General Motors Port Fuel Injection (24 hours)
AUTO	2220	Ford Computer Control Systems (30 hours)
AUTO	2222	Chrysler Computer Control Systems (30 hours)
AUTO	2224	Import Computer Control Systems (30 hours)
AUTO	2225	Bosch Fuel Injection (30 hours)
AUTO	2230	Automotive Automatic Transmission Computer Control (30 hours)
AUTO	2232	Automotive Anti-lock Brakes (30 hours)
AUTO	2234	Automotive Electronic Accessories (42 hours)
AUTO	2236	Electronic Suspension Controls and Steering (12 hours)
AUTO	2238	Air Conditioning Electronic Controls (12 hours)

AUTO 2200 (AUTO 200) 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. Safety glasses and footwear with steel toes required.

AUTO 2202 (AUTO 202) 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. Prerequisite: AUTO 2200. Safety glasses and footwear with steel toes required.

AUTO 2204 (AUTO 204) Automotive Charging Systems (36 hours) — This course is designed for the professional technician who wishes to update skills on charging systems. Topics include charging theory of operation, A and B circuits, computer regulation, diagnosis, and repair. Prerequisite: AUTO 2202. Safety glasses and footwear with steel toes required.

AUTO 2208 (AUTO 208) Automotive Carburation and Related Fuel Delivery (30 hours) — This course is designed to refresh the professional technician on carburation and fuel delivery. Topics include carburation circuits, operation, fuel tanks, lines, pumps, service and diagnosis. Prerequisite: AUTO 2200. Safety glasses and footwear with steel toes required.

AUTO 2209 (AUTO 209) 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. The course gives specialized instruction in electrical/electronic ignition systems and carburation. Fuel management of on-board computers and emission control devices in automobiles are also explored. Upon completion of this course, students will be specialized in advanced automotive engine diagnosis, troubleshooting and repair.

AUTO 2214 (AUTO 214) Electronic Engine Control/Fuel Injection (30 hours) — This advanced course gives experienced automotive mechanics specialized instruction in servicing 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 design and function, actuator control, ECU control of major emission devices, data retrieval from computer memory, 02 system operation, and feedback carburation. 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.

AUTO 2216 (AUTO 216) General Motors Throttle Body Injection (24 hours) — 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. Prerequisite: AUTO 2214. Safety glasses and footwear with steel toes required.

AUTO 2218 (AUTO 218) General Motors Port Fuel Injection (24 hours) — This course is designed for professional technicians who wish to upgrade their skills with GM PFI systems. Topics include block learn/integrator interpretation/ diagnosis, DIS system operation/diagnosis, and EST/ESC operation/diagnosis. Prerequisite: AUTO 2216. Safety glasses and footwear with steel toes required.

AUTO 2220 (AUTO 220) 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 break-out box operation. Prerequisite: AUTO 2214. Safety footwear with steel toes required.

AUTO 2222 (AUTO 222) Chrysler Computer Control Systems (30 hours) — An advanced course covering 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. Prerequisite: AUTO 2214. Safety glasses and footwear with steel toes required.

AUTO 2224 (AUTO 224) 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 include computerized ignition systems, fuel, engine and emission controls, throttle body and multi-point fuel injection, on-board diagnostics and data retrieval. Prerequisite: AUTO 2214. Safety glasses and footwear with steel toes required.

AUTO 2225 (AUTO 225) Bosch Fuel Injection (30 hours) — Designed for professional technicians who wish to upgrade their skills with Bosch fuel injection. Topics include K-jet, L-jet, D-jet systems operation/diagnosis, testing, and repair. Prerequisite: AUTO 2214. Safety glasses and footwear with steel toes required.

AUTO 2230 (AUTO 230) 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," and basic do's and don'ts of circuit testing. Transmission topics include: review of automatic transmission fundamentals, lock-up converter controls, electronic shift controls and electronic overdrive. Safety glasses and footwear with steel toes required.

AUTO 2232 (AUTO 232) Automotive Anti-lock Brakes (30 hours) — An upgrading course designed for professional technicians who wish to repair electronic ABS brake systems but have limited experience in electrical and electronic testing. Topics include electrical circuits, Ohm's Law, use of analog and DVOM 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. Safety glasses and footwear with steel toes required.

AUTO 2234 (AUTO 234) 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. Prerequisite: AUTO 2200. Safety glasses and footwear with steel toes required.

AUTO 2236 (AUTO 236) 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 air suspensions, Ford programmed ride control, computerized four-wheel steering, electronic rack and pinion steering gears, import active suspension design, electronic ride height control. Prerequisite: AUTO 2200. Safety glasses and footwear with steel toes required.

AUTO 2238 (AUTO 238) Air Conditioning Electronic Controls (12 hours) — An advanced course designed for professional technicians. It gives an overview of basic air conditioning controls leading to various electronic climate control systems. Emphasis on diagnosing computer controlled features. Prerequisite: AUTO 2200 **and** AUTO 0145 or equivalent. Safety glasses and footwear with steel toes required.

AUTOMOTIVE MECHANICS 432-8543

Rob MacGregor, Chief Instructor

AUTO 0100 (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. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of five years work experience in the trade.

AUTO 0105 (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: Automotive mechanics experience **and** AUTO 0145 or equivalent. Safety glasses and footwear with steel toes required.

AUTO 0110 (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 ABS operation. After successfully completing this course, students will be able to perform almost any inspection/repair necessary on disc/drum brake assemblies. Prerequisite: Minimum of two years mechanical experience. Safety glasses and footwear with steel toes required.

AUTO 0115 (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 and four-wheel alignments. Safety glasses and footwear with steel toes required.

AUTO 0120 (AUTO 925) Automotive 4 Wheel Alignment (6 hours) — A one-day intensive course on late model steering and alignment techniques. Topics include four-wheel steering and four-wheel alignment using the latest computer alignment equipment. The course is scheduled for Saturdays to permit extended shop time. Prerequisite: AUTO 0115. Safety glasses and footwear with steel toes required.

AUTO 0125 (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. Safety glasses and footwear with steel toes required.

AUTO 0130 (AUTO 957) Propane Fuel Systems for Vehicles (LPG) (30 hours) — Designed to prepare mechanics with a minimum of third 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. 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 0135. 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. Safety glasses and footwear with steel toes required.

AUTO 0135 (AUTO 950) Natural Gas Fuel Systems for Vehicles (NGV) (18 hours) — Designed to prepare mechanics with a minimum of third year apprentice level to install and service NGV conversions. Provides the necessary theoretical instruction to enable mechanics to write the Provincial Gas Safety Branch Licensing Examination. Topics include safety, basic test equipment, characteristics of NGV, engine and ignition requirements, NGV components, installation, refuelling, tune-ups and troubleshooting. 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: AUTO 0130 or technicians holding a current automotive LPG license. A photocopy of your license will be required on the first day of class. Safety glasses and footwear with steel toes required.

AUTO 0140 (AUTO 970) AirCare Motor Vehicle Emissions (42 hours) — This program provides the information required to successfully complete the AirCare exam and obtain AirCare Repair Service Technician Certification. Prerequisite: B.C. TQ in one of the following: Automotive Mechanical Repair, Commercial Transport Mechanical Repair, Heavy Duty Mechanical Repair with three years automotive experience, or Automotive Electric and Tune-up Apprenticeship Certificate.

AUTO 0145 (AUTO 972) CFC Emissions in Automotive (7 hours) — An environmental awareness course based on Environment Canada's "Code of Practice for Reducing CFC Emissions in Refrigeration and Air Conditioning Systems." Completion of this environmental awareness course on ozone depletion is mandatory to purchase or service equipment containing ozone depleting substances. Successful participants will receive an HRAI/ Environment Canada Certificate in CFC/ HCFC/HFC Controls and a certificate number for refrigerant handling as required under B.C. Regulations. Specific topics covered are CFC's and the ozone layer; isolation valving; recommended components; leak detection methods; system charging procedures; special maintenance provisions; refrigerant recovery, reuse, recycle, and reclamation equipment.

AVIATION
278-4831

Bill Sheppard, Program Coordinator

AVIA 0105 (AVIA 901) Troubleshooting Aircraft Electrical Snags and Systems (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 0120 (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 0130 (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, pilots/owners of aircraft 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 0131.

AVIA 0131 (AVIA 938) Introduction to Aircraft Maintenance Advanced (30 hours) — A continuation of AVIA 0130. Topics include flight control, hydraulics, landing gear, wheels and brakes, and other associated aircraft systems. Prerequisite: AVIA 0130 or equivalent.

AVIA 0165 (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, layout and forming techniques, bend allowances, hand tools, fasteners and rivets. Hands-on instruction for the proper use of equipment, techniques and safe practices is provided. This course can be used as a primer to the full-time day program or the equivalent part-time certificate program.

AVIA 0166 (AVIA 920) Aircraft Sheet Metal Advanced (30 Hours) — A continuation of AVIA 0165. Emphasizes increased shop time and more complex practical tasks.

AVIA 0175 (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 0180 (AVIA 923) Helicopter Maintenance Introduction (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 0181 (AVIA 924) Helicopter Maintenance Advanced (30 hours) — A continuation of AVIA 0180. Emphasizes increased shop time and more complex tasks.

AVIA 0195 (AVIA 925) Avionics (30 hours) — An introductory course designed for persons considering a career in Avionics as well as persons 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 0105.

AVIA 0205 (AVIA 930) Aircraft Drafting and Blueprint (28 hours) — Designed as a hands-on drafting course enabling students to read blueprints through practical assignments. Terminology, standards, views, lettering, scales and techniques are introduced through practical assignments.

AVIA 0220 (AVIA 933) Aviation Trade Mathematics (30 hours) — Math upgrading, refresher or 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 0240 (AVIA 940) Introduction to 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 the 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 0255 (AVIA 946) Aircraft Composite Repair Introduction (18 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 0256 (AVIA 947) Aircraft Composite Repair Basic (24 hours) — A continuation to AVIA 0255. This course is beneficial to students with some experience in industry. Emphasizes shop time and practical tasks.

AVIA 0257 (AVIA 948) Aircraft Composite Repair Advanced (30 hours) — A continuation to AVIA 0256. This course is suitable for students with significant experience in industry. Emphasizes more shop time and more complex practical tasks.

AVIA 0270 (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 0275 (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 0285 (AVIA 970) Aircraft Maintenance for the Pilot/Owner (30 hours) — This course covers the maintenance that a pilot/owner can perform on his/her aircraft following the guidelines as set out by Transport Canada. 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, telephone 278-4831.

AVIA 0290 (AVIA 975) Nondestructive Testing for Aircraft Introduction (30 hours) — Nondestructive testing techniques are introduced and practiced. Whether you are working with aging fleets or brand new aircraft, these new and old inspection techniques are critical to your work.

CARPENTRY 432-8556

Nancy Naylor, Program Assistant

CARP 0100 (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, and heavy timber construction. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam approval from the Ministry of Skills, Training and Labour is required and recommended before you enrol.

CARP 0110 (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 problem-solving, metric conversion, and completing projects in the classroom All aspects of building specifications, foundations, millwork, and scheduling are covered. Upon completion, students will understand the structural principles of buildings and be able to read blueprints for architectural services and construction.

CARP 0115 (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 completion of this course students will have a theoretical foundation in residential, multi-residential and light industrial project supervision, scheduling, contract administration, and cost control. This course includes an introduction to computerized project management and scheduling. A certificate of completion in "Construction Supervision and project Management" is issued upon successful completion of the course.

CARP 0120 (CARP 917) Construction Estimating Basic (36 hours) — Designed for tradespersons involved with cost estimating and bidding. Unit pricing, account codes, project scheduling, quality 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 0125 (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 B.C. Building Code requirements (1990). CSA approved work boots with steel toes required for this course.

CARP 0130 (CARP 921) Platform Framing 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. CSA approved work boots with steel toes required for this course.

CARP 0140 (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 0130. CSA approved work boots with steel toes required for this course.

CARP 0145 (CARP 935) Residential Building Procedures (36 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. This 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 0150 (CARP 937) Builders Level (16 hours) — This course is designed for general construction carpenters and contractors, and those who must establish levels. Students will learn proper levelling procedures applicable to excavation, formwork, pipe grades, and design elevations for building purposes.

CARP 0151 (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.

CARP 0155 (CARP 927) Interior Finishing Carpentry (36 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. CSA approved work boots with steel toes required for this course.

CARP 0160 (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. CSA approved work boots with steel toes required for this course.

CARP 0165 (CARP 907) Residential Renovations (42 hours) — Designed for those wanting to become general contractors specializing in renovation of residential homes. Focus is on initial inspection, concept design, permit procedures and requirements, feasibility, site management, legal contracts, subtrade coordination, scheduling, building systems, and related problem-solving. Upon completion students will have acquired skills that are necessary to oversee a typical residential project from start to completion. This is a theory course which includes shop demonstrations. CSA approved work boots with steel toes required for this course.

COMMERCIAL TRANSPORT MECHANIC 432-8241

Don Eklof, Chief Instructor

CTMX 0100 (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. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of five years work experience in the trade.

CTMX 0105 (HDMX 925) Air Brakes for Mechanics (36 hours) — An ideal refresher course for mechanics who have limited experience servicing air brakes, and for owners and operators of trucks or 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, troubleshooting, and pre-trip. Upon successful completion of a pre-trip inspection, students will receive credit for the pre-trip for 30 days toward the Motor Vehicle Air Endorsement Examination. Prerequisite: Basic mechanical knowledge and ability. Safety footwear with steel toes required.

CTMX 0110 (HDMX 950) Commercial Vehicle Inspector (16 hours) — For qualified tradespersons preparing to write the Provincial Inspectors License Examination. The course includes guidelines in 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: B.C. TQ in one of the following: Automotive Mechanical Repair (hydraulic brake vehicles only), Heavy Duty Mechanical Repair, Commercial Transport Mechanical Repair, or Commercial Transport Trailer Repair (trailer inspection only). Upon successful completion of an air brake for mechanics maintenance course (CTMX 0105) the automotive mechanic will be able to do air brakes. Safety footwear with steel toes required.

CTMX 0145 (HDMX 972) CFC Emissions in Commercial Transport (7 hours) — An environmental awareness course based on Environment Canada's "Code of Practice for Reducing CFC Emissions in Refrigeration and Air Conditioning Systems." Completion of this environmental awareness course on ozone depletion is mandatory to purchase or service equipment containing ozone depleting substances. Successful participants will receive an HRAI/ Environment Canada Certificate in CFC/ HCFC/HFC Controls and a certificate number for refrigerant handling as required under B.C. Regulations. Specific topics covered are CFC's and the ozone layer; isolation valving; recommended components; leak detection methods; system charging procedures; special maintenance provisions; refrigerant recovery, reuse, recycle, and reclamation equipment.

CTMX 0200 Commercial Transport Trailer Mechanic TQ Refresher (45 hours) — This refresher course provides assistance for Tradespersons to upgrade their theoretical abilities in preparation to write the Provincial Commercial Transport Trailer Mechanic Trade Qualification Examination or for those wishing to refresh their theoretical knowledge of the Commercial Transport Trailer Trade. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of four years work experience in the trade.

COMPUTER AIDED CONSTRUCTION 432-8556

Nancy Naylor, Program Assistant

CARP 0105 (CARP 918) Project Estimating and Control (Computerized) (42 hours) — An intermediate course for project management and control for up to a one billion dollar value. This TIMBERLINE industry-specific database software system is easy to learn and apply. It allows you to relate database to estimates, use spreadsheets, coordinate activities, control costs, change orders, monitor budgets, produce reports and financial statements, monitor labour, materials, and equipment. Prerequisite: A hands-on course for persons with a minimum of three years construction experience. No computer experience required.

DRAFTING 432-8556

Nancy Naylor, Program Assistant

DRFT 0101 (DRFT 901) Drafting: Basic (42 hours) — Those who wish to explore a career in drafting and learn fundamental architectural, mechanical, and civil drafting should enrol in this introduction course. 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. This course will prepare students for careers in drafting or further drafting studies. Students will receive an introduction to computer assisted drafting and limited hands-on experience. Projects are self paced.

DRFT 0102 (DRFT 903) Drafting: Advanced (42 hours) — Expands on the basic drafting course and allows students to progress into their desired drafting specialty including architectural, civil, mechanical, and structural. Students will pursue one of these in-depth while touching on the others as they interrelate. Part of the required project for this course will be produced on a computer. The basic and advanced drafting courses will provide successful students with an overview of the parameters affecting building design and construction. Upon successful completion a "Statement of Completion" is issued. Prerequisite: DRFT 0101.

DRFT 0106 (DRFT 920) Computer Assisted Drafting 1 (42 hours) — An introduction to the use of computers as a tool in drafting. The course includes the basic operations, commands, layout techniques, and plotting processes that a student will use in a drafting office. Prerequisite: DRFT 0101 or instructor evaluation.

DRFT 0107 (DRFT 921) Computer Assisted Drafting 2 (42 hours) — A continuation of DRFT 0106. This course is focused on expanding the drafting skills of the student to include projects from selected areas of industry. A basic understanding of drafting and computers is required. Prerequisite: DRFT 0106 or instructor evaluation.

DRFT 0111 (DRFT 915) Drafting Specialization: Process Piping 1 (42 hours) — This course will introduce the student to fittings, pipes, valves, and welding symbols. This course will include the basics of isometric drawings. The student will be responsible for producing shop drawings. Prerequisite: DRFT 0101 or a basic drafting course.

DRFT 0112 (DRFT 916) Drafting Specialization: Process Piping 2 (42 hours) — This course is intended to be a follow-up course to DRFT 0111. This will involve work in process piping, flow diagrams, heat exchangers, instrumentation, compressors and pumps. The student will be responsible to produce working drawings using advanced drafting techniques. Prerequisite: DRFT 0111.

DRFT 0121 Landscape Drafting Design for the Town Garden 1 (24 hours) — Learn to design and maintain yards and gardens successfully. Includes general layout, estimating and cost management, grading and drainage, structural facilities and materials; soil improvement; plant materials; lawn maintenance theory and principles of design, history of landscape design.

DRFT 0122 Landscape Drafting Design for the Town Garden 2 (30 hours) — Learn the necessary skills to prepare a landscape plan for a town garden. Emphasis on landscape drafting. Includes use of drafting instruments; basic surveying; preparation of plan views; cross sections and elevations; landscape symbols; lettering techniques; preparation of a plant list. Prerequisite: DRFT 0121 Landscape Drafting Design for the Town Garden 1 or equivalent.

DRYWALL 432-8556

Nancy Naylor, Program Assistant

DRYW 0100 (PDEC 935) Drywall Finishing TQ Refresher (42 hours) — Provides students with the necessary instruction to enable them to write the provincial drywall finishing trade qualification examination. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam approval from the Ministry of Skills, Training and Labour is required and recommended before enrolling.

DRYW 0101 (PDEC 905) Wall and Ceiling TQ Refresher (40 hours) — Provides students with the necessary instruction to enable them to write the provincial wall and ceiling trade qualification examination. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam approval from the Ministry of Skills, Training and Labour is required and recommended before enrolling.

DRYW 0105 (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, moulding, and product theory. CSA approved work boots with steel toes required for this course.

DRYW 0106 (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, and filling/finishing with hand tools. CSA approved work boots with steel toes required for this course.

HEAVY DUTY MECHANIC 432-8241

Don Eklof, Chief Instructor

HDMX 0100 (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. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of five years work experience in the trade.

HDMX 0105 (HDMX 902) Mobile Hydraulics (48 hours) — For heavy equipment mechanics or operators who wish to upgrade their knowledge of hydraulics for forklifts, front-end loaders and stationary equipment. The emphasis is on mobile rather than stationary equipment. The object of the course is for students to understand hydraulics, fluids, reservoirs, pumps, motors, valves, hoses and fittings, cylinder accumulators, coolers and schematics, as well as 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. Prerequisite: A basic understanding of operating and repairing heavy equipment. Safety footwear with steel toes required.

TRADES TRAINING

JOINERY
432-8556

Nancy Naylor, Program Assistant

JOIN 0101 (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. Suitable for entry-level training and general interest students. In the second half of the course students will be working on a **SMALL** project of their own choice. CSA approved work boots with steel toes required for this course.

JOIN 0105 (JOIN 923) Furniture Finishing and Refinishing (24 hours) — Designed for general interest persons 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. CSA approved work boots with steel toes required for this course.

MACHINIST
432-8214

Ted Marchant, Chief Instructor

MACH 0100 (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, use of hand tools, blueprint reading, grinders, lathes, milling machines, vertical and horizontal boring mills, planers and slotters, drill presses, and cutoff and contour saws. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of five years work experience in the trade.

MACH 0105 (MACH 905) Lathe Operator (36 hours) — Provides a basic understanding and practical experience on 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. This course is a prerequisite for MACH 0115. Safety footwear with steel toes required.

MACH 0110 (MACH 906) Milling Machine Operator (36 hours) — Provides a basic understanding and practical experience on 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. This course is a prerequisite for MACH 0115. Safety footwear with steel toes required.

MACH 0115 (MACH 907) Lathe and Milling Operations (36 hours) — A continuation of MACH 0105 AND MACH 0110. This course is designed to allow the student to gain more experience on the machine tools. The projects used in this course are of a more difficult and challenging nature 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 the selected projects are within the student's capabilities. Prerequisite: MACH 0105 **or** MACH 0110. Safety footwear with steel toes required.

MACH 0120 (MACH 909) Introduction to Computers for Machinists (18 hours) — For the individual who wishes to gain a basic knowledge of micro-computers. It is recommended this course be taken before enrolling in MACH 0125, 0130, or 0135. Although general in nature, it is designed to prepare a person to enter into the Computer Numerical Control courses. Topics include micro-computer terminology, 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. Safety footwear with steel toes required.

MACH 0125 (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 CNC Milling Operations and CNC Lathe Operations. Although this course is centred around programming for a CNC Lathe, references are also made to machining centres as it is deemed appropriate to the material being covered. This course has approximately 30% theory and 70% hands-on. The hands-on includes entering and editing of programs, setting of tools and operation of the machines. Prerequisite: MACH 0120 or equivalent.

MACH 0130 (MACH 911) Computer Numerical Control Milling Operations (42 hours) — Deals with simple programming, editing and setting up of Computer Numerically Controlled (CNC) vertical machining centres. The machines used are typical of those used in industry. All programming on this course will be compatible with the CNC controls commonly used on a variety of machining centres. This course is approximately 40% theory and 60% hands-on. The hands-on includes entering and editing of programs, setting of tools, and operation of machines. Prerequisite: MACH 0125. Safety footwear with steel toes required.

MACH 0135 (MACH 914) Computer Numerical Control Lathe Operations (42 hours) — Deals with simple programming, editing and setting up of a Computer Numerically Controlled (CNC) lathe. The machines are typical of those used in industry. All programming on this course will be compatible with the CNC controls commonly used on a variety of CNC lathes. This course has approximately 40% theory and 60% hands-on. The hands-on includes entering and editing of programs, setting of tools, and operation of machines. Prerequisite: MACH 0125. Safety footwear with steel toes required.

MACH 0140 (MACH 915) CADKEY 1 (48 hours) — The course consists of: creation of 3-D wire frame models; creation of 2-D drawings in orthographic projection; use of levels in CAD drafting; terminology and definitions of terms used with CAD; configure CADKEY to the workstation; manipulate the views of the part; dimension, label and notate the part drawings to file for export to CAM. This is an entry-level course to introduce computer aided drafting (CAD) to those with little or no prior experience. Prerequisite: Basic drafting knowledge and computer literacy skills.

MATHEMATICS FOR TRADES 432-8214

Ted Marchant, Chief Instructor

TMAT 0105 (TMAT 935) Industrial Mathematics 1 (30 hours) — Topics include arithmetic operations, fractions, decimals, metric systems, ratio and proportion, percentages, area and volume. This course is specifically for apprentices, pre-apprentices and journeypersons in the mechanical and metal trades. Apprentices may qualify to have their tuition fees paid for by the Provincial Apprenticeship Training Branch.

TMAT 0110 (TMAT 936) Industrial Mathematics 2 (24 hours) — Topics covered include algebra operations, equations and formulas, exponents, graphs, trigonometry, trade applications, and use of scientific calculators. This course is specifically for apprentices, pre-apprentices and journeypersons in the mechanical and metal trades. Apprentices may qualify to have their tuition fees paid for by the Provincial Apprenticeship Training Branch. Prerequisite: TMAT 0105.

MILLWRIGHT 432-8517

Owen Collings, Chief Instructor

MILL 0100 (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 fitting practices; hydraulics, pneumatics and lubrication; material handling; machine components and machine installation. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of five years work experience in the trade.

MILL 0105 (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; actuators and seals; types of symbols and graphics; circuitry identification and interpretation. Some practical, hands-on work on pumps, valves, actuators and circuits is also included. Successful students become conversant with fluid power and hydraulic theory, and capable of examining, testing, adjusting and repairing basic fluid power components. Safety footwear with steel toes required.

MILL 0110 (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 dialling, face-to-face and laser aligning method. Analysis and corrections are performed by simple calculations, graphical solutions and the use of computers. Prerequisite: A working knowledge of basic machinery and components. Safety footwear with steel toes required.

PAINTING AND DECORATING 432-8556

Nancy Naylor, Program Assistant

PDEC 0100 (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 colour 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, and trade mathematics. To become eligible to write the exam approval from the Ministry of Skills, Training and Labour is required and recommended before you enrol. Prerequisite: Minimum five years experience in the trade.

PIPING, PLUMBING & GAS 432-8556

Nancy Naylor, Program Assistant

PPGS 0100 (PPGS 930) B.C. 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 the BCIT bookstore. To become eligible to write the exam approval from the Ministry of Skills, Training and Labour area office nearest your residence is required and recommended before you enrol. Prerequisite: Minimum five years experience in the trade.

PPGS 0102 (PPGS 922) Piping Trades Math (30 hours) — This is a math upgrading course for tradespersons presently working in the Piping trade that need a review of the mathematics and science requirements necessary for apprenticeship training. The course covers fractions, decimals, areas, volumes, pressures, offsets, grades, slopes, Boyles Law, Charles Law, specific heat, lineal expansion as well as specific weights and densities.

PPGS 0105 (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 sessions of the course. Prerequisite for cross connection exam: Water purveyor (municipal employees), journeyman or apprentice in piping trades, civil or mechanical engineer, manufacturer's agent, irrigation related personnel, or public health official.

PPGS 0110 (PPGS 909) Gas Fitter B License (84 hours) — This course is a requirement of the Ministry of Municipal Affairs Gas and 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 recommend before you enrol. Prerequisite: Minimum four years experience in the trade.

PPGS 0114 (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 0115.

PPGS 0115 (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, stand-by 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 0120 (PPGS 914) Class C Appliance Service (84 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 0125 (PPGS 917) Plumbing: Residential (24 hours) — This general interest course will appeal to home owners 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. CSA approved work boots with steel toes required for this course.

PPGS 0135 (PPGS 926) NFPA 13D Sprinkler Systems (30 hours) — Designed to explain and interpret the requirements of NFPA 13D regarding design and installation of sprinkler systems in one and two family dwellings and mobile homes. This course cover code requirements regarding installation layout and design of systems (including NFPA 13D sizing method). Passing grade for this course is 75%. Upon successful completion students are required to take their grades to the Ministry of Skills, Training and Labour along with a current B.C. TQ in plumbing or steamfitting, this will provide exemption to the sprinklerfitting TQ for installation of NFPA 13D. To allow permit privileges to install NFPA 13D students must take the exemption to the city of Vancouver. This permit is for the city of Vancouver only until further notice.

POWER ENGINEERING 432-8390

Joe Brown, Chief Instructor

Programs in all levels of power engineering certification are 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. Programs 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:
1. assignments which are closely based upon the curriculum of the government examination;
2. telephone or drop-in assistance with an experienced tutor;
3. supplemental information to augment or clarify the interprovincial standardized course materials where necessary;
4. rapid correction of assignments and examinations.

To qualify to write the Interprovincial Certificate 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 Housing, Safety Engineering Services Division, Boiler and Pressure Vessel Safety Branch.

Persons wanting 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 Boiler Branch. Classroom attendance in these programs is flexible to accommodate persons working shifts. Classroom hours are from 0800 to 1500 Monday to Friday. From mid-October to mid-May, Tuesday through Thursday, evening instruction is available 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 video tapes 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:

POWR 0110 (POWR 910)
Boiler Operator

POWR 0113 (POWR 913)
Fourth Class Level 1
POWR 0114 (POWR 914)
Fourth Class Level 2

POWR 0115 (POWR 915)
Third Class Part A Paper 1
POWR 0116 (POWR 916)
Third Class Part A Paper 2

POWR 0117 (POWR 917)
Third Class Part B Paper 1
POWR 0118 (POWR 918)
Third Class Part B Paper 2

POWR 0119 (POWR 919)
Second Class Part A Paper 1
POWR 0120 (POWR 920)
Second Class Part A Paper 2

POWR 0121 (POWR 921)
Second Class Part A Paper 3

POWR 0122 (POWR 922)
Second Class Part B Paper 1
POWR 0123 (POWR 923)
Second Class Part B Paper 2
POWR 0124 (POWR 924)
Second Class Part B Paper 3

POWR 0125 (POWR 925)
First Class Part A Paper 1
POWR 0126 (POWR 926)
First Class Part A Paper 2

POWR 0127 (POWR 927)
First Class Part A Paper 3
POWR 0128 (POWR 928)
First Class Part A Paper 4

POWR 0129 (POWR 929)
First Class Part B Paper 1
POWR 0130 (POWR 930)
First Class Part B Paper 2

POWR 0131 (POWR 931)
First Class Part B Paper 3
POWR 0132 (POWR 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.

POWER EQUIPMENT MECHANIC 432-8460

Tom Nelson, Chief Instructor

POEQ 0105 (SENG 900) Small Engine Powered Equipment Maintenance (48 hours) — This course covers 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. Safety footwear with steel toes required.

REFRIGERATION (COMMERCIAL) 432-8517

Owen Collings, Chief Instructor

HVAC 0100 (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. TQ examinations are conducted by the Ministry of Skills, Training and Labour. Contact the area office nearest your residence to determine your eligibility and schedule an examination. Prerequisite: Minimum of five years work experience in the trade.

HVAC 0102 (TREF 913) Basic HVAC Systems 1 (48 hours) — This is the first in a four-part program dealing with basic Heating, Ventilation and Air Conditioning (HVAC) systems. This module covers the fundamentals of the refrigeration cycle and identifies basic system components along with their function and operation. Types of refrigerants are also examined in detail because of environmental concerns as per their use and application. In addition, proper use of refrigerant recovery/recycling equipment will be addressed as well as proper charging and system evacuation to meet industry requirements and existing provincial regulation.

HVAC 0104 (TREF 915) Basic HVAC Systems 2 (48 hours) — This is the second in a four-part program dealing with basic Heating, Ventilation and Air Conditioning (HVAC) systems. This module covers: basic electrical theory, alternating current fundamentals, single-phase motor theory, practical exercises in interpreting elementary electrical diagrams, and demonstrations on use of electrical test instruments. The second part of this module covers basic concepts of gas control as applied to residential heating systems. Topics include gas properties, piping, combustion, burners, ventilation air, and basic troubleshooting. Prerequisite: HVAC 0102.

HVAC 0106 (TREF 916) Basic HVAC Systems 3 (48 hours) — This is the third in a four-part program dealing with basic Heating, Ventilation and Air Conditioning (HVAC) systems. This module covers: types of systems, the psychrometric chart for studying air properties, proper HVAC installation procedures, troubleshooting, and tune-ups. Basic motor theory, motor testing, preventive maintenance and motor troubleshooting will also be discussed. Prerequisite: HVAC 0104.

HVAC 0108 (TREF 921) Basic HVAC Systems 4 (36 hours) — This is the fourth in a four-part program dealing with basic Heating, Ventilation and Air Conditioning (HVAC) systems. This module covers the practical application of subjects taught during Basic HVAC Systems 1, 2, and 3. Practical exercises will involve: using electrical test equipment, charging evacuating and recovery of refrigerant from operating equipment, flaring and brazing shop projects, and basic troubleshooting of equipment. Prerequisite: HVAC 0106 **and** HVAC 0145 or equivalent. Safety footwear with steel toes required.

HVAC 0110 Advanced HVAC Systems 1 (24 hours) — This is the first of a series of advanced heating, ventilation and air conditioning systems (HVAC) courses. This module cover in-depth the operating sequences of residential and light commercial heat pump systems. Topics include application, installation control sequences and mechanical/electrical troubleshooting techniques. Prerequisite: Good working knowledge of the refrigeration trade and ability to read and interpret electrical diagrams.

HVAC 0145 (TREF 970) CFC Emissions in Refrigeration (8 hours) — An environmental awareness course based on Environment Canada's "Code of Practice for Reducing CFC Emissions in Refrigeration and Air Conditioning Systems." Completion of this environmental awareness course on ozone depletion is mandatory to purchase or service equipment containing ozone depleting substances. Successful participants will receive an HRAI/ Environment Canada Certificate in CFC/ HCFC/HFC Controls and a certificate number for refrigerant handling as required under B.C. Regulations. Specific topics covered are CFC's and the ozone layer; isolation valving; recommended components; leak detection methods; system charging procedures; special maintenance provisions; refrigerant recovery, reuse, recycle, and reclamation equipment.

STEEL FABRICATION 432-8556

Nancy Naylor, Program Assistant

STEL 0100 (STEL 900) Steel Fabrication TQ Refresher (60 hours) — For tradespersons preparing for the provincial steel fabrication trade qualification examination and for those wanting a current review. To become eligible to write the exam approval from the Ministry of Skills, Training and Labour area office nearest your residence is required and recommended before you enrol. Prerequisite: Minimum five years experience in the trade.

STEL 0110 (STEL 909) Steel Fabrication (30 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. CSA approved work boots with steel toes required for this course.

STEL 0115 (STWD 901) Blueprint Reading for Welding 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. CSA approved work boots with steel toes required for this course.

STEL 0125 (STEL 913) Steel Fabrication: Plate and Pipe Development (36 hours) — Designed to upgrade tradespersons skills for advanced projects and pattern layout. This 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 0110 or equivalent. CSA approved work boots with steel toes required for this course.

WELDING 432-8556

Nancy Naylor, Program Assistant

WELD 0103 (WELD 903) Oxyacetylene Welding: Braze Welding (30 hours) — A basic fuel gas welding course for beginners. The course includes safety, shop practices, procedures and operation of related equipment. Students will be introduced to P3 module (gas welding and braze welding) of the Level C Welding Program. CSA approved work boots with steel toes required for this course.

WELD 0104 (WELD 915) Shielded Metal Arc Welding Basic (30 hours) — A basic arc welding course for beginners. The course includes safety, shop practices, procedures and operation of related equipment. During this course students will be introduced to the P4 module (shielded metal arc welding) of the level C welding program. CSA approved work boots with steel toes required for this course.

WELD 0106 (WELD 957) Gas Metal Arc Welding Basic (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. During this program students will be introduced to the GMAW section of P6 module of the level C welding program. Prerequisite: None. CSA approved work boots with steel toes required for this course.

WELD 0110 (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 GTAW. After completing this course students will have an understanding of the GTAW process. CSA approved work boots with steel toes required for this course.

WELD 0161 (WELD 960) Aluminum Welding 1 (30 hours) — Consists of the first three modules required out of six to obtain a Welding Institute of Canada Diploma. Modules will cover material and metal preparation, welding with inert gas, shielded processes, plasma cutting, brazing, and other processes. Fees cover all costs including a student membership in the Welding Institute of Canada. Students that successfully complete closed book examinations for all six modules will receive a Welding Institute of Canada Diploma. CSA approved work boots with steel toes required for this course.

WELD 0162 (WELD 965) Aluminum Welding 2 (30 hours) — Consists of the final three modules required out of six to obtain a Welding Institute of Canada Diploma. Modules will cover supervision, safety, quality control, corrosion and strength of aluminum, terms and symbols, and design of weld symbols. Fees cover all costs including a student membership in the Welding Institute of Canada. Students that successfully complete closed-book examinations for all six modules will receive a Welding Institute of Canada Diploma. CSA approved work boots with steel toes required for this course.

WOMEN IN TRADES 432-8233

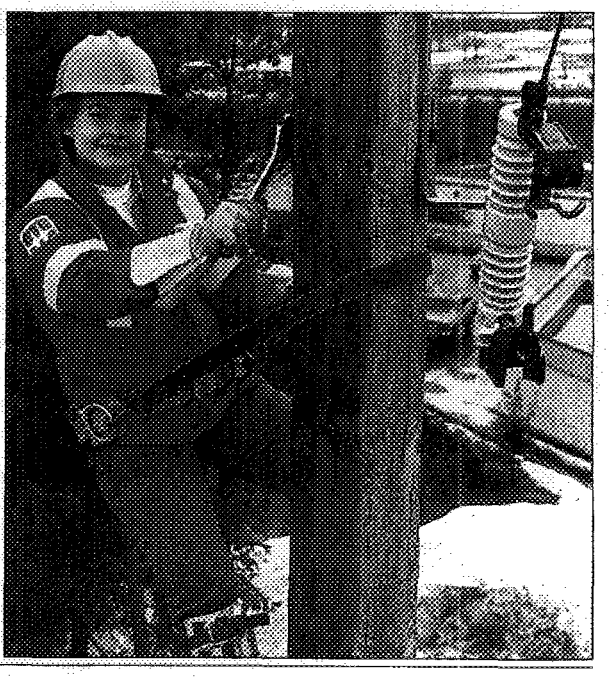
Kate Pelletier, Coordinator

TEXP 0110 (TEXP 900) Trades Exploratory Program for Women (36 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 an appreciation for the type of work the trades offer. Ample opportunity will be given 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.

TEXP 0111 (TEXP 901) Women Exploring Metal Trades (18 hours) — This course is designed to expose women to various trades in metal industries covering working conditions, training, wages, etc. Hands-on projects in shop areas will familiarize students with the shop environments as well as allow them to use various tools. Students will meet women who work in the trades. The labour market, training and funding will also be discussed. Trades covered may include welding, sheet metal, ironworking, steel fabrication and boilermaking.

TEXP 0112 (TEXP 902) Women Exploring Mechanical Trades (18 hours) — This course is designed to expose women to various mechanical trades covering working conditions, training, wages, etc. Hands-on projects in shop areas will familiarize students with the shop environments as well as allow them to use various tools. Students will meet women who work in the trades. The labour market, training, and funding will also be discussed. Trades covered may include machining, CNC machining, millwright, auto mechanics, heavy duty mechanics, commercial transport mechanics, small engine mechanics, and tool and die.

TEXP 0113 (TEXP 903) Women Exploring Construction Trades (18 hours) — This course is designed to expose women to various construction trades covering working conditions, training, wages, etc. Hands-on projects in shop areas will familiarize students with the shop environments as well as allow them to use various tools. Students will meet women who work in the trades. The labour market, training and funding will also be discussed. Trades covered may include carpentry, electrical, plumbing, joinery and painting and decorating.



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Part-time Studies Registration Form

BCIT Registration Department: 3700 Willingdon Avenue Burnaby, B.C. V5G 3H2
Tel. (604) 434-1610, Fax. (604) 430-1331

4 Ways to Register

1. By Mail
(available to all registrants)

Fill in the registration form and send it with your cheque or credit card information to:

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

Sorry, No Postdated Cheques.

2. By Fax
(Available to all registrants)

Fill out this form and fax to 430-1331 or 687-2488.

3. In Person
(Available to all registrants)

Register at the Burnaby, Downtown or Surrey Campuses. Pay by cash, cheque or credit card.

4. By Phone

(Only available to registrants who have previously registered BCIT)

Charge to your Visa or MasterCard.

Burnaby Campus: 434-1610

Downtown: 687-4666

Blocked areas to be filled in by FIRST-TIME REGISTRANTS only!

SOCIAL INSURANCE NUMBER ___ — ___ — ___

I authorize BCIT to use my Social Insurance Number as my student identification number for the sole purpose of BCIT business.

Your signature goes here ⇨ _____

Last Name (Family Name) _____

Legal First Name _____

Middle Name _____

Previous Last Name (e.g. Maiden Name) _____

Street/Box No. _____

Town/City _____ Province _____

Country _____ Postal Code _____

Home Phone (___) _____ Work Phone (___) _____

Company Name _____ Fax Phone (___) _____

All official BCIT correspondence will be mailed to this address.

Course Number	Course Ref. Number (CRN)	Course Title	Course Cost(s) Fee	Course Cost(s) Special Fee	Start Date DD	Start Date MM	Start Date YY	Site
Textbooks: ☐ Yes ☐ No		TOTAL FEES		+	=			

You can pay by cheque, money order, VISA or MasterCard. Cash is accepted in person only. A service charge for any NSF or returned cheque will be assessed.

☐ Visa Card Number _____ Expiry Date _____

☐ MasterCard Number _____ Expiry Date _____

☐ full fees paid by you ☐ full fees paid by employer (approval attached) ☐ special arrangement (approval attached)

I declare that the information on this application is correct and complete. I acknowledge BCIT's right to cancel this application if the information contained in it has been misrepresented. If I am admitted to BCIT, I agree to abide by its policies and regulations. If granted an award, I authorize the Student Awards and Financial Aid Office to release pertinent information to the donor of the award and provincial funding bodies.

Your signature goes here ⇨ _____ Dated: _____

Sex: ☐ male ☐ female Birthdate: _____ (day - month - year)

Your citizenship status is: ☐ Landed Immigrant/Permanent Resident

☐ Canadian Citizen ☐ Other (please specify): _____

Country of Citizenship if not Canada: _____

Last Secondary School attended	From:	To:	Grade Completed	B.C. Exam Number (If known)
Post Secondary School(s) attended	**From:**	**To:**	**Years Completed**	**Credential Earned**

ASR-1A-IR.94

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Previous Last Name (e.g. Maiden Name) _____

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Town/City _____ Province _____

Country _____ Postal Code _____

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Post Secondary School(s) attended	**From:**	**To:**	**Years Completed**	**Credential Earned**

ASR-1A-IR.94

APPLICATION FOR CERTIFICATION

TYPE OF CERTIFICATE Please check:

- ☐ Management Certificate
- ☐ Senior Management Certificate
- ☐ Health Care Management Certificate — Level 1
- ☐ Health Care Management Certificate — Level 2
- ☐ Intermediate Certificate of Technology
- ☐ Certificate of Technology
- ☐ Associate Certificate
- ☐ Diploma of Technology
- ☐ Advanced Diploma of Technology
- ☐ 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 50% of the program must be BCIT credits.):

COURSE NUMBER	COURSE TITLE	GRADE	CREDITS	YEAR COMPL.	NAME OF INSTITUTION

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

ASR-55 (R. 94:02)

APPLICATION FOR CERTIFICATION

TYPE OF CERTIFICATE Please check:

- ☐ Management Certificate
- ☐ Senior Management Certificate
- ☐ Health Care Management Certificate — Level 1
- ☐ Health Care Management Certificate — Level 2
- ☐ Intermediate Certificate of Technology
- ☐ Certificate of Technology
- ☐ Associate Certificate
- ☐ Diploma of Technology
- ☐ Advanced Diploma of Technology
- ☐ 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		

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Approved by — Program Coordinator, Part-time Studies	Date
Approved by — Director, Part-time Studies	Date

ASR-55 (R. 94:02)

PART-TIME STUDIES APPLICATION FOR:

☐ PROGRAM APPROVAL ☐ TRANSFER CREDIT

DATE		
Mo.	Day	Yr.

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

TYPE OF CERTIFICATE Please check:

- ☐ Management Certificate
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- ☐ Health Care Management Certificate — Level 2
- ☐ Intermediate Certificate of Technology
- ☐ Certificate of Technology
- ☐ Associate Certificate
- ☐ Diploma of Technology
- ☐ Advanced Diploma of Technology
- ☐ Other: _____

Program Name (e.g., Financial Management — Accounting Option):

COURSE NUMBER	COURSE NAME	CREDITS	Course Completed? YES	NO

• If transfer credit is requested, official transcripts and course outline(s) 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 Total Transfer Credits Allowed	Recorded by — Signature	Date
	Approved by — Program Head Signature	Date

ASR-54 (R. 94:02)

PART-TIME STUDIES APPLICATION FOR:

☐ PROGRAM APPROVAL ☐ TRANSFER CREDIT

DATE		
Mo.	Day	Yr.

Student Number (SIN)		Student Name (Surname, Given)		
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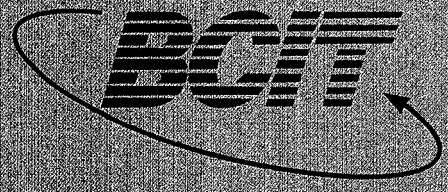
FOR OFFICE USE ONLY	Recorded by — Signature	Date
Total Transfer Credits Allowed	Approved by — Program Head Signature	Date

ASR-54 (R. 94:02)



BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
3700 Willingdon Avenue, Burnaby, British Columbia, Canada V5G 3H2 Tel. (604) 434-5734