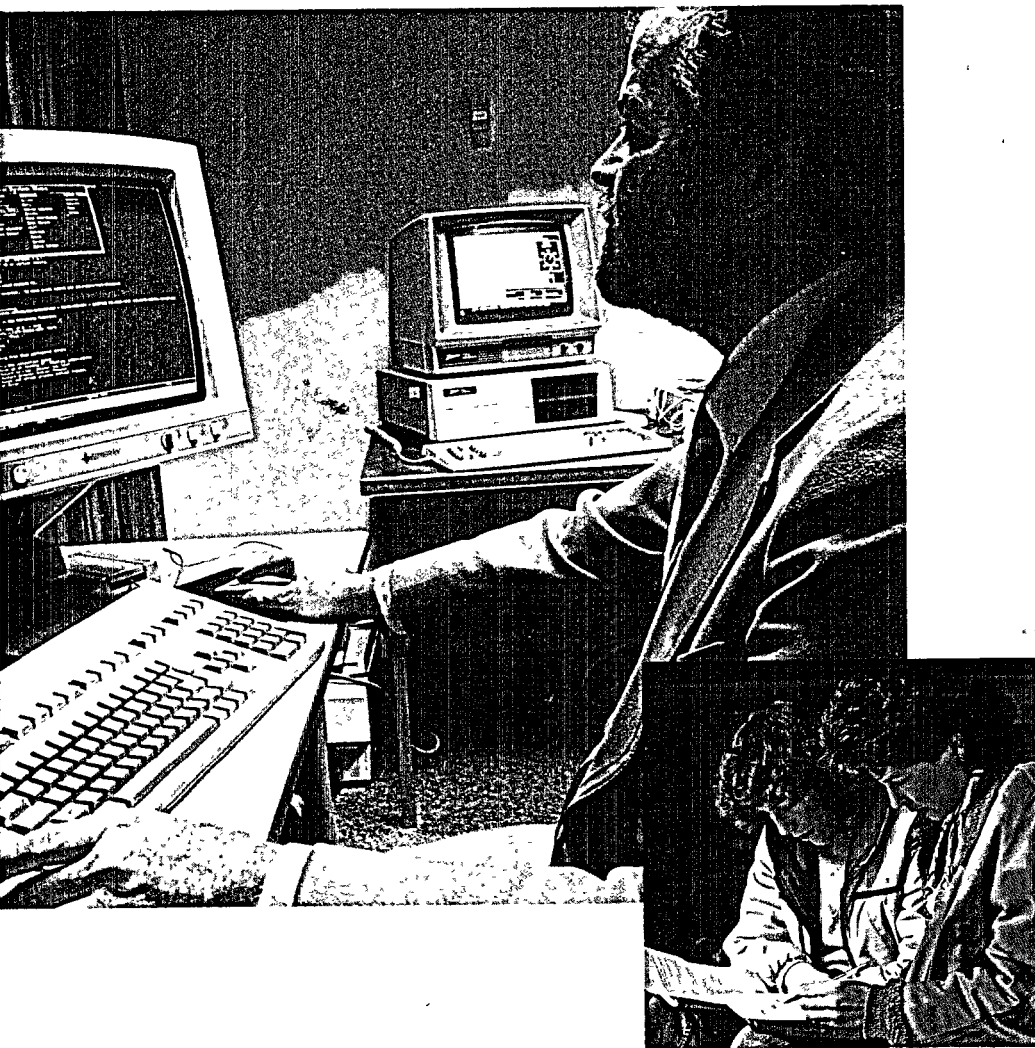




PART-TIME
TECHNOLOGY
& TRADE
PROGRAMS

CATALOG



BRITISH
COLUMBIA
INSTITUTE OF
TECHNOLOGY

1990

President's Message



I am pleased that you are considering taking a course at BCIT. With the world changing so rapidly it is becoming more critical to remain current in your chosen field, or to retrain for the everchanging job market. We have a dedicated group of instructors, support staff and management who are committed to ensuring that the education you receive will fully prepare you for advancement in your career.

The Institute's new mandate to become the centre for advanced technology in the Province has provided us an opportunity to do some creative and innovative programming in the high tech field. I encourage you to take advantage of the opportunities presented in the wide range of courses offered through part-time studies.

A handwritten signature in dark ink, appearing to read 'John A. Watson'. The signature is fluid and cursive, with a long horizontal line extending from the end.

John A. Watson

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Director: Bob McKenzie
Editor: Mary Bacon, B.A.
Institute Publications
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Printer: College Printers

Changes to Curricula and Regulations

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 either the programs of study or the regulations. The Institute reserves the right to cancel any program.

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General Information

CAMPUS LOCATIONS

1. Burnaby, Main Campus – Full-time and part-time technology and trades courses and programs.

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

Important Numbers:

Program Advising 434-3304
Counselling 434-3304
Financial Aid and Awards 432-8555
Admission – Full-time programs 432-8419
Registration – Part-time Studies 434-1610
Student Records 432-8498
Cashier (Refunds/Payments) 434-5734 (local 5046)

Office hours for most departments are 0830 to 1630, Monday to Friday.

Office hours for registration and general enquiries – From late August to early December and early January to late April.

0830-2030 Monday - Thursday

0830-1630 Friday

0830-1230 Saturday (except holiday weekends)

2. Downtown Education Centre – Part-time Studies technology courses only

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

Office Hours – When school is in session:

0830-1830 Monday - Thursday

0830-1630 Friday

Otherwise 0830-1730 Monday - Friday.

3. Surrey – Part-time Studies technology courses only.

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

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

4. Sea Island – Aviation courses and programs only.

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

5. Coquitlam College – Part-time Studies Computer Systems Technology courses only.

1100 Winslow
Coquitlam, B.C.

6. Kingston College – Part-time Studies Computer Systems Technology courses only

#207-3900 East Hastings Street
Burnaby, B.C.

7. Part-time Studies Computer Systems Technology courses only.

#110-11100 Bridgeport Road
Richmond, B.C.

BCIT USES THE 24-HOUR CLOCK

0001 - 12:01 AM

0100 - 1:00

0200 - 2:00

0300 - 3:00

0400 - 4:00

0500 - 5:00

0600 - 6:00

0700 - 7:00

0800 - 8:00

0900 - 9:00

1000 - 10:00

1100 - 11:00

1200 - 12:00 noon

1300 - 1:00 PM

1400 - 2:00

1500 - 3:00

1600 - 4:00

1700 - 5:00

1800 - 6:00

1900 - 7:00

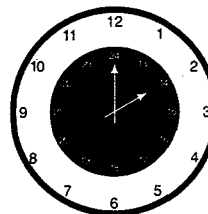
2000 - 8:00

2100 - 9:00

2200 - 10:00

2300 - 11:00

2400 - 12:00 midnight



PERSONAL DATA

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

REFUND DEADLINE

It is the student's responsibility to check the refund deadline dates in this calendar. Please see refund section on page 18.

This information may also be obtained from the Registrar's Office or the cashier.

AIDS POLICY

It is the policy of BCIT that there shall be no discrimination against any person at BCIT known, or suspected to have AIDS or to be infected with HIV (AIDS virus). BCIT's Medical Services Department will develop a clear set of guidelines for assisting staff and students to understand and deal with the appropriate handling of bodily fluids. BCIT will not insist on mandatory blood testing for the AIDS antibody. While BCIT's policy does not require mandatory testing for AIDS, it should be recognized that BCIT has no control over the policies of external agencies employing BCIT students and/or graduates.

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

CLEAN AIR POLICY

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

CONDUCT AND ATTENDANCE

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

1. Students are expected to conduct themselves in exemplary fashion at all times and pay diligent attention to their studies. If the School Dean or the Registrar believes a student's conduct is such that it is detrimental to the interests of the Institute, a recommendation may be made to the President to exclude the student from further attendance. The President has the final power to suspend or expel a student for disciplinary reasons, subject to the student's right to appeal this decision to a committee designated by the Board of Governors. A student who has been expelled or suspended for misconduct will not be admitted to the Institute grounds or buildings.
2. Acts of cheating, plagiarism and dishonesty will not be tolerated by this Institute, and the degree of punitive action may range from a written warning, to a withdrawal from the program. These penalties may also be applied to students who knowingly contribute to the act of dishonesty, cheating and plagiarism.
3. The Institute is not responsible for debts incurred by student organizations.
4. If through carelessness or negligence, a student damages Institute property, the student will be held responsible. If the damage is caused by students whose names are not known, the cost of repairing the damage may be assessed equally among all students enrolled at the Institute.
5. A student will not be permitted to borrow or remove any apparatus or tools except by written authority of the President or his delegate.
6. General supervision over all forms of entertainment given under the auspices of a student organization comes under the jurisdiction of the President.
7. It is the policy of BCIT to rely on the judgement of students to maintain a reasonable standard of dress and appearance. The choice of dress is left to the individual student, subject to the following considerations:
 - (a) in some field trips and laboratory situations, safety considerations require that special head gear, shoes or other clothing, and other safety equipment must be worn;
 - (b) where programs involve regular periods of scheduled experience, in industry or hospital for example, the student may be required to wear a uniform or otherwise dress himself/herself in the appropriate manner acceptable to the affiliating agency.

Based on experience to date, BCIT faculty believe that there is a positive relationship between general dress standards and employment of graduates. Faculty are prepared to advise students in the area of acceptable attire.

8. Regular attendance in lectures, seminars and laboratory periods is required of all students. If a student is absent for any cause other than illness for more than 10% of the time prescribed for any subject, he/she may be prohibited from completing the course. In case of illness or other unavoidable cause of absence, the student should communicate immediately with the program head, stating the cause of absence. Special regulations governing attendance in clinical experience areas are prescribed by the School of Health Sciences.

Due to the nature of Trades Training, regular attendance is critical for successful completion. Students failing to report absences to their departments, for five or more consecutive days, may be prohibited from completing the program.

9. Computer Ethics

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

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

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

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

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

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

BOARD OF GOVERNORS

Chairman: Wynne Powell, Dipl.T. (Hons.), C.G.A.
Vice President,
Marketing & Retail Technical Group
London Drugs Limited
Richmond

Vice Chairman: Edward Arnold Taylor, C.G.A.
Comptroller
Crestbrook Forest Industries Limited
Cranbrook

Jake Abrahams
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Clearbrook

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Trail

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Campbell River

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West Vancouver

Oona M. McKinstry
North Vancouver

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Vice President, Nursing
St. Paul's Hospital
Vancouver

Hilda Rizun
Smythe, Ratcliff & Associates
Chartered Accountants
Squamish

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H.A. Simons Ltd.
Consulting Engineers
Vancouver

Fleming Sondergaard
General Manager
Collins Manufacturing
Langley

Brian Sung, C.A.

Secretary
to the Board: Patricia Maertz

ACADEMIC AND ADMINISTRATIVE PERSONNEL

John Watson, B.Sc., M.B.A., President
B. Gillespie, Ed.D., Vice President, Education
C.E. McKinley, C.A., Vice President, Finance
P. Pick, B.A., M.L.S., Acting Vice President, Student Services
and Educational Support
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H. Arthur, B.A. (Hons.), M.A., Executive Director, International
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Michael Harrison, B.A.Sc., Dip. B.A., P.Eng., F.I.C.B., F.Inst.D.,
Dean, School of Business
G.S. Eisler, M.A.Sc., P.Eng., M.B.A., Dean, School of Health
Sciences
L.T. McNeely, M.B.A., Dean, School of Trades Training
D. Chowdhury, D.I.C., M.A., M.B.A., Ph.D., Dean, School of
Engineering Technology
Norman Streat, B.Sc.Eng., Ph.D., Director, Technology Centre
B. Copping, M.D., B.Sc., M.Sc., Director, Medical Services
V. Karpinsky, B.A.(Hons.), Director, Student Services
M. Mazziotti, Dipl.T., Registrar
Robert A. Roy, B.A., M.A., B.L.S., Acting Institute Librarian

OFFICE OF THE REGISTRAR

The Office of the Registrar is located in Building 1A on the first floor, facing Willingdon Avenue.

This office is the administrative centre for all the related activities of the registrar's office. It directs its efforts towards coordinating the major functions of registration, admissions processing, and records keeping. The personnel in this office are part of a major link in the policy setting and implementation process of the Institute between the Administration, the Deans and the students, particularly as they relate to the student's progress through the Institute, from initial application to the final graduating ceremonies. Students may utilize this office in the case of an appeal or re-assessment of the marks process.

Registration

This area is the Institute's first public contact and maintains a high profile for the Institute. It handles all general information enquiries and accepts applications for Trades/Technology programs. Part-time students also register here: over the phone, in person, through the mail and by FAX. Other activities include processing incoming mail and mailing out information. Office hours are from 0830 to 2030 Monday through Thursday, 0830 to 1630 on Friday, and from 0830 to 1230 on Saturday (except on long weekends).

These hours change during various times of the year (June-August and December).

Admissions

This department accepts and processes applications for full-time Trades and Technologies, and for part-time Electronics Technology, as well as answering application enquiries. Office hours are 0830 to 1630 Monday to Friday.

Student Records

The following services are provided by the Student Records Department:

1. Transcript requests
2. Verification of attendance
3. T2202A-Tax Certificates
4. Graduation eligibility
5. Course credit evaluation
6. Certificate/Diploma processing

Office hours are 0830 - 1630 Monday to Friday.

Timetabling

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

Staff

Mario Mazziotti, Dipl.T., Registrar
Sam DiGiando, B.A., Associate Registrar
Michelle Philippe, B.Sc., Dipl.T., Systems Assistant

Registration

Kelly Durkin, Supervisor,
General enquiries: 434-1610

Admissions

Brenda Walton, Supervisor
Application enquiries: 432-8419

Student Records

Jeri Fostvelt, Supervisor
General enquiries: 432-8498

Timetabling

George Brown, Supervisor
General enquiries: 432-8451

BCIT Services

STUDENT SERVICES

The student Services reception area for Program Advising, Counselling and Financial Aid and Awards is located at the northwest corner, 2nd floor, Building 1A. Our offices are open from 0830 to 1630, Monday to Friday. For telephone enquiries, please call 434-3304. Evening appointments are available for part-time students during Fall, Winter and Spring Terms.

Staff

Val Karpinsky, B.A.(Hons.), Director, Student Services
Sandie Mooney, Secretary to Director
Chichako Fong, Clerical Support
Mariana Rogic, Clerical Support
Muriel Shaw, Clerical Support
Janet Wadsworth, Clerical Support

Program Advising

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

Program advisors will assist with individual course selection. For certificate program approval, you may wish to meet with a Part-time Studies program advisor. Business students usually complete one or two courses before meeting with an advisor. Engineering Technology students may wish to meet with an advisor prior to course registration. We look forward to hearing from you by telephone – 434-3304, by mail, or in person in Student Services, 1A Building, 2nd Floor.

Program Advisors

Raelene Rowe, B.A., Coordinator
Pat Awarau, B.A.
Katy Bobetsis, B.A.
Karen Cope, B.Ed.
Amanda Hill, Cert.
Ann McNaughton, Cert.

Program Advisors - Part-time Studies

Chris Lloyd, Dipl.T., Business
Mandy Klepic, B.A., Engineering Technology & Trades

Counselling

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

Counselling Services, in conjunction with Part-time Studies, offers several Career Search Workshops during the school year. These workshops are generally four sessions (12 hours) long and are designed primarily for prospective students who have been in the work force at least two years. Participants examine their career paths and lifestyles in terms of direction and personal

satisfaction. Registration for Career Search Workshops is handled through Registration at 434-1610.

For further information about Counselling Services at BCIT, contact Student Services reception in Building 1A, 2nd floor, or telephone 434-3304.

Counselling Staff

Shirley Coomber, B.Ed., M.Ed., Special Needs Counsellor
Stu Gibbs, B.A., M.S.Ed., Counsellor/Liaison Trades
Heather Hyde, B.A., M.A., R.Psych., Counsellor/Coordinator
Liaison Engineering Technology
Howard Peto, B.S.A., M.Ed., Counsellor/Liaison Business
Jean Spence, B.A., M.Ed., Counsellor/
Liaison Health Sciences

Financial Assistance for Part-time Students

Limited financial assistance is available to students attending part-time programs or full-time programs of short duration. Both types of financial aid described below are based on financial need.

Part-time Loans – Trades and Technology Students

Part-time loans are available to students taking a course load that represents 20% to 59% of a full program of studies. At BCIT, most full-time programs include 30 hours of classes per week. This means that a BCIT student taking courses over a twelve week period must register in at least 6 hours per week to be eligible for a part-time loan.

Part-time loans are interest-bearing from the date of negotiation; the first payment is due 30 days after you negotiate the loan.

Deadline: Students must submit their part-time loan application to Financial Aid no later than the end of the second week of classes.

NOTE: The above information is subject to change.

Harry H. Stevens Memorial Bursary – Technology Students Only

The Kiwanis Club established this fund to provide financial assistance to students who are attempting to better themselves by attending part-time studies. Applicants must have resided in British Columbia for at least one year and be taking a course to upgrade skills or retrain in a technical, supervisory or management area.

Deadline:

August 21 – fall term
December 18 – winter term
March 19 – spring/summer terms

Further information on student financial aid can be obtained from Financial Aid reception (2nd floor, 1A building). Office hours are 0830 - 1630, Monday to Friday. Telephone: 432-8555.

Staff

Jennifer Orum, B.Ed., M.A., Coordinator
Jim Anderson, B.A., Senior Advisor
Cathy Schweers, Advisor, Trades
Hanne Logan, Financial Aid Assistant, Trades
Angie Chan, Advisor, Technologies
Avalon Tagami, Advisor, Technologies
Karen Porteous, Financial Aid Assistant, Technologies
Donna Tarras, Financial Aid Assistant, Technologies
Lisa Ho, Financial Aid Assistant, Technologies

LIBRARY SERVICES

Part-time students are eligible for the same library privileges as full-time students. To obtain a card, present ID and complete an application form at the library circulation counter.

The BCIT library is one of the province's major centres for technological and trades information, serving curricular needs of the Institute and providing general support to business and industry in British Columbia. Library holdings include over 300,000 books, periodicals, pamphlets, and non print media. Major strengths are found in the collections of technical reports, standards, Statistics Canada including Census Canada, company annual reports, topographical and land use maps, legal and legislative materials, microcomputer software, films and videos. The ground floor microcomputer/audiovisual centre provides students with the convenience of bookable space and equipment. Preview booths and video viewing facilities are also located in the centre.

Professional staff give instruction in library research skills. The opportunity to become familiar with key information sources in a chosen field assists students not only in completing course assignments but also in facing the future challenge of keeping current in a changing work environment. As well as individual and group instruction, there are printed guides to various information sources, facilities and services.

BCIT students use computer terminals to access DOBIS, the complete on-line catalog of holdings. This is the first integrated on-line library system in the province to serve an academic community. A courier service delivers library materials between the Main Library and the Sea Island Library.

The library also provides film preview books, video players, microfilm viewers and microcomputers for use by patrons.

Library Hours

September – May (subject to change)

Main Library

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

Summer hours vary – check for times.

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

For reference assistance and library holdings, phone 432-8371.

Overdues, Fines, Replacement Policies

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

Faculty and Staff

Robert A. Roy, B.A., M.A., B.L.S., Acting Institute Librarian
Margot Allingham, B.A., B.L.S., M.L.S., Reference Librarian
Engineering and Acting Information Services Coordinator
Yu-Mei Choi, B.S.Sc., M.L.S., Cataloguer
Ana Ferrinho, B.A., M.L.S., Reference Librarian – Health
Anthony Kelly, B.A., M.L.S., Reference Librarian – Branch
Coordinator
Frank Knor, Dipl.T., B.Ed., B.L.S., M.L.S., Reference Librarian
– Current Awareness Coordinator
Merilee MacKinnon, B.A., M.L.S., Head Cataloguer/DOBIS
Project Leader
Gerry Weeks, B.A., M.L.S.

FIRST AID

First aid attendants are on call as follows:

Monday – Friday 0600-2200

Saturday 0830-1530

Attendants are located in Bldg. #22.

Emergency: local 8820

Non Emergency: local 8872

Voice pager: 667-2052

When first aid attendants are on duty:

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

When first aid attendants are not on duty:

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

Sea Island Campus

Monday – Friday 0800-1600

CAMPUS FOOD SERVICES

Night School Service

Mobile coffee service is available in buildings 1A and 2N, Monday through Thursday from 1915 to 2015, for the convenience of those attending night classes. The Campus Cafe remains open until 2100 Monday through Thursday.

Forster's

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

Bakery and Retail Meats Outlet – Building 2B

A variety of fresh baked goods is available from the commercial baking course for sale to staff, students and public.

On the meat counters you'll find a wide variety of beef, veal, lamb, pork and deli products from the Retail Meat Processing and Sausage Making and Smoked Meats programs. Freezer orders are also taken at the counter as well as special orders for cakes, pastry, meat and cheese trays.

The SAC

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

TRANSIT

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

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

PARKING

All vehicles parking on campus, day or night, must display a valid Institute parking permit. Paid parking is in effect 24 hours a day, year round. Parking and traffic is administered and controlled by the Safety and Security Department, Building 2T, phone 432-8719. Parking Office hours are 0700-1600, Monday to Friday. Improperly parked vehicles or vehicles not displaying valid permits are subject to impoundment off campus at the owner's risk and expense. License numbers of impounded vehicles are posted at the entrance to the parking office, Building 2T, together with the name and location of the towing company. Persons parking on campus are encouraged to read the Parking and Traffic Regulations available at the parking office. Vehicles should be kept locked at all times. BCIT does not accept liability for theft from, or damage to, vehicles parked on campus.

Parking permits can be purchased at the parking office 0700-1600, Monday - Friday, year round. Sales of parking permits at other times will be announced in the campus media.

The current parking fee for part-time students is \$10 per term (subject to change).

Parking for the Physically Challenged

Special parking arrangements are available by contacting the parking office.

Parking Violations

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

Vehicle Assistance

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

CANADA EMPLOYMENT CENTRE

CEC is located in Room 222 of building 1A.

The office has two distinct functions. The first provides a placement service to certificate and diploma students in the technologies; this includes summer and part-time employment for undergrads as well as permanent work for alumni, who are welcome to use the service for two years after graduation. To assist new graduates, the Centre provides an on campus recruiting program from January to June for employers to interview students for career positions, prior to graduation. The second function involves referral, documentation and maintenance of students into places purchased on their behalf by Employment and Immigration Canada.

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

Staff

Seann Lyncaster, Branch Manager

BOOKSTORE

The BCIT bookstore is located at the southeast end of the campus on the ground floor of Building 2D. It sells required textbooks, software and educational material for BCIT courses. Textbook lists may be consulted in the bookstore. In addition to textbooks, a large selection of school, drafting, and engineering supplies as well as computer reference books is available. Special orders may be placed for books. The bookstore is open from 0800-1600 hours throughout the year, Monday through Friday. Extended hours of operation are offered at the beginning of each term. A schedule of dates and extended hours is posted in the bookstore prior to the commencement of each term.

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

Used Textbooks

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

RECREATION AND ATHLETIC SERVICES

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

Hours of Operation

September - May:	Monday – Thursday	0645-2300
	Friday	0645-2100
	Saturday	0900-1700
	Sunday	0900-1700
June- August:	To be announced.	

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

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

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

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

STUDENT ASSOCIATION

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

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

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

LOST AND FOUND

Please refer enquiries to Safety and Security at 432-8356. The Lost and Found is located in Building 1A, Room 130. Hours are 0800-0900 and 1200-1300, Monday to Friday.

LOCKERS

Lockers at BCIT are available to students on a first-come basis, except in technologies with special requirements such as Forest Resources, Surveying and Building. Students should locate an unreserved locker near their technology and put their lock on it. Lockers are situated throughout the Institute on each floor of most buildings. Lockers must be vacated at the end of each academic year, or no later than May 31. The Institute will not accept responsibility for loss or damage to a student's personal property.

BANKING

For your convenience, there is an Instant Teller Machine available with Interac Network operated by the Canadian Imperial Bank of Commerce at the main entrance to the South Campus (adjacent to 1A Building).

PART-TIME STUDIES REGISTRATION

PERSONAL DATA

Social Insurance Number				Student Name (Last Name, First Name)			
Date of Birth Month Day Year			Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	Marital Status <input type="checkbox"/> Single <input type="checkbox"/> Married	Country of Citizenship <input type="checkbox"/> Canada <input type="checkbox"/> Other:	Status (If Not Canadian) <input type="checkbox"/> Landed Immigrant <input type="checkbox"/> Student Authorization	
Mailing Address (Number and Street)							
City/Town				Prov.	Country		Postal Code
Home Phone Number			Company Name			Company Phone Number	

EDUCATIONAL RECORD

	NAME AND LOCATION	YEARS COMPLETED	PROGRAM/ DEGREE	CUMULATIVE CREDITS/GPA	PERIOD OF ATTENDANCE	FULL-TIME/ PART-TIME
LAST HIGH SCHOOL						
COLLEGES AND/OR INSTITUTES						
UNIVERSITIES						

PROVINCIAL EXAM NUMBER:[illegible]

COURSE REGISTRATION

Course Number	Course Ref. Number (CRN)	Course Title	Course Cost(s)		Start Date			Site
			Fee	Special Fee	Month	Day	Year	
TOTAL FEES			+	=				

Payment of Fees: ☐ Full Fees Paid by You

☐ Full Fees Paid by Employer
(Approval Attached)

☐ **Special Arrangement
(Approval Attached)**

FOR "MAIL IN" APPLICATIONS

Paid By: ☐ Cheque/Money Order (Enclosed) Visa**Card No.:**

Month	Year	Expiry Date:		Month Year

Signature: _____

TOTAL AMOUNT PAID

\$

CONSENT AND ACKNOWLEDGEMENT

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

Applicant Signature

Date _____

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

PART-TIME STUDIES REGISTRATION

PERSONAL DATA

Social Insurance Number				Student Name (Last Name, First Name)			
Date of Birth			Sex	Marital Status	Country of Citizenship	Status (If Not Canadian)	
Month	Day	Year	<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> Single <input type="checkbox"/> Married	<input type="checkbox"/> Canada <input type="checkbox"/> Other:	<input type="checkbox"/> Landed Immigrant <input type="checkbox"/> Student Authorization	
Mailing Address (Number and Street)							
City/Town				Prov.	Country		Postal Code
Home Phone Number		Company Name				Company Phone Number	

EDUCATIONAL RECORD

	NAME AND LOCATION	YEARS COMPLETED	PROGRAM/DEGREE	CUMULATIVE CREDITS/GPA	PERIOD OF ATTENDANCE	FULL-TIME/PART-TIME
LAST HIGH SCHOOL						
COLLEGES AND/OR INSTITUTES						
UNIVERSITIES						

PROVINCIAL EXAM NUMBER:[illegible]

COURSE REGISTRATION

Course Number	Course Ref. Number (CRN)	Course Title	Course Cost(s)		Start Date			Site
			Fee	Special Fee	Month	Day	Year	
TOTAL FEES			+	=				

Payment of Fees: ☐ Full Fees Paid by You

☐ Full Fees Paid by Employer
(Approval Attached)

☐ **Special Arrangement
(Approval Attached)**

FOR "MAIL IN" APPLICATIONS

Paid By: ☐ Cheque/Money Order (Enclosed)

Card No.:

☐ MasterCard

Issue Date:

Expiry Date:

Signature: _____

TOTAL AMOUNT PAID

\$

CONSENT AND ACKNOWLEDGEMENT

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

Applicant Signature

Date _____

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

Part-time Studies

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

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

ACADEMIC TERMS

Term 1 (Fall) September to December

Term 2 (Winter) January to March

Term 3 (Spring) April to June

Term 4 (Summer) July, August

ADMINISTRATIVE PERSONNEL

School of Business

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

Regina Trineer, Continuing Education Supervisor, Part-time
Studies

General Information: 432-8581

School of Engineering Technology

Marv Woolley, Dipl.T., A.Sc.T., Acting Director

School of Health Sciences

Kathleen Bach, B.A., Director

Moir Barnetson, R.N., Program Coordinator

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

School of Trades Training

Len McNeely, R.I.A., M.B.A., Dean

ADMISSION

Part-time Studies courses are taught at a level which assumes students have completed Senior Secondary school (Grade 12) or equivalent. Some courses have specific prerequisites or special conditions for entry; these prerequisites or conditions are presented with each course description in this calendar. Proof of prerequisite completion must be shown at the time of registration.

Applicants who are not Canadian citizens, must provide official proof of Landed Immigrant Status or a valid Student Authorization.

REGISTRATION

Registration is course-by-course on a first come, first-served basis. Students must complete a registration form and return it by mail, in person or by fax: 430-1331 if paying by VISA or MasterCard. Mail registration should be forwarded to the Office of the Registrar.

Students may register in person at the Burnaby Campus, or at the Downtown Education Centre. The recommended deadline for registration in person is 2-4 weeks before classes commence, the earlier you register, the likelier you are to get your preferred course(s).

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

NOTE: 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.

Late Registration

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

Cancellation and Restricted Enrollment

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

Part-time Day Course-by-Course Registration

Students may register in courses offered in full-time programs subject to the approval of the Registrar and Program Head, space being available, and official proof that prerequisites have been met.

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

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 on page 5.

The most common course formats are:

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

Guided Learning Courses in Health Sciences theory are offered through self study with telephone tutoring.

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

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

FEES

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 N.S.F.

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

Miscellaneous Fees

Please note the following miscellaneous fees payable for the academic year 1988/89.

NSF/returned cheques	\$ 15.
Duplicate diploma/certificate	50.
Duplicate tax receipt	10.
Duplicate T2202A	10.
Challenge exam fee	Cost of course
Reinstatement/late fee charge	50.
Reassessment of appeal or exam	50. per course
Reassessment of marks	25. per course
Transcript of marks	5. for first copy and \$1. for each additional copy
Course transfer/change charge	15. (Part-time Studies courses only)
Refund processing charge	25. (Part-time Studies courses only)

Cashiers Hours

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

Course Cancellation

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

Course Transfer/Change – \$15 Fee

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

*Course transfer/change must be made by the refund deadline dates listed below.

How to Withdraw

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

Refunds and Deadlines

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

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

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.

Please note that there will be a charge of \$25 per course 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 – (1990) subject to change.

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

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

Additional Expenditures

Textbooks, Instruments and Supplies

Costs vary according to the program and are approximately \$350 to \$800. 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 technologies require purchase of a pocket calculator costing approximately \$150 to \$250.

TRANSFER FROM FULL-TIME TO PART-TIME STUDIES

A student transferring to part-time studies from a full-time diploma program may be granted credit exemption for all courses successfully completed prior to withdrawal from full-time studies. A student who fails one or more subjects in the full-time program is encouraged to consider part-time studies programs.

EXAMINATIONS, GRADING AND MARKS

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

Challenge Exams for Credit

Students may acquire credit recognition for knowledge and skills obtained through independent study and/or work experience. By challenging a course, students claim they already have the knowledge and abilities to be gained from taking the BCIT course. Because of the learning format of some courses, not all are considered challengeable.

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 the evaluator sees fit. 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.

NOTE: 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 "C" is recorded.

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

Return of Examinations

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

Determination of Standing

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

80 - 100%	First Class Standing
65 - 79	Second Class Standing
50 - 64	Pass Standing
0 - 49	Failure
Failure:	%F - less than 50% except some course(s)/program(s) may have a fail grade greater than 50% as outlined in calendar publications.
	F - formal withdrawal after official term deadline.
	OF - unofficial/unapproved withdrawal.
Withdrawal:	W - approved official withdrawal from a course/program.
Satisfactory:	S - course requirements fulfilled, no % mark assigned.
Unsatisfactory:	U - course requirements not fulfilled, no % mark assigned.
Course Credit Granted:	C - recognition of approved equivalent studies outside BCIT.
	- successful Challenge Exam.
Course Exemption:	EC - recognition of previous course completion at BCIT (used only when course numbers differ and/or program goal changes).
Aegrotat:	%A - pass standing granted to a student who has a good term record but has an incomplete evaluation due to illness or other extenuating circumstances.

Adjudicated Pass:	AP - course standing raised to pass level based upon overall performance, permitting the student to continue in the program or to graduate.
Provisional Pass:	%PP - standing granted on the basis that the student will reach a pass standing in a continuing relevant subject area; will be changed to (P)ass or (%F)ail depending on success in the relevant continuing subject area.
Provisional Pass Fulfilled:	P - provisional pass conditions achieved.
Not Complete:	N - course requirements not complete.
Audit:	AU - attended course, no credit given. Student is not formally evaluated and does not write examinations.
Attended Non-Examined Course:	X - no examination or grade given for this course.
Outside Source Grade:	R - refer to outside source for student achievement, eg: Apprenticeship Board for Trades.

Marks Distribution

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

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

Financial Obligation to the Institute

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

Marks Reassessments

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

Students wishing a reassessment of their academic standing must first discuss the matter with the instructor responsible for the initial assessment and, if dissatisfied with the result of that discussion, with the Technology Associate Dean.

Failing a resolution of the problem, students may submit a Request for Reassessment on the Institute form available from the Office of the Registrar. **All parts of the form must be completed and must reach the Registrar's Office within 7 school days after the start of classes in the next term, or within 30 calendar days after the mailing of marks from the Institute, whichever is less.**

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

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

Marks Appeals

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

The student must first discuss the problem with the Dean of the appropriate School. The Dean must provide the Registrar with a written statement confirming the outcome of the discussion.

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

An Appeal Committee will be formed to deal with the appeal according to procedures approved by the Educational Council for that purpose.

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

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

Auditing

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

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

Attendance

See Conduct and Attendance, page 6.

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 three credits.

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

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

Advanced Placement Categories

1. Course Exemption

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

2. Course Credit

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

- (a) course(s) completed at another recognized post-secondary institution;
- (b) approved course(s) that have been completed within or sponsored by a company, government body, or organization;
- (c) documented experiential learning validating mastery in a course based on approved academic evaluation criteria.

3. Unassigned Credit

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

4. Challenge Credit

Where approval has been granted to challenge a course, a formal evaluation procedure takes place. Students' abilities will be assessed through written and/or oral examination, research paper, or other means. As recommended by the Technology, Challenge Credit will only be recorded after the student has completed a specified number of BCIT credits, and only a specified number of Challenge Credits will be allowed for each program.

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

Transfer Credit

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

Transfer Credit Application Procedure

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

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

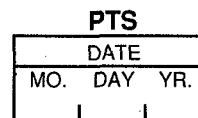
NOTE: It is the responsibility of the student to provide the documentation for a transfer credit application. Failure to submit the required documentation may result in rejection of the transfer credit application.

Please allow 4-6 weeks for processing.

"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.



PTS		
DATE		
MO.	DAY	YR.

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

TYPE OF CERTIFICATE (Please check ✓)

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

Program Name (eg. Financial Management – Accounting Option)

[illegible]

- If transfer credit is requested, TRANSCRIPT(S) and COURSE OUTLINE(S) must be attached.

• If transfer credit is requested, TRANSCRIPT(S) 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	Recorded by -- Signature	Date:
Total Transfer Credits Allowed: <input type="text"/>	Approved by -- Prog. Coord. Part-time Studies	Date:

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

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

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

It is anticipated that this interest and encouragement to employees to develop and upgrade their qualifications will be rewarding to both employee and employer. Enquiries should be directed to the registration office.

CAREER SEARCH WORKSHOPS

These BCIT workshops of four sessions each are designed for adults who have been in the work force for at least two years, who wish to examine their career paths and lifestyles in terms of direction and satisfaction.

The workshops include standardized testing, exploration of career training opportunities, educational resource materials and discussion. Participants are encouraged to clarify their interests, values and abilities, specify goals and develop plans of action.

The workshops are limited to 15 participants. Contact the Student Services Office at 434-3304 for information.

CERTIFICATES AND DIPLOMAS

Certificate Program Approval

BCIT offers certificates through many of its technologies in Business, Engineering Technology and Health Sciences. 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 from Student Records, Registration, Student Services and the program advisors for Part-time Studies. Program Approval forms, and all appropriate documentation should be submitted to the program advisor.

Program approval assures students that their academic efforts will result in the desired certification.

Program approval is required:

- when a student wishes to modify a certificate program outlined in the calendar;
- when a student wishes to amend an approved program;
- when a student requests a transfer credit;
- for all Senior Certificates, Certificates of Technology and National Diplomas of Technology;

- for all combined Engineering Technology and Business Certificates;
- whenever challenge credit is requested;
- when an elective is included in a program;
- when alternative courses are included in a program.

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

Although BCIT has recently changed over from a system of units to the credit system, we are still in the process of reviewing our certificate and diploma requirements in terms of number of credits.

Program Advising

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

At the **Burnaby Campus**, program advisors for part-time studies are available throughout the year. For an appointment, or additional information, please call 434-3304.

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

Business, Engineering Technology and Health Sciences Certificates and Diplomas

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

Senior Business Certificate

After completing the basic Business Certificate, a student may earn a Senior Business Certificate by completing additional approved course credit.

The courses required for a Senior Certificate are published for some technologies. In technologies where no Senior Certificate program is published, the student must seek assistance from a program advisor. All Senior Certificate programs of studies must be approved in advance.

Certificate Programs – Engineering Technology

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

- The Certificate of Technology is awarded for successful completion of an approved program of study of at least 75 credits;

Certificate of Technology programs are technician-level programs developed in response to the needs of students who cannot, or do not wish to, follow a technologist program. Most of these programs will not be exactly equivalent to Year 1 of corresponding BCIT full-time technology programs, but it will be possible for part-time students to ladder into a Diploma program on completion of appropriate courses and to progress to the Diploma full-time or,

in certain technologies, part-time. This will help more part-time students progress to a Diploma of Technology.

- The Intermediate Certificate of Technology is awarded for successful completion of an approved program of study of at least 45 credits. This certificate will be awarded at the same point as the former Engineering Technician Certificate:

If you are presently enrolled in a BCIT Engineering Technician Certificate program, you will be awarded the Intermediate Certificate of Technology on successful completion of your program.

If you are presently enrolled in a Senior Engineering Technician Certificate program your academic standing may be reviewed to see if you have received 75 credits of appropriate courses. If you have, you will be awarded the Certificate of Technology. If not, your program may be modified with a view to awarding the Certificate of Technology on completion.

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 lies with the student. Application should be made only when the student has completed the requirements indicated on their pre-approved program. See section on Program Approval.

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

Diploma of Technology

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

Note:

- a) course credits from a completed degree or diploma program cannot be transferred;
- b) students with a national Diploma of Technology are not eligible for a lesser certificate or a second Diploma of Technology in the same technological area.

DIRECTED STUDY/CORRESPONDENCE COURSES

The Institute offers career-oriented credit and non-credit correspondence courses. For further information contact the appropriate part-time studies departments, or Registration.

Some credit courses in Engineering Technology are available in correspondence format. Many are presently available specifically to meet the requirements of the Transportation Systems (High-

ways) Diploma program, several of these courses are acceptable for credit in other technology programs. Please refer to the Transportation Systems (Highways) program for course descriptions and more information.

A wide range of courses in Forest Technology is presently undergoing review and updating.

For further details on Civil Highway (Transportation Systems) Technology correspondence courses please telephone 432-8784

For details on correspondence courses in Math and Physics contact: Academic Support, telephone 432-8723.

School of Engineering Technology: 432-8521

MOTH courses: Transportation Systems Department: 432-8784

School of Health Sciences: 432-8376

School of Business: 432-8581

Academic Support: 432-8723

INDUSTRY SERVICES

Customized Programs, Consulting and Development Services

BCIT's School of Engineering Technology Part-time Studies staff 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.

Marv Woolley, Acting Director, Part-time Studies
Telephone: (604)432-8261

Computerized Maintenance Program

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

Hardware: IBM PCs or compatibles.

Software: COMAC Computerized Preventive Maintenance System.

Eric Morse, Program Head, Industry Services.
Telephone: (604)432-8638.

Important Dates 1989-90

Fall Term 1989

Tuesday	August 1	Recommended registration deadline for Health Sciences Guided Learning courses commencing September 1.
Monday	August 14	Extended hours for registration begin.
Monday	August 21	Recommended deadline for mail registrations for September intake.
Friday	September 1	Health Sciences Guided Learning courses begin.
Monday	September 4	LABOUR DAY
Monday	September 11	Business, Engineering Technology, Academic Support and Health Sciences courses begin.
Monday	September 18	Trade courses begin.
Monday	October 9	THANKSGIVING DAY
Monday	November 13	REMEMBRANCE DAY (in lieu of)
Monday	November 20	Start of last week for Health Sciences Part-time Studies Fall term.
Friday	December 1	Recommended registration deadline for Health Sciences Guided Learning courses commencing January 3, 1990.
Monday	December 4	Regular hours for registration begin.
Friday	December 15	Recommended deadline for mail registrations for January 1990 courses.

Winter Term 1990

Wednesday	January 3	Extended hours for registration begin.
Wednesday	January 3	Health Sciences Guided Learning courses begin.
Monday	January 8	Engineering Technology, Business, Health Sciences and Academic Support courses begin.
Monday	January 15	Surrey campus Business courses begin.
Monday	January 15	Trade courses begin.
Thursday	March 1	Recommended registration deadline for most Health Sciences courses starting April 4.
Monday	March 26	Start of last week for most courses.

Spring Term 1990

Monday	April 2	Health Sciences Guided Learning courses begin.
Monday	April 9	Engineering Technology, Business, Health Sciences and Academic Support courses begin.
Friday	April 13	GOOD FRIDAY
Monday	April 16	EASTER MONDAY
Tuesday	April 17	Surrey campus Business courses begin.
Tuesday	April 17	Trade courses begin.
Monday	May 21	VICTORIA DAY
Monday	June 18	Start of last week of Health Part-time Studies Spring term.
Monday	June 25	Start of last week for most courses.

School of Business

Faculty and Staff

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

Regina Trineer, Continuing Education Supervisor, Part-Time
Studies

General Information: 432-8581

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B.R.M. Morrow, B. Comm., Associate Dean

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Broadcast Communications Technology 31

B. Antonson, Dipl. T., Associate Dean

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Business Communications/Media Techniques 32

Business Client Studies

Lorne A. Fingarson, B.Comm., Director

Maureen Palfreyman, B.A., M.S.W., Coordinator, Contract Sales
Information: 432-8445

Financial Management Technology 33

G.H. Farrell, Dipl. T., M.B.A., C.M.A., F.C.M.A., Associate Dean

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Hospitality Administration Technology 34

John Bateman, Associate Dean

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M.I. Shacker, B.A., B.B.A., Acting Associate Dean

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Certificate Programs

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

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

For more information, see Course Descriptions and Credits section.

Administrative Systems

Business Certificate in Administrative Management
Business Certificate in Personnel Management
Business Certificate in Operations Management

- Industrial Engineering Option
- Management Engineering Option
- Materials Management Option
- Transportation and Distribution Option

Broadcast Communications

Business Certificate in Broadcast Communications (with specializations in Radio, Television and Broadcast Journalism)
Business Certificate in Business communications /Media Techniques

Financial Management

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

Hospitality Administration

Business Certificate in Hospitality Management Hotel Option
Business Certificate in Hospitality Management Food and Beverage Option
Business Certificate in Flextime Hospitality; includes the Pacific Rim Institute of Tourism Certificate

Marketing Management

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

Specialized or Industry Based Programs

Business Certificate in Building Services Management
Business Certificate in Interior Design

Combined Business and Engineering Certificate Programs

Industrial Management
Technical Marketing

Employment Specific Certificates

Legal Steno-Typist
Medical Office Assistant

Employment Specific Training

Security Officer Training Completion
Cashier Training Completion Certificate

Cooperative Association Programs and Certificates

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 Administration Education Council of British Columbia
American Society for Quality Control Certification Program (ASQC)
Society of Management Accountants of British Columbia (RIA)
Trust Companies Institute
Canadian Institute of Management (CIM)
Canadian Administrative Housekeepers Association (C.A.H.A.)

Senior Certificate and National Diploma of Technology

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

ADMINISTRATIVE SYSTEMS TECHNOLOGY

Administrative Management
Personnel Management
Operations Management
Industrial Engineering
Management Engineering
Material Management
Transportation/Distribution

BUSINESS CERTIFICATE IN ADMINISTRATIVE MANAGEMENT

A. Complete the following

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

B. Complete at least 1 of the following

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

C. Complete:

ADMN 380 Business Law 1
ADMN 480 Business Law 2 or 6
ADMN 385 Business Law (18 Sessions) 4

D. Complete 4 of the following

ADMN 204 Personnel Management
ADMN 324 Interpersonal Skills
ADMN 332 Labor Relations 1
ADMN 432 Labor Relations 2
MKTG 101 Marketing 1

E. Complete 1 of the following

Computer related course or courses with a value of 3 credits

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

Course selection should reflect the student's career objectives.

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

Students involved in, or considering, the Diploma Program must consult with the Program Head. This is especially important since day school requirements in the various areas often exceed certificate requirements (e.g. both ADMN 380 and 480 are required for day school law credit).

BUSINESS CERTIFICATE IN PERSONNEL MANAGEMENT

A. Complete the following

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

B. Complete at least 1 of the following

ADMN 100 Microeconomics
ADMN 200 Macroeconomics
ADMN 306 Economic Issues

C. Complete

ADMN 380 Business Law 1 and
ADMN 480 Business Law 2 or
ADMN 385 Business Law (18 Sessions)

D. Complete at least 4 of the following

ADMN 127 Training Techniques
ADMN 205 Selection Interviewing
ADMN 304 Human Resource Planning
ADMN 305 Salary Administration
ADMN 324 Interpersonal Skills
ADMN 332 Labor Relations 1
ADMN 432 Labor Relations 2

E. Complete 1 of the following

Computer related course or courses with a value of 3 credits

F. Complete the following:

ADMN 444 HR Management Systems

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

Suggested Electives

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

ADMN 127 Training Techniques
ADMN 145 Managing Change
ADMN 150 Business Behavioral Research
ADMN 201 Counselling 1
ADMN 204 Personnel Management
ADMN 205 Selection Interviewing
ADMN 222 Organizational Behavior 1
ADMN 302 Problem-Solving and Decision-Making
ADMN 303 Counselling 3
ADMN 304 Human Resource Planning
ADMN 322 Organizational Behavior 2
ADMN 324 Interpersonal Skills
ADMN 332 Labor Relations 1
ADMN 380 Business Law 1
ADMN 406 Economic Issues for Financial Planners
ADMN 428 Management Simulations 1
ADMN 432 Labor Relations 2
ADMN 480 Business Law 2

MKTG 101	Marketing 1
MKTG 323	Public Speaking and Oral Communication 1
MKTG 324	Small Business Development
OHCE 101	Accident Prevention 1
OHCE 201	Industrial Health & Safety 1: Legislation
OPMT 102	Basic Mathematics of Finance
OPMT 197	Statistics for Business and Industry

Faculty and Staff

Barney Morrow, B.Comm., Associate Dean	Telephone: 434-5734, Local 5229
T. Juzkow, Program Head, Business Administration	Telephone: 434-5734, Local 5222
B. Vanderwoerd, Program Head, Personnel/Industrial Relations	Telephone: 434-5734, Local 5416
L. Johnson, Program Head, Systems	Telephone: 434-5734, Local 5222
G. Storey, Part-Time Studies Coordinator	Telephone: 434-5734, Local 5237

OPERATIONS MANAGEMENT PROGRAMS

Industrial Engineering

Management Engineering

Materials Management

Transportation and Distribution

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

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

BUSINESS CERTIFICATE IN INDUSTRIAL ENGINEERING

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

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

BUSINESS CERTIFICATE IN 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.

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

Materials Management Option

ADMN 124	Supervisory Skills
COMM 183	Technical Report Writing
CPIC 100	Master Planning (CAPIC)
CPIC 200	Inventory Management (CAPIC)
CPIC 300	Material Requirements Planning (CAPIC)
CPIC 400	Capacity and Priority Planning (CAPIC)
CPIC 500	Production Activity Control (CAPIC)
CPIC 600	Just-In-Time Production (CAPIC)
OPMT 106	Manufacturing Quality Assurance 1
OPMT 175	Warehouse Management
OPMT 191	Purchasing
OPMT 198	Productivity Engineering 1
OPMT 298	Productivity Engineering 2
TDMT 409	Exporting and Importing
TDMT 413	Traffic and Transportation Management

BUSINESS CERTIFICATE IN MANAGEMENT ENGINEERING

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

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

TRANSPORTATION AND DISTRIBUTION

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

Transportation and Distribution Option

ADMN 124	Supervisory Skills
OPMT 191	Purchasing
OPMT 192	Inventory Planning and Control
OPMT 198	Productivity Engineering 1
OPMT 298	Productivity Engineering 2
TDMT 101	Geography of Trading 1
TDMT 201	Geography of Trading 2
TDMT 202	Transportation Regulations
TDMT 203	Transportation Economics
TDMT 305	International Trade
TDMT 409	Exporting and Importing
TDMT 410	Strategic Distribution Management
TDMT 413	Traffic and Transportation Management

OPMT 198 Productivity Engineering 1 is the core course for all options. It is a basic course in productivity improvement utilizing proven industrial engineering techniques.

Faculty and Staff

B.R.M. Morrow, Associate Dean, Administrative Systems
Telephone: 434-5734, Local 5805.
G. Murray, Program Head, Operations Management
Telephone: 434-5734, Local 5232.
H. Pevecz, Program Head, Transportation and Distribution
Telephone: 434-5734, Local 5849.
J. Ribic, Part-Time Studies Coordinator
Telephone: 434-5734 Local 5225

BROADCAST COMMUNICATIONS TECHNOLOGY

Radio

Television

Broadcast Journalism

Business Communications/Media Techniques

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

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

First Level Courses

BCST 101	Technical Introduction
BCST 140	Broadcast Industry Organization
BCST 141	Broadcast Sales and Management
BCST 142	The History and Development of Contemporary Music
BCST 143	The Music Business and the Broadcast Industry
BCST 144	Writing for the Media

BCST 145	Copywriting for Radio and TV
BCST 146	Broadcast Advertising and Promotion
BCST 148	Interviewing for Radio and Television
BCST 149	Film Reviewing
BCST 150	Radio Broadcasting Introduction
BCST 151	Radio and TV Announcing
BCST 160	Television Broadcasting Introduction
BCST 161	Film for Beginners
BCST 162	Dramatic Writing for Film and TV
BCST 163	Acting for Television
BCST 164	Scenery Construction for Film and Television
BCST 165	Film and Tape Techniques and Procedures
BCST 167	Production Assistant for Television News
BCST 168	The Role of a Line Producer
BCST 169	Feature Film Analysis
BCST 170	Broadcast Journalism Introduction
BCST 171	Broadcast News Writing
BCST 172	Investigative Reporting
BCST 173	Sportscasting
BCST 174	Broadcast Newsroom Operations
BCST 175	Introduction to Current Affairs
BCST 188	Props for Film and Television
BCST 189	Music Scoring for Film

Second Level Courses (requiring one or more prerequisites)

BCST 222	Theory of Color Television System
BCST 223	Television Production Planning
BCST 252	Radio Commercial and Audio Production
BCST 253	Radio Operations Lab
BCST 260	Television Production Techniques
BCST 262	Writing Scripts that Sell
BCST 263	Television Technical Production

BUSINESS CERTIFICATE IN BROADCAST COMMUNICATIONS

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

Students intending to pursue a Certificate in Broadcast Communications should choose a specific program (Radio, Television or Broadcast Journalism). Each Program requires 8 specific Broadcast Communications courses, 2 elective Broadcast Communications courses, and 7 additional business courses selected from 11 offerings.

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

Radio

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

Television

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

Broadcast Journalism

BCST 144	Writing for the Media
BCST 150	Radio Broadcasting Introduction
BCST 151	Radio and TV Announcing
BCST 160	Television Broadcasting Introduction
BCST 170	Broadcast Journalism Introduction
BCST 171	Broadcast News Writing
BCST 172	Investigative Reporting
BCST 174	Broadcast Newsroom Operations
BCST	***Electives

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

Business electives may be chosen from the following list:

ADMN 110	Management 1
ADMN 200	Macroeconomics
ADMN 211	Management 2
ADMN 222	Organizational Behavior 1
ADMN 380	Business Law
COMM 160	Business and Technical Communication
COMM 171	Business Reports
MKTG 101	Marketing 1
OPMT 197	Statistics for Business and Industry

Entry into the Second Year Day School Program

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

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

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

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

CERTIFICATE PROGRAM IN BUSINESS COMMUNICATIONS/MEDIA TECHNIQUES

This new program is designed for people with an interest in sales, marketing, public relations, motivation, fund raising and internal corporate communications. 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 BUSINESS COMMUNICATIONS/MEDIA TECHNIQUES 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 BUSINESS COMMUNICATIONS/MEDIA TECHNIQUES Certificate Program requires the completion of the following 9 basic and 6 elective courses chosen from the offerings listed below.

Required Basic Courses

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

Elective Courses

ADMN 124	Supervisory Skills
BCST 145	Copywriting for Radio & TV
BCST 144	Writing for the Media
BCST 252	Radio: Commercial Audio Production
COMM 171	Business Reports
COMM 175	Letters and Memos
COMM 183	Technical Reports
FMGT 109	Accounting for the Manager
MDIA 201	Advanced Photography
MDIA 202	Advanced Darkroom Techniques
MDIA 203	Multi-Image Techniques 2
MDIA 204	Graphics Level 2
MDIA 301	Commercial Photography
MDIA 304	Computer Generated Graphics
MKTG 101	Marketing 1
MKTG 201	Marketing 2
MKTG 218	Intro to Media
MKTG 219	Professional Sales 1
MKTG 321	Public Relations 1
MKTG 322	Advertising 1
MKTG 324	Small Business Development
MKTG 348	Media Planning and Buying
MKTG 323	Public Speaking 1
MKTG 427	Creative Advertising Design

Other elective courses are being developed. Check future flyers for additional choices. Not all courses are offered every term. Check current flyers under BUSINESS COMMUNICATIONS/MEDIA TECHNIQUES or other areas such as BROADCAST COMMUNICATIONS or MARKETING for current offerings and specific course descriptions.

Faculty and Staff

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FINANCIAL MANAGEMENT TECHNOLOGY

Professional Accounting Finance

BUSINESS CERTIFICATE IN PROFESSIONAL ACCOUNTING

1) Required Courses

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

2) Must Complete:

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

3) Must Complete at Least One of:

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

4) Electives

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

BUSINESS CERTIFICATE IN FINANCE

1) Required Courses

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

2) Must Complete

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

3) Must Complete at Least One of:

Computer related course or courses with value of 3 credits.

4) Electives

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

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

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

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

Approval for entry to levels 2, 3 or 4 must be obtained from the Associate Dean of Financial Management. An interview will be required. It is recommended that students intending to enter levels 2, 3 or 4 contact the Associate Dean for an interview early in their program of studies. This interview will determine initial suitability for entry to levels 2, 3, or 4.

ASSOCIATE CERTIFICATE IN FINANCIAL PLANNING

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

ADMN 380	Commercial Law (or ADMN 385)
ADMN 406	Economic Issues for Financial Planners
FMGT 109	Accounting for the Manager (or FMGT 101)
FMGT 119	Personal Financial Planning 1
FMGT 317	Taxation and Financial Planning
FMGT 325	Investment and Risk Management
FMGT 444	Personal Financial Planning 2

*For individual course descriptions, see the course descriptions section.

Suggested Electives for All Certificates

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

ADMN 222	Organizational Behavior 1
ADMN 322	Organizational Behavior 2
ADMN 332	Labor Relations 1
ADMN 380	Business Law 1
ADMN 432	Labor Relations 2
ADMN 480	Business Law 2
COMP 104	Computers in Business
COMP 160	Computer Systems Introduction
FMGT 106	Credit and Collections
FMGT 119	Personal Financial Planning 1
FMGT 310	Auditing 1
FMGT 315	Security Analysis 1
FMGT 322	Micro Basic Accounting
FMGT 325	Investment & Risk Management

FMGT 331	Money and Banking
FMGT 406	Auditing 2
FMGT 410	Security Analysis 2
FMGT 441	Financing International Trade
FMGT 444	Personal Financial Planning 2
MKTG 102	Introduction to Marketing
MKTG 323	Public Speaking & Oral Communication 1
MKTG 324	Advertising for the Small Business
TDMT 409	Exporting and Importing

Faculty and Staff

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G. Farrell, Part-Time Studies Coordinator	Telephone: 432-8898

HOSPITALITY ADMINISTRATION TECHNOLOGY

Hotel Food and Beverage

BUSINESS CERTIFICATE IN HOSPITALITY MANAGEMENT – HOTEL OPTION

The program is designed to give students a solid understanding of the Hotel, Motel and Accommodations industry. Courses will provide entry level skills leading to employment as hotel reception clerks, front office supervisors, marketing and sales representatives, housekeeping department supervisors as well as food and beverage positions. The courses required at each level to obtain the Business Certificate in Hospitality and Tourism are as follows. The balance of courses may be selected from the list of electives.

First Level Courses

HOSP 112	Customer Relations and Communication Skills
HOSP 132	Career Exploration for Hospitality Industry
HOSP 205	Front Office Procedures
HOSP 207	Front Office Equipment Practicum
HOSP 211	Orientation and Techniques for the Executive Housekeeper

Second Level Courses

COMP 101	Data Processing Introduction
FMGT 101	Accounting 1
HOSP 306	Bar Management: Lounges and Pubs
HOSP 313	Food and Beverage Control
HOSP 357	Marketing and Sales: Accommodation and Food Service
HOSP 412	Hospitality Management Accounting Electives

BUSINESS CERTIFICATE IN HOSPITALITY MANAGEMENT – FOOD AND BEVERAGE OPTION

This option is designed to give students a broad understanding of the food and beverage industry. Career opportunities exist as food and beverage managers, catering supervisors, food production supervisors, sales representatives, bartenders and food service personnel. Many courses will appeal to those planning to open their own restaurants. The courses required at each level to obtain the Business Certificate in Hospitality and Tourism are as follows. The balance of courses may be selected from the list of electives.

First Level Courses

HOSP 112	Customer Relations and Communication Skills
HOSP 132	Career Exploration for Hospitality Industry
HOSP 203	Introduction to Food and Beverage Management
HOSP 210	Bartending Practices
HOSP 255	How to Start Your Own Restaurant

Second Level Courses

FMGT 101	Accounting 1
HOSP 306	Bar Management: Lounges and Pubs
HOSP 307	Understanding Wines 1
HOSP 313	Food and Beverage Control
HOSP 357	Marketing and Sales: Accommodation and Food Service
HOSP 358	Analyzing Costs and Planning for Restaurants
HOSP 412	Hospitality Management Accounting Electives

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.

ADMN 110	Management 1
ADMN 211	Management 2
ADMN 222	Organizational Behavior 1
ADMN 322	Organizational Behavior 2
COMM 171	Business Reports
FMGT 201	Accounting 2
HOSP 211	Orientation and Techniques for the Executive Housekeeper
HOSP 317	Understanding Wines 2
HOSP 414	Financial Management: Hospitality
MKTG 101	Marketing 1
MKTG 323	Public Speaking and Oral Communication 1

Faculty and Staff

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MARKETING MANAGEMENT TECHNOLOGY

Business Certificate in:

**General Marketing
Marketing Communications
Technical Sales
Tourism**

GENERAL MARKETING OPTION

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 planning, scheduling, control, research, demand development, and sales. The courses required to obtain your certificate are listed below. The balance of courses may be selected from the list of suggested electives.

Non Marketing Courses

ADMN 110 Management 1
COMM 171 Business Reports
FMGT 109 Accounting for the Manager

Marketing Courses

MKTG 101 Marketing 1
MKTG 112 Customer Relations
MKTG 201 Marketing 2
MKTG 205 Marketing of Services
MKTG 219 Professional Sales 1
MKTG 322 Advertising 1
MKTG 340 Marketing Planning Fundamentals
MKTG 341 Introduction to Market Research
MKTG 441 Applications of Market Research
MKTG 501 Strategic Marketing Management

Electives

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

MARKETING COMMUNICATIONS OPTION

This program has two majors; you may select either the Advertising and Sales Promotion major or Public Relations major.

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.

Non Marketing Courses

ADMN 110 Management 1
FMGT 109 Accounting for the Manager

Core Marketing Courses (Applicable to both majors)

MKTG 101 Marketing 1
MKTG 201 Marketing 2
MKTG 218 Introduction to Media
MKTG 219 Professional Sales 1
MKTG 321 Public Relations
MKTG 322 Advertising 1
MKTG 341 Introduction to Market Research
MKTG 348 Media Planning and Buying
MKTG 422 Advertising 2

Specialized Courses

Advertising and Sales Promotion Major (Choose 3)

BCST 145 Copywriting for Radio and TV
MKTG 118 Introduction to Sales Promotion
MKTG 323 Public Speaking and Oral Communication 1
MKTG 342 Trade Show Marketing
MKTG 427 Creative Advertising Design

Public Relations Major (Choose 3)

MKTG 112 Customer Relations
MKTG 321 Public Relations
MKTG 337 Corporate Communications
MKTG 342 Trade Show Marketing
MKTG 433 Advanced Public Relations

Electives

You may choose 1 elective from other options or the suggested list.

TECHNICAL SALES OPTION

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.

Non Marketing Courses

ADMN 110 Management 1
COMM 171 Business Reports
FMGT 109 Accounting for the Manager

Marketing Courses

MKTG 101 Marketing 1
MKTG 201 Marketing 2
MKTG 219 Professional Sales 1
MKTG 220 Managing the Sales Force
MKTG 307 Industrial and Organizational Marketing
MKTG 319 Professional Sales 2
MKTG 335 Marketing and Sales Presentations
MKTG 340 Marketing Planning Fundamentals
MKTG 341 Introduction to Market Research
MKTG 441 Applications of Market Research

Electives

You may choose 2 electives from the suggested list or from other options.

TOURISM OPTION

The growing tourism industry demands highly educated individuals who are able to adapt to rapidly changing conditions. This program is marketing based and will provide you with the essential skills and information required in the Tourism industry. You will have the opportunity to learn about tourism development, marketing, travel and tour operations, and international tourism. The courses required to obtain your certificate are listed below. Additional courses can be chosen from the list of suggested electives.

Non Marketing Courses

ADMN 110 Management 1
FMGT 109 Accounting for the Manager

Marketing Courses

MKTG 101 Marketing 1
MKTG 201 Marketing 2
MKTG 219 Professional Sales 1
MKTG 322 Advertising 1
MKTG 341 Introduction to Market Research

Tourism Courses

TOUR 161 Tourism Fundamentals
TOUR 240 Tourism Geography
TOUR 250 Travel and Tour Operations
TOUR 261 Tourism Issues
TOUR 331 Community Tourism Development
TOUR 431 Developing Conventions and Conferences

Electives

You may choose 2 from the suggested list or from the other options.

Students might consider taking a language as one of their electives.

Suggested Electives

Electives should be chosen to complement career paths. Students may choose from other Marketing Certificate Programs or from the following list:

ADMN 110 Management 1
ADMN 222 Organizational Behavior
MKTG 107 Marketing for the Fashion Industry
MKTG 111 Retail Fashion Buying
MKTG 314 Introduction to International Business
MKTG 320 Merchandising Retailing
MKTG 323 Public Speaking and Oral Communication 1
MKTG 324 Small Business Development
MKTG 325 Importing
MKTG 327 Exporting
MKTG 328 Principles of Property Management
MKTG 335 Marketing and Sales Presentations
MKTG 342 Trade Show Marketing
MKTG 348 Media Planning and Buying
TOUR 212 Basic Japanese
TOUR 213 Basic French
TOUR 214 Basic Spanish
TOUR 331 Community Tourism Development
TOUR 350 Domestic Air
TOUR 351 International Air 1
TOUR 353 Automated Reservations
TOUR 355 Automated Ticketing
TOUR 365 Intermediate Communication in Japanese
TOUR 431 Developing Conventions and Conferences

Faculty and Staff

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SPECIALIZED BUSINESS CERTIFICATES

Building Services Management Interior Design

BUSINESS CERTIFICATE IN BUILDING SERVICES MANAGEMENT

BCIT, in co-operation with the Canadian Building Services Association of British Columbia, is pleased to present the following certificate program.

First Level Courses

ADMN 110 Management 1
ADMN 124 Supervisory Skills
ADMN 211 Management 2
BSMT 100 Maintenance and Control
BSMT 101 Safety and Sanitation

Second Level Courses

ADMN 222 Organizational Behavior 1
ADMN 332 Labor Relations 1
FMGT 109 Accounting for the Manager
OPMT 191 Purchasing
6 Electives

Suggested Electives

The 6 electives should be chosen to complement career goals. The following electives are suggested as a guide for a standard path of studies. Variations from the School of Business courses are allowed if prior approval is obtained from a program advisor.

ADMN 100 Microeconomics
ADMN 127 Training Techniques
ADMN 128 Occupational Safety and Health
ADMN 145 Managing Change
ADMN 201 Counselling 1
ADMN 205 Selection Interviewing
INTD 100 Interior Design Basic
MKTG 101 Marketing 1
OPMT 192 Inventory Planning and Control

BUSINESS CERTIFICATE IN INTERIOR DESIGN

A program designed for those working in or seeking employment in areas such as kitchen outlets, furniture or drapery centres, wallpaper outlets or retail sales. Graduates may also be suited for employment as assistants in a design office. The courses required to obtain the Business Certificate in Interior Design are listed below.

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

Suggested Electives

Two 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.

ADMN 110	Management 1
ADMN 145	Managing Change
ADMN 204	Personnel Management
ADMN 205	Selection Interviewing
ADMN 211	Management 2
ADMN 222	Organizational Behavior 1
MKTG 341	Introduction to Market Research

Faculty

D. Hudson, Part-Time Studies Coordinator

COMBINED BUSINESS AND ENGINEERING TECHNOLOGY CERTIFICATE PROGRAMS

Industrial Management Technical Marketing

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

The British Columbia Institute of Technology 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.

EMPLOYMENT SPECIFIC CERTIFICATES

Legal Steno/Typist Medical Office Assistant

LEGAL STENO/TYPIST CERTIFICATE PROGRAM

CORT 931 Part 1 (30 hours)

CORT 932 Part 2 (54 hours)

This legal steno/typist certificate program will appeal to those seeking advancement into this clerical specialty. The first part is an orientation to legal stenography which will enable students to decide if they wish to pursue this career. The second part includes theoretical and practical work in legal paperwork, documentation, correspondence for law in the fields of civil and criminal, litigation, divorce, labor, wills and estates, corporate and conveyancing. Graduates will be qualified as junior legal stenographers and may work in insurance, estate companies, large businesses and with notaries public. Prerequisite: Typing speed of 45 wpm; shorthand is desirable.

MEDICAL OFFICE ASSISTANT CERTIFICATE PROGRAM

A medical office assistant (MOA) certificate is presented to students who successfully complete MOA: Medical Transcription, MOA: Anatomy and Physiology, MOA: Clinical Procedures, MOA: Office Practice, and MOA: Terminology

Course Descriptions

OFFC 935 Medical Office Assistant: 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 typewriters in this course. Students enrolling in this course should have a medical background, or be working or training to work in a medical office. Prerequisite: OFFC 937.

OFFC 936 Medical Office Assistant: Anatomy and Physiology (42 hours) – Successful graduates of this program will understand human anatomy and physiology. Students learn the parts of the body and how they work together. Course content includes an analysis of the body system and its diseases including the medical terms which describe them. Transcription of medical letters and reports is also included.

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

OFFC 938 Medical Office Assistant: Office Practice (36 hours)

– Students will learn to perform the clerical duties associated with medical office assistance. Essential for students who must understand medical forms, perform private and insurance billing, know about community resources and be proficient in the day-to-day operation of the medical office.

OFFC 939 Medical Office Assistant: Clinical Procedures (36 hours)

– Students will learn the use of medical equipment, how to perform laboratory tests and assist physicians with specific examinations. This course is about 60% theory and 40% hands-on training. Students should have basic secretarial skills before enrolling.

EMPLOYMENT SPECIFIC TRAINING**OFFC 919 Security Officer Training (36 hours)**

– For persons 19 years of age or older seeking employment as security officers. Instruction includes what is expected of a security officer, physical security and locks, parking and traffic control, fire control, bomb threats and search techniques, in-house security, first aid, cooperation with the police, legal aspects and rights of a security officer. Upon successful completion, students will have the necessary training to perform general security guard duties. Applicants will be screened.

OFFC 925 Cashier Training (18 hours)

– Provides practical training in the operation of various types of electronic cash registers. Theoretical instruction is given in clerical procedures, ringing off and cashing out, and public relations. The course is approximately 80% hands-on training. Successful graduates will have marketable skills and may seek employment in cashier/clerk positions.

Course Descriptions & Credits**ADMINISTRATIVE SYSTEMS**

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

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

ADMN 122 Managerial Skills for Administrative Assistants – For persons preparing for career advancement to positions such as administrative assistant or executive secretary. Students completing this course are comfortable in broadening the scope of their work, increasing their responsibilities and taking initiative in their administrative functions. Topics include: role of the secretary; time management principles; expressing ideas; listening skills; handling criticism; group discussion skills. Student participation is stressed to develop communication skills and learn from the experience of others. **3 credits**

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

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

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

ADMN 129 Records and Information Management 1000 – An overview of records management and the basic principles, techniques and operations in the creation, use and maintenance of records, for people involved with records and information management. This course will provide an "ideal program" as a standard to apply to a current work environment. **3 credits**

ADMN 133 Integrated Software ENABLE – This course teaches the use of microcomputers in business applications. ENABLE is designed for students beginning to learn how to use personal computers, but is also sophisticated and powerful enough to appeal to advanced students. ENABLE is integrated software combining word processing, spreadsheet, database, graphics, and telecommunications applications in one, easy to use package. The data communications component provides an overview of how to attach a personal computer through a phone line to other computers – large or small. **3 credits**

ADMN 145 Managing Change – Using experiential techniques, the course deals with the challenges of managing in the contemporary environment. Concerned with conflict, planned change and organization development, content covers each of these subjects and offers an opportunity to facilitate organizational adaptability. **2 credits**

ADMN 170 Government and Business – A basic course helpful to persons seeking a career in Federal, Provincial or Municipal Government and to business people needing to understand the nature, extent and rationale of government involvement in business. Lectures, group discussions and selected readings explore government regulation and support of business enterprises in Canada; government monopoly and combines control policy; legislation and regulation in banking, broadcasting, transportation, labor consumer protection; support programs for various types of economic development; taxation; licensing; marketing boards. **3 credits**

ADMN 180 Computer and Technology Law – An introductory computer law course of interest to students in the financial management and administrative management areas. Students study the practical application of current law to technological change and the use and development of computers. Emphasizes product liability and professional negligence, electronic transfer, computer fraud, criminal law, privacy and the confidentiality of data bank resources, patent and copywrite, and special types of contracts in computers and technology. **3 credits**

ADMN 195 Wordperfect Word Processing – A self paced course in Wordperfect word processing covering all levels of word processing as well as special features such as thesaurus usage, spell check, special application of the menu. Students should have some keyboarding skills to receive the maximum benefit from this course. **3 credits**

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

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

ADMN 202 Course Design: Advanced Training Techniques – This sequel to ADMN 127 develops skills to effectively plan, design, construct and evaluate training programs and courses. This course is intensive and requires considerable commitment from participants to actively demonstrate and assess their developing skills. **3 credits**

ADMN 203 Instruction and Facilitation: Advanced Training Techniques – As a sequel to ADMN 127, this course develops skills necessary to lead and assess training sessions, workshops, simulation exercises, and group sessions. This course is intensive and requires considerable commitment from participants to actively demonstrate and assess their developing skills. **3 credits**

ADMN 204 Personnel Management – An introductory course for those who have recently joined a personnel or industrial relations department or who plan to enter the field. Also valuable to supervisors or managers who must implement or are accountable for administering personnel policies. The student develops an understanding of the personnel function, relationship to management and responsibility to employees. Topics cover major functions emphasizing the practical application of personnel policies and procedures, salary administration, benefits administration and employee relations. **3 credits**

ADMN 205 Selection Interviewing – This course is presented for people in the fields of personnel, management, supervision, or anyone involved in interviewing applicants for employment. It identifies techniques, styles, stages, uses, pitfalls and key points in interviewing, with particular emphasis on questioning techniques and selective listening. Class limited to 20 students. **3 credits**

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

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

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

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

ADMN 304 Human Resource Planning – Designed for anyone in a planning organization involving "people resources". Presents the philosophy of techniques used in utilizing people potential within organizations. Topics include manpower planning, methods of evaluating present resources, future projections, sources of supply, identifying training needs, related personnel policies, budgeting and costing, and program evaluation. **4 credits**

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

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

ADMN 322 Organizational Behavior 2 – Persons in counselling situations or with leadership responsibilities who have completed part 1, will benefit from a deeper appreciation of motivation theory and its application. Examine theories of people and management and how to understand and cope with human behavior in the world of work. Topics include organization culture attitudes and their importance in change, leadership styles, and conflict in goals and objectives. **3 credits**

ADMN 324 Interpersonal Skills – This course will help the practitioner develop interpersonal skills through hands-on role playing and experimental learning exercises. **3 credits**

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

ADMN 380 Business Law 1 – A study of legal rules and principles which guide decisions involving the law of contracts, including the sale of goods and negotiable instruments, as well as the business associations of agency, partnership and the company. **3 credits**

ADMN 385 Business Law – A condensed 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. **3 credits**

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

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

ADMN 428 Management Simulations 1 – A basic introduction to decision-making in a simulated organization. The student has the opportunity to run one of several companies in an industry. Decisions range through product development, price, selling strategies, production strategies and financial control. **4 credits**

ADMN 432 Labor Relations 2 – A thorough explanation of collective administration, agreements, wage issues, economic supplements, arbitration, mediation, preparation for collective bargaining and collective bargaining techniques. Prerequisite: ADMN 332. **6 credits**

ADMN 480 Business Law 2 – A continuation of ADMN 380, this course will cover Canadian Law through assignments, lectures and case studies. **3 credits**

BROADCAST COMMUNICATIONS

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

BCST 140 Broadcast Industry Organization – For people interested in finding out how the broadcast industry operates from an organizational point of view, who want more information about the operation of our Canadian Broadcasting System and its relationship with the rest of the world. Discussions centre on individual station hierarchies, the Canadian Radio-Television and Telecommunications Commission, the Canadian Association of Broadcasters, Provincial and Regional Associations, international affiliations and associations, regulatory agencies and broadcast-related industries, and the CBC. Also offered as a Directed Study course. **3 credits**

BCST 141 Broadcast Sales and Management – Through a combination of informal lectures, guest speakers and tours of local broadcasting stations, students obtain a unique insight into the complexities involved in the operation of a broadcast outlet as a business. Lectures cover sales, sales management, advertising (theory and practice), sales and station promotion, advertising agencies, programming, an overview of economics in broadcasting, market measurement, contemporary management styles, computers in broadcasting, etc. **3 credits**

BCST 142 History and Development of Contemporary Music – Examines changes that have taken place in popular music over the past few decades. Topics are approached through informal lectures and guest speakers. Considerable time is spent auditioning, analyzing and discussing recordings of the major contributors to the development of today's contemporary music. **3 credits**

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

BCST 144 Writing For The Media – A practical guide to freelance writing for radio and television in preparation for writing opportunities with CBC Information Radio, CBC Television, The National Film Board and other markets. Emphasizes proper formats, writing styles, use of equipment and professional business practice, as well as assisting writers to package material for sale. **3 credits**

BCST 145 Copywriting For Radio and TV – The “how” and “why” of writing radio and TV commercials. Ideal for non-production or writing employees in broadcasting looking for a move into this area, and for anyone wishing to explore copywriting as a career. **3 credits**

BCST 146 Broadcast Advertising and Promotion – Discusses various aspects of advertising and promotion for broadcast stations, including developing promotional concepts, marketing of broadcast stations and market studies. **3 credits**

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

BCST 149 Film Reviewing – Provides the student with increased appreciation for the techniques of modern film making and the necessary skills for professional reviewing for radio, TV and print media. **1 credit**

BCST 150 Radio Broadcasting Introduction – For people contemplating a career in radio broadcasting or currently employed in non-broadcast positions in the industry who wish to move into the operations area of a radio station. Introduces broadcast equipment, station operation and hierarchies, regulations, commercial production, broadcast procedures and jargon. **3 credits**

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

BCST 160 Television Broadcasting Introduction – Designed for persons interested in television broadcasting as a career, and those working in non-production areas. Introduces the theory and procedures of television equipment necessary to the operation of a TV station. Participants operate equipment in production exercises to produce full-length programs. **3 credits**

BCST 161 Film For Beginners – Introduces the basics of professional film making including scripting, equipment operation and filming techniques, to people who are interested in cinematography. Additional topics are optical and magnetic sound, special effects, animation, lighting and editing. Note: A laboratory fee will be assessed to cover cost of processing film. **3 credits**

BCST 162 Dramatic Writing For Film and TV – Provides a solid base for people interested in pursuing opportunities in the expanding areas of film and television dramatic script writing. As the satellite age develops, programmers are seeking more and more material to supply new programming to the dozens of available channels. This course addresses that demand and prepares students for these opportunities by discussing the many different approaches to dramatic writing, the special techniques involved, different types of scripts, marketing of material, etc. **3 credits**

BCST 163 Acting For Television – Studies the workings of television as it affects the actor. Become better equipped to audition for professional productions in the local market. **3 credits**

BCST 164 Scenery Construction for Film and Television – Basic staging terms, how to construct basic scenic elements and read studio and scenery design plans. Some knowledge of tool use is required. **3 credits**

BCST 165 Film and Tape Techniques and Procedures – This course will broaden the scope of application and professionalism of anyone pursuing a career in the film industry. **3 credits**

BCST 167 Production Assistant for TV News – Students learn the skills and production assistant techniques used in television news. **3 credits**

BCST 168 The Role of a Line Producer – Provides the student with the tools to operate as an assistant producer or an independent producer setting up a small company. **3 credits**

BCST 169 Feature Film Analysis – The directorial styles of major film directors will be analyzed. **3 credits**

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

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

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

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

BCST 174 Broadcast Newsroom Operations – Provides students with the opportunity to acquire practical skills in the preparation and delivery of radio newscasts. The student receives training in newsroom equipment and instruction in news writing, newscast lineup and announcing. **3 credits**

BCST 175 Introduction to Current Affairs – A course for those individuals thinking of going into current affairs as a career. Topics include researching, writing, formatting; how to put a program on the air, using audio tape recordings, and producing and directing radio programs in the studio. **3 credits**

BCST 188 Props for Film and Television – Designed for individuals who have an interest in props design and procurement for motion picture and television production. Topics include script breakdown, what questions to ask about props, how to build props, deciding whether it is cheaper to buy or build props, and making props. **3 credits**

BCST 189 Music Scoring for Film – For those individuals who have a background in music and an interest in music scoring for film and television. Students will study the aesthetics and techniques of producing music for this specialized medium, and will follow the scoring process step-by-step. **3 credits**

BCST 222 Theory of Color Television Systems – Provides the student with the basic theory necessary to understand the color television system and the operation of the various system components. **3 credits**

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

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

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

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

BCST 262 Writing Scripts that Sell – This course is taught by top professionals in the field of television script writing and production. Of interest to individuals who wish to pursue script writing as a career. **3 credits**

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

CANADIAN ASSOCIATION FOR PRODUCTION AND INVENTORY CONTROL

CPIC 100 Master Planning – A company, like an airliner, needs a flight plan to know where it is going. For a manufacturing facility, the production plan is that flight plan since it expresses the desired rate of production in aggregate terms for each month. The course includes production planning, forecasting policies and procedures, Master Production Schedule (MPS) policies and procedures, factory requirements planning, and measuring performance. CPIC 100 is the lead-off course in the CPIC 100 through CPIC 600 series. It is recommended (but not essential) that students take this course first. **3 credits**

CPIC 110 Principles of Inventory Control – An introductory course that covers basic practice in inventory planning and control applicable to a wide range of industries, including: physical control and custody, forecasting, replenishment quantities and timing, material requirements planning (MRP), distribution, purchasing, integrated inventory control systems and just-in-time production. This course provides an overview of the material covered by courses CPIC 100 through CPIC 600. **3 credits**

CPIC 200 Inventory Management – Encompasses the principles, concepts and techniques for deciding what items to order, how much to order, when they are needed, when to order, and how and when to store them. Topics include inventory functions, inventory costs, independent versus dependent demand, stores management, inventory segregation, lot sizing (independent), re-

plenishment rules (independent), safety stock (independent), distribution inventories and aggregate measures. **3 credits**

CPIC 300 Material Requirements Planning (MRP) – MRP or time-phased material requirements planning is a set of techniques that evolved from an approach to inventory management which combines calculating dependent demand items in a time-phased format. Topics include bills of material, MRP concepts, lot sizing and safety stock, closing and loop, master production schedule concepts and master production schedule types. **3 credits**

CPIC 400 Capacity Management – Capacity Management is the function of establishing, measuring, monitoring and adjusting limits or levels of capacity in order to execute manufacturing schedules. Topics include: establishing and maintaining work centre capacity, the capacity requirements planning process (CPP), analyzing results and providing solutions, and controlling capacity. **1.5 credits**

CPIC 500 Production Activity Control – Production Activity Control (CPAC) includes the principles, concepts and techniques for deciding which manufacturing jobs should be worked on and when. The course includes push and pull production systems, order release, shop floor control and data collection, and repetitive/ process manufacturing. **1.5 credits**

CPIC 600 Just-In-Time Production – JIT production means buying and producing in very small quantities just-in-time for use. The absence of extra inventories creates an environment in which it becomes extremely important to run an error free operation because there is no buffer of excess parts to keep production going when problems occur. Topics include: risks and benefits, the JIT philosophy, worker involvement, inventory issues, total quality, vendor programs, plant layout and equipment, and implementation. **2 credits**

COMMUNICATION

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

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

COMM 175 Letters and Memos – Learn written communication skills for use in and out of the office. Internal correspondence includes routine requests, replies and short, informal memos. External correspondence includes requests, reply, sales and collection letters. Job applications and resumes are covered. **3 credits**

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

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

COMPUTER SYSTEMS

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

FINANCIAL MANAGEMENT

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

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

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

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

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

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

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

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

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

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

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

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

FMGT 307 Finance 1 – Those with little or no knowledge of financial management will study the various methods of optimizing the economic position of a firm. Middle management people in business finance will learn to make the best decisions on the financing of a firm. Topics include control and financial management of the business firm, profit planning, cash and capital budgeting and inventory control. Prerequisite: FMGT 201. **4 credits**

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

FMGT 314 Financial Accounting 1 and 2 Accelerated – This course is equivalent to FMGT 302/402 and offers both financial accounting courses in 15 weeks. Prospective students are cautioned against enrolling in the course unless they have a reasonable background in financial accounting and are prepared to spend a minimum of 12 hours per week out of class working on the course material. See FMGT 302/402 for details. Prerequisite: FMGT 201. **11.5 credits**

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

FMGT 316 Taxation 1 – Introduces individuals with little or no income tax knowledge to the basics of Canadian income tax. The course constitutes the first half of taxation with FMGT 408 completing it. Topics include tax information sources, residency, classes of taxpayers, employment income, business income, investment income, capital cost allowance and capital gain rules. Prerequisite: FMGT 201. **3 credits**

FMGT 317 Taxation and Financial Planning – Refer to FMGT 316 description. Prerequisite: FMGT 101 or FMGT 109. **3 credits**

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

FMGT 320 Financial Accounting 1L – Permits students to start financial accounting in January. The course covers the equivalent of FMGT 302 and the first 6 weeks of FMGT 402 for a total of 18 weeks of the 30 week presentation. The remaining 12 weeks can be completed either by taking FMGT 402 over 6 weeks, on a 2 nights per week basis commencing in May, or over 12 weeks commencing in September. See FMGT 302/402 for details. Prerequisite: FMGT 215. **7 credits**

FMGT 325 Investment and Risk Management – An overview of Canada's capital markets including a review of securities, international funds, insurance aspects and other financial institutions. Emphasizes portfolio input from a financial planning perspective. Prerequisite: FMGT 119. **3 credits**

FMGT 331 Money and Banking – The study of money and money substitutes, currency supply, creation of credit; uses of money; practices, policies, functions and services of commercial banks; central banking and monetary control; objectives and techniques of monetary policy and debt management; financial assets and financial markets; money and the international economy. **3 credits**

FMGT 339 Finance 1L – Topics include control and financial management of the business firm, profit planning, cash and capital budgeting and inventory control. **4.5 credits**

FMGT 401 Cost and Managerial Accounting 2 – Enables the student who has completed FMGT 301 to understand cost accounting techniques which assist management in planning, control, income determination and decision-making. The course emphasizes direct costing, relevant costs, cost allocation, capital budgeting, inventory planning and valuation, joint and by-product costs, process costing, payroll; factory ledgers and decentralization, and transfer pricing. Prerequisite: FMGT 301. **5.5 credits**

FMGT 402 Financial Accounting 2 – Completes the study of intermediate accounting necessary for employment in more responsible accounting positions. Topics include cost, valuation, presentation, income measurement problems associated with long term assets and liabilities shareholders' equity accounts, income tax allocation, statement of charts in financial position, statements from incomplete data, accounting changes and price-level and fair-value accounting. Prerequisite: FMGT 302. **6.5 credits**

FMGT 404 Finance 2 – How to raise capital to finance a firm. Topics include the cost of capital; short, medium and long term financing leasing; refinancing; security analysis; the Canadian capital and money markets and pension portfolios as they affect business decisions of the Canadian firm. Prerequisite: FMGT 307. **5.5 credits**

FMGT 406 Auditing 2 – Follow-up to FMGT 310. The student studies general auditing principles and specific audit procedures and learns to critically assess accounting procedures. Topics include auditing assets, liabilities, owner's equity, revenues, cost, expenses, financial statements and audit reports. A short audit case will be undertaken. Prerequisite: FMGT 310. **5.5 credits**

FMGT 408 Taxation 2 – Students expand on the study of Canadian income tax begun in FMGT 316 and become aware of the complexities and problem areas involved in tax planning. Topics include tax on individuals (including proprietors and partners), corporations and trusts, corporate surplus distributions, international income, appeal procedures, tax planning and tax avoidance versus tax evasion. Prerequisite: FMGT 316. **3 credits**

FMGT 410 Security Analysis 2 – Techniques and principles of security analysis: valuation of securities; analysis of risks inherent in all types of fixed income investments. Emphasizes the investment setting, the securities market, investment timing and portfolio analysis of both individual and institutional investors. **3 credits**

FMGT 419 Cost and Managerial Accounting 2S – As a follow-up course to FMGT 319, FMGT 419 completes the last portion of the cost accounting courses. See FMGT 401 for details. Prerequisite: FMGT 319. **3 credits**

FMGT 420 Financial Accounting 2S – The follow-up course to FMGT 320, enables students to complete the last portion of the financial accounting course. See FMGT 402 for details. Prerequisite: FMGT 320. **3 credits**

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

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

HOSPITALITY ADMINISTRATION

HOSP 109 How to Start a Restaurant – Teaches the essentials of becoming a food service entrepreneur. Topics include site selection, construction and lease considerations, marketing and financial plans, and franchising. Employee selection, training and evaluation techniques are also covered. **3 credits**

HOSP 112 Customer Relations and Communication Skills – For those in contact with the public including travel clerks, ticket agents, restaurant staff, desk clerks and others serving or anticipating serving the travelling public. Students learn to speak confidently and clearly to customers; use good telephone techniques; deal effectively with a variety of unusual situations; demonstrate and practice good communication skills (attending, listening, responding); and analyze their personal grooming and professional appearance. **3 credits**

HOSP 132 Career Exploration for the Hospitality Industry – Discusses career opportunities in hotels, motels, food service operations, resorts and related industries. Training opportunities in B.C. (full-time and part-time), entry requirements into the job market, specific job functions and working conditions, employment and advancement opportunities, preparation of a systematic plan for career decision-making. **1.5 credits**

HOSP 203 Introduction to Food and Beverage Management – Persons intending to enter the food service industry with management/ownership as a goal are challenged to consider the many facets and multiple pitfalls of this industry. The student studies basic organization of a food enterprise or department; theory and classification of foods; equipment and supplies needed and purveyors available; basic elements of aesthetics and design; the importance of menu, location, plant layout; basic cost controls; setting of objectives; sanitation and storage principles. **3 credits**

HOSP 205 Front Office Procedures – For persons with little or no hotel/motel experience or those employed in hotels/motels, to broaden their employment opportunities. The course offers theoretical and simulated practical training in most aspects of front office operations. Students study the specific functions of the front office department and learn to perform the duties of a front desk clerk in a hotel/motel after a brief period of on-the-job training. Topics include who does what in a hotel/motel, personal requirements of a front desk clerk, reservation systems, dealing with guests, management and fellow employees, effective sales techniques, cash and credit handling, handling emergencies, career opportunities and steps to gaining employment as a desk clerk, communication skills. **3 credits**

HOSP 207 Front Office Equipment Practicum – Enables students to operate a variety of machines and systems used in hotels to develop guest accounts and balance daily night audits. The course demonstrates and allows practise in procedures and transactions relating to posting of credits and debits to accounts, handling city ledger, cash reporting, correcting guest folio errors, dealing with memory capacity machines and hand transcripts. Systems include hand transcript method, NCR 4200 posting machine and microelectronic machines. Approximately 27 hours of instructor monitored learning is supplemented by nine hours of self instruction and small group instruction. **1.5 credits**

HOSP 210 Bartending Practices – For those wishing to work in the restaurant industry or to upgrade bartending skills. The student studies the mixing of drinks and their recipes. Coupled with waiter/waitress training or practical experience, the student may then work in an operation selling alcoholic beverages. The course includes practical experience behind a cocktail bar with emphasis on mixing, glassware, service and knowledge of wines, spirits, beer and liquors. A variety of dates and weekday formats are available. Class size is limited. **3 credits**

HOSP 211 Orientation and Techniques for the Executive Housekeeper – An introduction to opportunities in industrial, institutional and hotel housekeeping. Persons employed in related fields wanting career advancement are encouraged to participate. The course is under consideration by the National Executive

Housekeepers Association, Inc. for credit toward the NEHA Certificate. Please contact a program consultant for more information. Topics include housekeeping as applied to hotels, motels, clubs and schools; health-related institutions such as hospitals, nursing homes and places of incarceration; office complexes, factories; chemical, pharmaceutical and food organizations, etc.. Basic procedures and surfaces to be cleaned; selection of equipment and supplies; selective and unusual cleaning procedures; cleaning standards and inspection; work measurement and simplification; time/motion study, etc. NEHA examinations and in-class demonstrations may be required for NEHA accreditation. **3 credits**

HOSP 303 Dining Room Service – Introduces persons with limited experience in restaurants to fundamental techniques and prerequisites for successful operation of a quality dining room. Focus is on the supervisory role. With some practical experience, students can assume responsibilities at the junior management level. Topics include staff and other supervisory responsibilities; hiring of personnel, menu terminology, salesmanship, equipment, table settings and arrangement, service techniques, staff scheduling and safety, fundamentals of table-side cooking. A nominal lab fee may be required. **3 credits**

HOSP 306 Bar Management: Lounges and Pubs – Designed for prospective managers and owners of lounge and pub operations, this course discusses techniques for successful and profitable beverage sales operations. Develops and enhances managerial skills for neighbourhood pubs and cocktail lounges in hotels, restaurants and clubs. The course focuses on principles of management, internal controls, supervision of employees and their functions as related to drink production and service, inventory control procedures, liquor costing and sales controls, guidelines for purchasing accessories; equipment and supplies, cocktail lists and in-house merchandising ideas. Prerequisite: HOSP 201 or practical experience. **3 credits**

HOSP 307 Understanding Wines 1 – Presents the origins, production, marketing, sensory evaluation and service of domestic and imported wines focusing on wine in restaurants. The student learns to describe the characteristics of popular wines and spirits, their growing and processing; the requirements for storing and handling wines; how to distinguish basic types of wine using acceptable tasting procedures; how to conduct staff training sessions on the merchandising aspects of wines in restaurants, and how to identify elements of spirits and liqueurs. Lectures, film and slide presentations, discussions, field trips, guest presentations, samplings and student projects, cover the wine growing process, wine making, geographical and grape differences, government regulations, label terminology, storage and selling techniques, serving procedure and staff training. **4 credits**

HOSP 313 Food and Beverage Control – Discover the fundamentals of food service industry internal control procedures and information systems for food and beverage operations of all types. The course deals particularly with interpretation of information and making appropriate management decisions. Participants should have an aptitude for basic arithmetical calculations. Major control points studied include sales, ordering, purchasing and receiving, storeroom, inventory and production (costing). **4 credits**

HOSP 317 Understanding Wines 2 – This continuation of HOSP 307 covers recent developments in grape growing and commercial wine making, and examines major growing regions in greater depth. Students study grape growing and wine making at the technical level, wine classification systems in France, Australia and California, and the taste characteristics of varietals from major regions. **1.5 credits**

HOSP 357 Marketing and Sales: Accommodation and Food Service – An introduction to basic marketing and sales techniques, emphasizing the hospitality industry. Students evaluate case studies and develop realistic sales programs. Includes marketing theory; principles of marketing, product cycle, gathering and application of research, interpretation of trends; forecasting; positioning your package for consumer acceptance; applying marketing objectives to the production of sales material, advertising copy and layout; evaluation of media productions, developing an annual promotional budget. Consideration of personal selling and practice in making sales calls are all covered in this course.
3 credits

HOSP 412 Hospitality Management Accounting – Persons with accounting experience study the specific accounting principles and procedures of hotel and restaurant operations. Students study hotel and restaurant departmental income statements and balance sheets enabling them to interpret and analyze the results. Management tools such as the break-even technique, budgeting and investing are discussed. The course is problem oriented and an understanding of general accounting principles is beneficial.
3 credits

HOSP 414 Financial Management: Hospitality – Presents practical illustrations for financial decision-making. This is the senior course in the finance/accounting area that has direct application to the hotel food service industry. Students learn how to develop financial goals for a company and obtain financing to meet objectives; prepare cash budgets; determine rates of financial return; calculate costs of stock; develop plans for a feasibility study. The course is problem-solving in nature, with the instructor available for consultation and practical assistance. Prerequisite: HOSP 412 or FMGT 101, or previous accounting experience.
3 credits

INTERIOR DESIGN

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

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

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

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

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

INTD 301 Graphic Presentation – Develops the student's ability to present design plans, elevations and perspectives. Subjects include the importance of presentation in the design process,

seeing texture graphically, presentation methods in rendering plans, elevations and perspective sketches. Prerequisite: INTD 302 (65% minimum).
3 credits

INTD 302 Interior Design Drafting 3 – Students study the reflected ceiling plan, organization of its legend and specification, types and characteristics of lighting. Students complete one major assignment combining plans, elevations, sections, perspectives, lighting plans and specifications. Prerequisite: INTD 102, 202.
3 credits

INTD 304 Space Planning 1 – Introduces factors in space planning including zoning and circulation considerations. Topics include social and private areas in the home, kitchens and types of plans and renovations. Prerequisite: INTD 100, 302 (65% minimum).
3 credits

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

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

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

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

INTD 404 Space Planning 2 – Introduces factors in commercial space planning and problem-solving using recognized factors. Topics include offices, restaurants and retail stores. Prerequisite: INTD 100 and 304 (65% minimum).
3 credits

MARKETING MANAGEMENT

MKTG 101 Marketing 1 – An introduction to the marketing environment and marketing institutions. Part 1 of a two term course that includes detailed studies of the basic marketing functions, marketing research, product planning, selection of trade channels, merchandising, advertising, sales promotion and salesmanship. The course covers marketing of consumer and industrial goods. For students requiring only a 1-term marketing course, Marketing 101 will provide enough information about marketing to satisfy their needs.
3 credits

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

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

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

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

MKTG 201 Marketing 2 – A continuation of MKTG 101. See MKTG 101. Prerequisite: MKTG 101. **4 credits**

MKTG 205 Marketing of Services – Covers the development of a marketing mix for companies in service industries. The course will focus on the differences between developing strategies for services rather than products. Prerequisite: MKTG 101. **3 credits**

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

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

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

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

MKTG 314 Introduction to International Business – Examines marketing strategies for international markets. Includes importing and exporting procedures, international logistics, trading characteristics of trading nations, and the advantages and disadvantages of international development. **3 credits**

MKTG 319 Professional Sales 2 – Examines power selling. Students will learn about power phrases, buying signals, buying motivation, getting attention, arousing interest, sales interview process, selling more, selling the end result, art of persuasion, benefits, and value versus price; how to deal with no's, prospect-

ing for sales, selling yourself and your company, generating sales through telephone and follow-up techniques, goal setting and personal motivation. Prerequisite: MKTG 219 or related experience. **3 credits**

MKTG 321 Public Relations – For anyone in business, government, municipalities, associations and organizations, responsible for internal and external communication. Students learn to fulfil their information and communication assignments with increased confidence and competence. Topics include planning and executing a public relations program; communication techniques, principles of news writing and preparation of news photographs; utilizing the media; press and community relations; external/internal communications and meetings. Prerequisite: MKTG 101 or related experience. **3 credits**

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

MKTG 323 Public Speaking and Oral Communication 1 – Emphasizes the development of public speaking skills and the principles of effective oral communication. Topics include communication as it applies to public speaking and the rudiments of improving the speaking voice. Films, buzz groups and closed circuit TV are utilized. Each person is expected to prepare and deliver an oral assignment weekly. **3 credits**

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

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

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

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

MKTG 335 Marketing and Sales Presentations – This course examines the essential aspects of successful oral and visual presentations. Topics include developing delivery methods, presentation construction, types of presentations and use of visual aids. Skills and techniques for delivery of effective presentations will also be covered. **3 credits**

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

MKTG 340 Marketing Planning Fundamentals – A decision-making oriented course. Students will be expected to apply the concepts of marketing and planning to real world situations. The course will include market forecasting, buyer behavior, product planning, pricing, distribution, and communication strategies. Prerequisite: MKTG 201, 341. **3 credits**

MKTG 341 Introduction to Market 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 201. **3 credits**

MKTG 342 Trade Show Marketing – Examines how a trade consumer show is an effective marketing opportunity for businesses of all sizes. How to select shows and setting up exhibits. Boothmanship, organizational interrelationships amongst all levels of organization, how to follow up and monitor results. **3 credits**

MKTG 348 Media Planning and Buying – The development and execution of the media plan. Close contact is maintained by students with agency media buyers and other industry factors to ensure a practical direction to the course. Quantitative media planning techniques are evaluated in light of most recent computer applications. The main objective of this course is to provide marketable skills in media planning and buying to qualify students for career entry consideration in advertising agencies. Prerequisite: MKTG 322, 218. **3 credits**

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

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

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

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

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

MEDIA TECHNIQUES

MDIA 099 Photography (Entry Level) – Through classroom lectures, demonstrations and practical assignments, students will learn to select and handle a 35 mm single lens reflex camera and accessories, and understand basic photographic concepts. Persons with an interest and little or no previous experience in photography are encouraged to enroll in this exploratory course to foster that interest and determine their potential. All students must bring a 35mm SLR camera with 50mm lens to class. **non credit**

MDIA 101 Professional Photography – Through classroom lectures, demonstrations, practical assignments and projects, students will be able to select and handle a wide variety of 35mm equipment, the correct film type and exposure for maximum results. During practical darkroom sessions, students will learn to process and print black and white film, and set up a darkroom. A studio session will give students the opportunity to handle lighting equipment and take a portrait. **3 credits**

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

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

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

MDIA 201 Advanced Photography – Classroom lectures, evaluations, demonstrations, practical assignments and projects, enable students to develop the skills needed to meet clients' requirements working from a layout/concept. During 2 darkroom sessions, students will develop their mastery of black and white processing and printing. Two studio sessions introduce students to make-up techniques for fashion portraiture, selection and handling of medium format camera equipment and accessories, set up and organization of a small studio. Assignments enable students to build portfolios for presentation to prospective clients. **3 credits**

MDIA 202 Advanced Darkroom Techniques – Students develop the basic skills required to make high quality enlargements in black and white, and color, from negatives and transparencies, using sophisticated darkroom equipment and techniques. Gives the commercial photographer and the serious amateur the knowledge and experience to set up their own darkroom and deal with photographic labs at a professional level. All darkroom materials and chemicals are included. Students must have a 35mm camera with lens. **3 credits**

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

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

MDIA 206 Effective Presentation Techniques – Consists of two sections designed to prepare students to present material effectively. The 1st section concentrates on effective spoken techniques, including breathing, emphasis, phrasing, etc. The 2nd section deals with effective and proper use of grammar. The course is ideal for those who prepare and present written and spoken material in today's corporate world. **3 credits**

MDIA 207 Preparing the Corporate Video – Covers the methods and techniques used to plan, organize, write and execute a video production that will have a positive effect, whether the desired result is an improved profit picture or effective presentation of a message. **3 credits**

MDIA 301 Commercial Photography – Enables students to set up and manage a commercial studio; select and handle large format cameras and accessories and studio lighting equipment; understand how to market services to prospects and create a working relationship with clients; do a variety of assignments and work from layouts. Students will learn the professional techniques for developing a powerful personal portfolio. **3 credits**

MDIA 304 Computer Generated Graphics – The use of computers has altered the way business communications develop print and slide graphics. This course gives students a hands-on opportunity to learn the theory and development of computer generated graphics, and their applications in audiovisual presentations. **3 credits**

OPERATIONS MANAGEMENT

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

OPMT 102 Basic Mathematics of Finance – Discusses interest and its effects upon business and industry. The student learns to discriminate between common situations, apply necessary analysis and perform appropriate calculations. Topics include simple and compound interest, present values and discounts, annuities, evaluation methods and basic replacement analysis. Prerequisite: Basic algebraic skills to at least the Grade 11 level. Others should consider OPMT 099. **3 credits**

OPMT 103 Quality Control Methods 1 – A basic statistical quality control course focusing on control charting methods. The course will cover basic principles of pre-production process capability studies and process control production. This course and OPMT 201 will assist students preparing to write the A.S.Q.C. Certified Quality Technician Examination. **3 credits**

OPMT 105 Engineering Economics – Emphasizes the importance of making sound economic decisions when faced with alternative methods of solving technical problems. Provides the basic skills and concepts required to analyze comparative costs and to understand the time value of money (interest), inflation, depreciation, running costs, salvage value and tax considerations. **4 credits**

OPMT 106 Manufacturing Quality Assurance 1 – An introductory course. Topics include quality management programs designed to meet industrial and national standards. This course will assist students preparing to write the A.S.Q.C. Certified Quality Technician Examination. **3 credits**

OPMT 115 Software Quality Assurance – Covers the application of quality assurance principles to the development of computer software. The course will appeal to those students involved in software development who want to meet modern requirements for design, verification and re-useability. **3 credits**

OPMT 132 Statistics for Financial Management – This course will enable students to acquire skills in summarizing and analyzing data using descriptive and inferential statistical techniques. Topics include graphical presentation of data, measures of location and variation, elementary probability, estimation, hypotheses testing, linear regression, correlation, index numbers and time series. Emphasis is on practical applications in the field of financial management. **5.5 credits**

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

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

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

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

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

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

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

OPMT 197 Statistics for Business and Industry – A comprehensive study of elementary statistical methods as applied to objective decision-making. Suitable for persons requiring statistics to initiate market research, audit sampling, control quality, control inventory and forecast business. The course includes an introduction to the use of statistics in business and industry; descriptive statistical techniques, collection and treatment of data; a review of elementary set theory and probability; inferential statistical topics: sampling, estimation, hypothesis testing, goodness of fit, regression analysis, correlation and time series analysis. **4.5 credits**

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

OPMT 203 Quality Control Methods 2 – Provides students with the opportunity to learn and apply the principles of Acceptance Sampling. **3 credits**

OPMT 206 Quality Assurance 2 – This course continues from OPMT 106. It examines basic principles of modern quality assurance which students can relate to situations encountered in their own work, and apply the techniques for resolving quality problems. **3 credits**

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

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

OPMT 290 Performance Measurement – This is an introductory, applications course to work measurement. Using the principles of work study, methods study, motion study and time analysis techniques, the student is well equipped to solve work study problems. Time measurement techniques such as stop watch, M.T.M. (Methods Time Measurement), M.O.S.T. (Maynard Operating Sequence Technique) will be discussed. This course will not license students as work study practitioners but will give them a basic understanding of the principles of work study, work methods and work measurement techniques. **3 credits**

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

TOURISM

TOUR 161 Tourism Fundamentals – Students will discover the basics of Marketing B.C. Tourism as applied in communities. Sectorial divisions, regional characteristics and basic terminology are some of the topics focused on in this course. **3 credits**

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

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

TOUR 214 Basic Spanish – English speaking persons will develop basic Spanish conversational skills. Persons employed in restaurants, hotels and motels, travel offices, information, customs and government offices intending to travel to Spanish speaking areas, will benefit greatly from the course. Topics include cultural differences; geographical and historical background; techniques of speaking; how to deal with tour guides and limited English translators; importance of this language group to tourism in Canada and British Columbia; food; souvenirs and currency differences related to Spanish speaking tourists. Practical subjects include basic vocabulary and pronunciation; sentence structure; making initial conversational approaches; basic reading and spelling. **3 credits**

TOUR 240 Tourism Geography – Designed for persons wishing to enter the travel and tourism industry as travel counsellors or travel agents and those who are interested in travel destinations. Students study those countries where tourism is a significant part of the economy, and develop a good knowledge of tourism geography. Topics include geographic location, tourism regions, climate, population, culture, language, natural and man-made tourist resources, currency and transportation. Major tourism destinations are selected from North, Central and South America, Europe, Asia, the South Pacific and the Far East. Prerequisite: Tour 230. **3 credits**

TOUR 250 Travel and Tour Operations – 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**

TOUR 261 Tourism Issues – This course examines the evolution, function and direction of tourism. Topics include economic and historical influences, basic ingredients of community tourism, governments, role and function, tourism industry conflicts and recreational influences, the psychology of travel and instructional influences, social costs of tourism development and development strategies. Prerequisite: Tour 230. **3 credits**

TOUR 331 Community Tourism Development – A “how to” approach to developing community tourism, oriented towards developing local interest and economic benefits. Topics include the nature of attractions, developing a planning strategy, economic and business considerations and the importance of environmental factors, cycles of development, social and cultural impacts, planning for industrial change in communities. Prerequisite: Tour 230. **3 credits**

TOUR 342 Travel Transport Systems – A course designed to familiarize students with the fundamentals of itinerary planning for both local and international travel. Covers the operational characteristics of travel modes as means of access to tourist areas. Prerequisite: Tour 230. **3 credits**

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

TOUR 351 International Air 1 – Provides instruction in Transatlantic and Transpacific passenger rules, regulations and fares. Familiarizes students with the terminology and fundamentals of Transatlantic and Transpacific fare construction and enables them, under supervision, to handle all facets of these air travel sales for travel agencies and carrier ticket offices. Topics include the Air Tariff Book 1 general rules; fare construction rules (fare construction units, the mileage system, HLPs, backhauls, etc.); normal and special fare rules for fare types which are generally saleable from Canada. Lectures and prescribed itineraries will be used. Approximately 2-6 hours per week of home study is required. Ticketing is limited to discussions of specific ticket entries. Note: A deposit will be required on the first night of classes for tariff and schedule books. 50% is refundable upon return of the materials to the course instructor. ***On no account may the tariff materials be retained by the student.*** Prerequisite: Previous direct sales experience in the industry, or completion of HOSP 350. **3 credits**

TOUR 353 Automated Reservations – Persons who have completed TOUR 351/352 or have one year of experience in the air travel industry and are familiar with city codes, terminology, etc., will learn to activate a reservations computer terminal as installed in many travel agency offices and to perform all functions relative to booking airline reservations, tours, hotels/car rentals. Although not mandatory, basic typing skills are beneficial. A precourse

booklet is supplied to each student to provide basic knowledge of the computer system. The course consists of “hands-on” training in the use of a CRT terminal. The building, queueing, changing and cancelling of PNR's (Passenger Name Records), automated hotel bookings, car rental and tour reservations, and the relevant transactions are explained and practised. Enrolment is limited to 8 students. **3 credits**

TOUR 355 Automated Ticketing – A two-weekend course for persons fully conversant with the operation of reservation computer terminals as installed in many travel agency offices, and those who have successfully completed HOSP 353. Students learn to activate a ticket printer linked to a reservations computer terminal and to perform all functions necessary to produce a computer generated ticket. The course consists of “hands-on” training in producing computer generated tickets, both computer and manually priced. All transactions are explained and instruction in loading, changing and minor trouble-shooting of a ticket printer is given. Prerequisite: Students should be fully conversant with IATA ticketing procedures (Domestic Air and International Air), and have at least two years in the industry working international itineraries. **1.5 credits**

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

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

TRANSPORTATION AND DISTRIBUTION

TDMT 101 Geography of Trading 1 – 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 Pacific Rim. **2 credits**

TDMT 150 Distribution 1 – 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 201 Geography of Trading 2 – A continuation of TDMT 150, Geography of Trading 1. **2 credits**

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

TDMT 203 Transportation Economics – Covers a variety of transportation services and their cost factors including carrying capacity, load factors, fuel cost, etc., concluding with profit oriented rate making. Costing methods relating to various modes of transportation are discussed considering distance, flow of goods and backhaul. **4 credits**

TDMT 250 Distribution 2 – This course deals with contracts and bills 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 305 International Trade – This course deals with economic and trading characteristics of nations as they relate to the Canadian economy. An overview of comparative advantage and disadvantage. Introduces the student to protectionism and intricacies of international trading. Inco terms and pricing, floating and pegged exchange rates will be discussed together with the movement of international inventories. Prerequisite: TDMT 201. **4 credits**

TDMT 409 Exporting and Importing – Practical application of learned theories acquaints students with the terminology and interpretation of the Customs Act, customs tariff, excise tax, and Antidumping Act. Gives the student thorough understanding of fair market value, dumping, countervailing duty, the GATT, tariffs and the increasing use of non-tariff barriers including current new devices. Documentation for importing and exporting, entries, drawbacks, refunds, appeals and classification are covered. **2.5 credits**

TDMT 410 Strategic Distribution Management – An overview of the total distribution concept. The course examines distribution facility location analysis, information systems, control systems and distribution economics and profitability. With heavy emphasis on customer services and profitability, the course prepares the student to conduct transportation, customer service and complete distribution audits. **5.5 credits**

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

COOPERATIVE ASSOCIATION PROGRAMS AND CERTIFICATES

CANADIAN ASSOCIATION FOR PRODUCTION AND INVENTORY CONTROL (CAPIC)

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

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

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

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

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

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

CPIC 050	Principles of Inventory Control
CPIC 100	Master Planning
CPIC 200	Inventory Management
CPIC 300	Materials Requirements Planning
CPIC 400	Capacity Management
CPIC 500	Production Activity Control
CPIC 600	Just-In-Time Production

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

Students wishing to take an introductory level course that covers the entire production and inventory management field, should take CPIC 050 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
Telephone: 434-5734, Local 5746

CANADIAN CREDIT UNION INSTITUTE FELLOWS' PROGRAM (CCUI)

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

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

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

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

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

The following courses have been accepted for transfer credit.

CCUI Required Courses BCIT Part-time Studies

Accounting	FMGT 101	Accounting 1
Business Administration	ADMN 110	Management 1
Economics	ADMN 100 ADMN 200	Microeconomics Macroeconomics
Marketing	MKTG 101	Marketing 1
Business Strategy	ADMN 302 ADMN 428	Problem-Solving & Decision-Making Management Simulations 1

Approved Options

Business Law	ADMN 380 ADMN 480	Business Law 1 Business Law 2
Business Finance	FMGT 307 FMGT 404	Finance 1 Finance 2
Management of Accounting	FMGT 109 FMGT 301 FMGT 305	Acctg. for the Manager 1 or Cost & Managerial Acctg. 1 Cost Acctg. Computer Systems
Management Information Systems	OPMT 188	Mgmt Information Systems
Taxation	FMGT 316 FMGT 408	Taxation 1 Taxation 2
Employee Relations	ADMN 332	Labor Relations 1
Organizational Behavior	ADMN 222	Organizational Behavior 1
Personnel Management	ADMN 204	Personnel Management

Promotion Management	MKTG 321 MKTG 322	Public Relations (half credit) Advertising 1 (half credit)
Business Statistics	OPMT 197	Stats for Business & Industry
Computer Concepts	TBA	
Operations Research	OPMT 296	Mathematics for Management
Supervisory Skills	ADMN 124	Supervisory Skills

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

THE CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION OF BRITISH COLUMBIA

The Certified General Accountants Association of British Columbia is the largest professional accounting association in B.C. with over 6,000 members and students. The association offers a program of studies leading to the professional designation "Certified General Accountant" (CGA).

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

The following courses have been accepted for transfer credit:

Program 80 Courses	Program 90 Courses	BCIT Part-time Studies
Accounting 101 (Accelerated)	—	FMGT 101/201 or FMGT 115/215 or FMGT 116
Economics 104	—	ADMN 100/200
Law 108	—	ADMN 385 or 380/480
—	Economics II	ADMN 200
—	Managerial Mathematics and Economics I	ADMN 100 & OPMT 132 or 197
Statistics 203	—	OPMT 132 or 197
—	Quantitative Methods II	—
Accounting 211/222 (Accelerated)		FMGT 302/402 or FMGT 314
Cost Accounting 311		FMGT 301/401 or FMGT 319/419
Finance 316	Finance I	FMGT 307/404
Computer Systems 325	Management Information Syst. I	INTRO TO C.P. & TBA
Accounting 421	—	—
Management 510	—	—
Public Speaking	Public Speaking	MKTG 323
Business Writing		TBA

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

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

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

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

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF BRITISH COLUMBIA

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

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

ICABC

BCIT Part-time Studies

Introductory Financial Accounting	FMGT 101 & 201 or FMGT 115 & 215
Intermediate Financial Accounting	FMGT 302 & 402 or FMGT 314 or FMGT 320 & 420
Introductory Management Accounting	FMGT 301 or FMGT 319
Cost Accounting	FMGT 401 or 419
Business Finance	FMGT 307 & 404
Business Computers	TBA
Management Information Systems	COMP 160 & 260
Commercial Law	ADMN 380 & 480
Mathematics	OPMT 102
Probability and Statistics	OPMT 197
Economics	ADMN 100 & 200
Organizational Behavior/Policy	ADMN 222
Introductory Taxation	FMGT 316 & 408

BCIT does not offer an Advanced Financial Accounting Course.

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. Telephone 681-3264.

THE INSTITUTE OF CHARTERED SECRETARIES AND ADMINISTRATORS (ICSA)

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

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

BCIT is pleased to co-operate 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 on this brochure, ICSA exams must be written on all Module A, B, C and D subjects.

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

Management Concepts (All Programs)

1. Principles of Economics	ADMN 380
3. Principles of Administration	ADMN 110/211
4. Principles of Accounting	FMGT 101/201
5. Communication	COMM 160
6. Statistics	OPMT 197

Business Administration Program

Module A (both subjects to be passed)

A1 Financial Management Accounting	FMGT 301/302
A2 Corporation Law	ICSA

Module B (two subjects to be passed)

B1 Law for the Administrator	ADMN 480
B2 Taxation	FMGT 316/408
B3 Business Finance	FMGT 307/404

Module C (two subjects to be passed)

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

Module D (both subjects to be passed)

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

Federal/Provincial Government Program

Module A (both subjects to be passed)

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

Module B (two subjects to be passed)

B1 Law for the Administrator	ADMN 480
B4 Canadian Government	—
B5 Canadian Public Administration	ICSA

Module C (two subjects to be passed)

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

Module D (both subjects to be passed)

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

Municipal and Other Local Government Programs**Module A (both subjects to be passed)**

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

Module B (two subjects to be passed)

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

Module C (two subjects to be passed)

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

Module D (both subjects to be passed)

D3 Municipal Government Meetings	ICSA
D4 Municipal Secretarial Practice	ICSA

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

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

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

THE MUNICIPAL ADMINISTRATION EDUCATION COUNCIL OF B.C.

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

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

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

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

For further information contact Sandra M. Allen, Administration/Education Officer, Municipal Officers' Association of B.C., Suite 100-800 Douglas Street, Victoria, B.C. V8W 2B7 or telephone 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 ASQC certification examinations since 1970. The program, revised in 1985, now covers the following:

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

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

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

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

For further information contact:

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

THE SOCIETY OF MANAGEMENT ACCOUNTANTS OF BRITISH COLUMBIA

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

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

Exemption Policy For British Columbia Institute of Technology

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

The following courses have been accepted for transfer credit:

CMA Courses	BCIT Part-time Studies
Accounting Technology Program	
111 Introductory Accounting	FMGT 101/201 or FMGT 115/215
122 Commercial Law	FMGT 116
123 Organizational Behavior	ADMN 380/480
212 Economics	ADMN 222 /322
214 Computerized Information Systems	ADMN 100/200
	TBA

CMA Courses

229 Intermediate Accounting 1
 241 Management Accounting 1

 324 Taxation
 332 Quantitative Methods
 339 Intermediate Accounting II

 341 Management Accounting II

Professional Program

441 Management Accounting III
 442 Financial Management
 451 Accounting Information Systems
 452 Internal Auditing
 541 Management Accounting IV
 543 Advanced Financial Accounting
 553 Management: Processes & Problems

**BCIT
Part-time Studies**

FMGT 302 or 314
 or 320
 FMGT 301/401 or
 FMGT 319/419 or
 FMGT 320 and
 COMM 171/175
 FMGT 316/408
 OPMT 197
 FMGT 402 or
 FMGT 420 or
 FMGT 314
 FMGT 301/401 or
 FMGT 319/419 or
 FMGT 320
 and COMM 171/175

No exemption
 FMGT 307/404
 COMP160/260
 FMGT 310/406
 No exemption
 No exemption
 No exemption

THE TRUST COMPANIES INSTITUTE

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

Comprehensive descriptions of educational programs leading to accreditation in various 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**Compulsory Subjects**

Principles of Accounting
 Business Communications

 Interpersonal Communication
 Business Law
 Principles of Economics

BCIT equivalents

FMGT 109/FMGT 101
 COMM160/COMM171
 /COMM 183
 MKTG 323/423
 ADMN 380/480
 ADMN 100/200

Optional Subjects

Money and Banking

Not presently
 available

**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 C.I.M. Four Year Certificate Program of Studies.

CIM Courses**Year 1**

Management Principles and Practises
 Communications

BCIT Part-time Studies

ADMN 110/211
 COMM 160

Year 2

Canadian Business Law
 Managerial Process and Organizational Behavior

ADMN 380
 ADMN 222

Year 3

Marketing Management Option

ADMN 204/304/

302/332

MKTG 101

FMGT 201/307/314

Managerial Accounting

Year 4

Managerial Finance
 Policy and Administration

CIM only
 CIM only

CANADIAN SUPERVISORY MANAGEMENT (CSM)

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

CSM Courses

CSM 100 Supervisory Management
 CSM 101 Introduction to Financial
 Management
 CSM 102 Communication Skills
 for Managers
 CSM 103 Industrial Relations and
 Personnel

BCIT Part-time Studies

ADMN 124
 FMGT 101 or FMGT
 109
 COMM 175
 ADMN 122 and 204

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

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

C.A.H.A. is an accredited Canadian professional association of persons employed in the field of Housekeeping Management. Students who are interested in the C.A.H.A., may contact Lea Buburuz, the Education Director of C.A.H.A., at 660-5610.

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

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

Mandatory Courses

Sociology	ADMN 322 Organizational Behavior 2 or HMG 605 Human Resources Mgmt
Psychology	ADMN 222 Organizational Behavior 1 and HMG 605 Human Resources Mgmt
Economics	ADMN 100 Microeconomics
Labor Relations	ADMN 332 Labor Relations 1 or ADMN 432 Labor Relations 2 or HMG 606 Health Labor Relations 1
Personnel Management	ADMN 204 Personnel Mgmt or HMG 605 Human Resources Mgmt
Microbiology/Sanitation	C.A.H.A. (Correspondence Course)
Interior Planning/Design	INTD 100 Interior Design Basic
Safety/Accident Prevention	ADMN 128 Occupational Safety and Health
Supervisory Skills	ADMN 124 Supervisory Skills
Organization Planning	ADMN 110 Management 1 or HCSY 610 Health Care Systems

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

Training Techniques	ADMN 127 Training Techniques
Business Law	ADMN 380 Business Law 1
Purchasing	OPMT 191 Purchasing
Accounting	FMGT 109 Accounting for the Manager
Small Business Management	MKTG 324 Small Business Development or HMG 602 Principles of Health Care Mgmt
Pest Control	C.A.H.A.
Laundry/Linen	C.A.I.L.M. (Canadian Laundry Managers Association)
Management Materials	OPMT 292 Facility Layout and Materials
Communications (CHOOSE ONE)	COMM 160 Business and Technical Correspondence or COMM 171 Business Report Writing or COMM 175 Letters and Memos or COMM 180 Technical Correspondence or COMM 183 Technical Report Writing
Interview Techniques	ADMN 205 Selection Interviewing
Counselling Skills	ADMN 201 Counselling 1
Computer Fundamentals	TBA
Quality Assurance Programming	Seminars/Courses
Quality Control Methods	OPMT 103 Quality Control Methods 1
Equipment Maintenance Design	C.A.H.A. Seminars/Other Approved Related Employment Course or C.A.H.A.

School of Engineering Technology

Faculty and Staff

D.K.N. Chowdhury, D.I.C., M.A., M.B.A., Ph.D., Dean

Marv Woolley, Dipl.T., A.Sc.T., Acting Director

Mandy Klepic, B.A., Program Advisor

Bette Bayley, Program Assistant

Janice Budge, Program Assistant

Sharon Cameron, Program Assistant

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Advanced Manufacturing 70

Resource Processing 70

CAD Programming 71

Mechanical Technology 71

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General Information

Class Times

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

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

ALWAYS CHECK AT TIME OF REGISTRATION FOR CURRENT CLASS SCHEDULES

Correspondence/Directed Study Courses

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

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

For further details of Civil technology correspondence courses please contact:

Shari Monsma
Program Assistant
Telephone: 432-8784

For details of correspondence courses in Math and Physics contact:

Academic Support
Telephone: 432-8723

Industry Services: Customized Programs, Consulting and Development Services

Marv Woolley, Acting Director, Part-time Studies
Telephone: 432-8261

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

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

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

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

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

Eric Morse, Program Head, Industry Services
Telephone: 432-8638

BCIT/SFU MANUFACTURING TECHNOLOGY CENTRE

BCIT offers a wide range of programs in manufacturing technologies and trades, a range probably unique in Canada. To coordinate these programs, and to provide an easily identifiable point of contact for prospective students and employers, the Institute has established the Manufacturing Technology Training Centre.

Anyone interested in either full-time or part-time courses, or in tailored industry training in Manufacturing Technology, is urged to contact the number given below.

Program areas include:

1. Entry level and apprentice training;
2. Journeyman upgrading;
3. Technology diploma programs;
4. Post-diploma programs.

For information call Student Advising (604) 432-8467.

MANUFACTURING TECHNOLOGIES AND TRADES

Advanced Industrial Controls
Advanced Manufacturing
Applied Industrial Computing
CAD Programming
CAD/CAM Technology
Chemical Sciences Technology
Computer Aided Engineering
Computer Systems Technology
Design and Manufacturing Technologies
Drafting Trade
Electrical Trade
Electronics Technology
Electronics Trade
Environmental Health
Forest Resource Technology
Industrial Engineering
Instrumentation Trade
Machinist Trade
Management Engineering
Materials Management
Mechanical Systems Technology
Mechanical Technology
Metallurgy Program
Millwright Trade
Mining Technology
Nondestructive Testing Program
Occupational Health and Safety
Operations Management
Paint Technology Program
Petroleum Technology
Plastics Technology
Prosthetics and Orthotics
Pulp and Paper Summer Institute
Resource Processing
Robotics and Automation Technology
Sheet Metal Trade
Spatial Information Systems
Steel Trade
Transportation and Distribution
Welding Trade
Wood Products Manufacturing Technology

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 be submitted to the Association before beginning a program of studies.

The processing of applications generally takes four to six months.

Objectives of ASTTBC

- professional certification and registration;
- professional practice including a code of ethics and disciplinary procedures;
- accreditation of technology programs;
- services for business and industry, government and the general public, particularly in the areas of disciplines represented.

Benefits of Membership

In addition to the professional status and recognition granted by ASTTBC, benefits of membership and services provided include:

- enhanced career options because of professional recognition;
- professional development through continuing education programs;
- education standards maintained at colleges and institutes through an accreditation program which is national in scope;
- distinctive member certificate;
- employment referral services;
- newsletter and other communications;
- biennial salary survey;
- distinctive stamp or seal for all certified members;
- group life insurance program that cannot be matched.

In accordance with these general objectives, the Association actively represents technicians and technologists in B.C. Its activities include the promotion of technological programs offered by BCIT Part-time Studies and community colleges; the presentation of briefs leading to the development of an accreditation program to aid in the maintenance of the highest educational standards; and, most recently, working toward appropriate recognition in law for its members.

Persons interested in membership in the Association should request an application package from the: Membership Services Coordinator, ASTTBC, Discovery Park, 3700 Gilmore Way, Burnaby, B.C., V5G 4M1, or telephone (604) 433-0548.

THE INSTITUTE OF NAVAL ARCHITECTS OF BRITISH COLUMBIA

The Institute of Naval Architects of British Columbia has made arrangements with BCIT to enable students to take courses leading towards the requirements for membership in the Institute.

The Institute of Naval Architects of British Columbia was formed in 1975 as a controlling agency for the organization and development of the profession of Naval Architecture.

Prospective students who are now employed in the shipbuilding industry are advised to register with the Institute as student members. Interested students may contact the Institute by mail at 2206 West 33rd Avenue, Vancouver, B.C., V6M 1C2, or by telephone at (604) 261-9102

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF BRITISH COLUMBIA

The Association of Professional Engineers of British Columbia has a formal examination system leading to registration for students who, after careful consideration and investigation, find they cannot attend university. It should be stressed that this program of Association examinations is not an easy way to qualify academically as a professional engineer. The program comprises about 26 examinations, which cover approximately the same material as a four-year engineering course at a university. To complete the whole program a candidate would require years of home study.

The Association does not offer courses to prepare candidates for these examinations. Some courses offered at BCIT provide one method of assisting students to prepare for the examinations. However, the student should note that the diploma courses at BCIT were not designed specifically for this purpose. A student embarking on the Association's examination program should seek advice from the Association of Professional Engineers to ensure that a course taken at BCIT will provide a reasonable

amount of assistance in studying for a course in the Association's syllabus. The syllabus contains course outlines so that comparison of content may be made with the content of BCIT courses. For further information contact: The Association of Professional Engineers of British Columbia, 2210 West 12th Avenue, Vancouver, B.C., V6K 2N6, or telephone (604) 736-9808.

Fundamental Examination Tutorials

The School of Engineering Technology Part-time Studies is prepared to offer tutorials for fundamental examination candidates if sufficient demand is shown.

1. Calculus
2. Vector Analysis and Differential Equations
3. Linear Algebra and Numerical Analysis
4. Computer Science
5. Probability and Statistics
6. Physics
7. Chemistry
8. Statics and Dynamics
9. Mechanics of Fluids
10. Thermodynamics
11. Engineering Materials
12. Theory of Circuits and Power Engineering
13. Strength of Materials
14. Organic Chemistry

Interested people must indicate their intention to take specific tutorials by sending a \$50 commitment fee per tutorial prior to mid July. This fee is fully refundable if insufficient demand is shown. Fees are payable in full by August 12. They are estimated to range between \$200 and \$500 depending on tutorial length and number of students attending.

For further information contact:

Program Assistant, Engineering Technology.
Telephone: 432-8521, or
Program Advisor, Engineering.
Telephone: 432-8467.

THE BUILDING OWNERS AND MANAGERS ASSOCIATION

BOMI is the Building Owners and Managers Institute International, a non-profit organization whose distinct purpose is to professionalize the industry by providing educational programs for BOMA members. These programs are usually operated in co-operation with the regional BOMA Office. The SMA (Systems Maintenance Administrator) program confers two levels of proficiency; SMT (Systems Maintenance Technician) after completion of the first five courses and SMA after completion of the remaining three. These courses are specifically designed for building operating employees. The Institute also offers the RPA (Real Property Administrator) program through this office, which is an extensive and intense course designed to train the modern property manager in the essential specialties of building systems, design economics, marketing, accounting, finance, etc.

The SMA program has been fully endorsed by the employer members of BOMA B.C., and current candidates enrolled in the program are employed by British Columbia Building Corporation, B.C. Tel, Block Bros. Property Management, Sears and Dominion Management among others. For the SMA graduate, the benefits are compelling. Becoming more proficient in your current role, this is obvious.

Being able to manage ALL operating systems in almost any kind of facility opens the door to an expanded career. The opportunities are unlimited.

Students who have successfully completed courses 1, 3, 4 and 5 of the SMA Program are eligible to write the examination for the British Columbia Boiler Operators Certificate of Competency and receive four months credit toward the required period of employment.

How to get started

The first step is to enroll in the Institute. Enroll at the BOMA Vancouver office. The second step is to choose one of the study options available. Look at the description of the options below and send the appropriate forms back to begin your program.

Program option

CLASSROOM: In the Vancouver area, SMA classes are held at BCIT (British Columbia Institute of Technology). Note that not all courses are given concurrently. You may take the courses in any order.

SELF STUDY: Individuals in areas where it is not convenient to get to Vancouver on a regular basis can take the SMA program on a self-study basis. A student will receive the course material which is set up for self-study with each lesson having a pre-test which indicates to the student what should be learned from the lesson, several mid-lesson tests and a final lesson test. A sample lesson will be sent on request. All SMA examination arrangements are made with a community college convenient to the students.

All program information from: SMA Program, BOMI B.C., #601 - 325 Howe Street, Vancouver, B.C., V6C 1Z7, or telephone (604) 684-3916.

Programs

CIVIL TECHNOLOGIES

Ed Hull, P. Eng., Associate Dean
Telephone: 432-8501

Building Technology
Civil and Structural Technology
Surveying and Mapping Technology
Transportation Systems (Highways) Technology

Building Technology

Anna Maharajh, Dipl.T., A.Sc.T., M.C.I.Q.S.,
Program Co-ordinator
Telephone: 432-8586
Program Advisor
Telephone: 432-8467

Programs leading to the award of the Certificate of Technology or Intermediate Certificate in Building Technology, consist of building technology courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program advisor for approval by the Technology Department.

The Building Technology program is accredited by the Applied Sciences Technologists and Technicians of British Columbia.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY

	Credit
BLDG 151 Drafting and Design 1: Introduction	6.0
BLDG 152 Construction 1	6.0
BLDG 251 Drafting and Design 2: Architectural	
Presentation	6.0
BLDG 252 Construction 2	9.0
BLDG 351 Drafting and Design 3: Architectural	
Design	6.0
CIVL 101 Statics	6.0
COMM 160 Introduction to Business and Technical	
Communication	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms	
and Analytic Geometry	3.0

CERTIFICATE OF TECHNOLOGY

Prerequisite: Completion of Intermediate Certificate of Technology or equivalent.

BLDG 154 Construction Industry Procedures:	
Introduction	3.0
BLDG 155 Construction Contracts	3.0
BLDG 253 B.C. Building Code: Housing or	
BLDG 353 B.C. Building Code: General	3.0
BLDG 256 Construction Estimating 1	3.0
BLDG 355 Construction Specifications	4.5
BLDG 356 Construction Estimating 2	3.0
CIVL 250 Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
COMM 175 Letters and Memos	3.0
Elective	3.0

Year 1 Equivalency

Prerequisite: Completion of Certificate of Technology or equivalent.

COMM 183 Technical Reports	3.0
ELEC 150 Illumination	2.0
MATH 203 Technical Mathematics 3: Calculus	6.0
MSYS 103 Plumbing	4.0
MSYS 220 Heating and Ventilation 1	3.5
OPMT 187 Project Planning and Scheduling	3.0
PHYS 131 Physics 1 Part 1	3.0
PHYS 132 Physics 1 Part 2	3.0

Advanced, Optional and Elective Courses

BLDG 159 Architectural and Industrial Illustration	3.0
BLDG 181 Fire Protection Engineering	3.0
BLDG 254 Project Management: Introduction to	
Building Development	3.0
BLDG 352 Construction 3	3.0
BLDG 354 Construction Law in Project Management	3.0
BLDG 452 Construction 4	4.5
BLDG 454 Project Management: Construction	
Management	3.0
BLDG 456 Construction Estimating 3	3.0
BLDG 459 Architectural Acoustics	3.0
ELEC 250 Electrical Systems	4.0
MSYS 320 Heating and Ventilation 2	3.5
MSYS 420 Air Conditioning Design	3.5
MSYS 430 Air Conditioning Controls and Systems	5.0
SURV 108 Engineering Survey	7.0

Civil and Structural Technology

Marsh Heinekey, B.Tech., Dipl.T., Dipl.Adult Ed., A.Sc.T.,
Program Coordinator
Telephone: 434-5734 Local 5346
Program Advisor
Telephone: 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 A.S.T.B.C. 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.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN CIVIL AND STRUCTURAL TECHNOLOGY: STRUCTURAL OPTION

	Credit
CIVL 101 Statics	6.0
CIVL 108 Graphical Communication 1	2.5
CIVL 208 Graphical Communication 2	2.5
CIVL 250 Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
CIVL 383 AutoCAD 1 for Civil Engineering	3.0
CIVL 400 Structural Design 1	6.0
COMM 160 Introduction to Business and Technical	
Communication	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms	
and Analytic Geometry	3.0
Approved elective(s)	10.0

Courses may be substituted with prior approval.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN CIVIL AND STRUCTURAL TECHNOLOGY: CIVIL OPTION

CIVL 101 Statics	6.0
CIVL 102 Public Works Inspection	4.0
CIVL 104 Construction Materials Testing	
Fundamentals	2.5
CIVL 108 Graphical Communication 1	2.5
CIVL 109 Concrete Technology	3.0
CIVL 110 Asphalt Technology	3.0
CIVL 159 Hydrology 1	2.0
CIVL 175 Introduction to Highways	3.0
CIVL 208 Graphical Communication 2	2.5
COMM 160 Introduction to Business and	
Technical Communication	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms	
and Analytic Geometry	3.0
SURV 108 Engineering Survey	7.0

Courses may be substituted with prior approval.

CERTIFICATE OF TECHNOLOGY IN CIVIL AND STRUCTURAL TECHNOLOGY

	Credit
CIVL 101 Statics	6.0
CIVL 102 Public Works Inspection	4.0
CIVL 104 Construction Materials Testing Fundamentals	2.5
CIVL 108 Graphical Communication 1	2.5
CIVL 109 Concrete Technology	3.0
CIVL 110 Asphalt Technology	3.0
CIVL 159 Hydrology 1	2.0
CIVL 169 Soil Mechanics 1	3.0
CIVL 173 Estimates and Contracts for Heavy Construction 1	2.5
CIVL 175 Introduction to Highways	3.0
CIVL 180 Introduction to Urban Traffic Engineering	3.0
CIVL 208 Graphical Communication 2	2.5
CIVL 250 Stress Analysis 1	3.0
CIVL 259 Hydrology 2	2.0
CIVL 273 Hydraulics 1	3.0
CIVL 274 Estimates and Contracts for Heavy Construction 2	2.5
CIVL 383 AutoCAD 1 for Civil Engineering	3.0
CIVL 384 Civil Engineering Computer Applications	3.0
COMM 160 Introduction to Business and Technical Communication	3.0
COMM 183 Technical Reports	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
SURV 108 Engineering Survey	7.0
Approved Electives	2.5

CIVIL AND STRUCTURAL PART-TIME STUDIES: 1ST YEAR EQUIVALENCY

CIVL 101 Statics	6.0
CIVL 108 Graphical Communication 1	2.5
CIVL 109 Concrete Technology	3.0
CIVL 159 Hydrology 1	2.0
CIVL 175 Introduction to Highways	3.0
CIVL 208 Graphical Communication 2	2.5
CIVL 250 Stress Analysis 1 (Strength of Materials)	3.0
CIVL 259 Hydrology 2	2.0
CIVL 273 Hydraulics 1	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
CIVL 373 Hydraulics 2	3.0
CIVL 384 Civil Engineering Computer Applications	3.0
CIVL 400 Structural Design 1	6.0
COMM 160 Introduction to Business and Technical Communication	3.0
COMM 175 Letters and Memos	3.0
COMM 183 Technical Reports	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MATH 203 Technical Mathematics 3: Calculus	6.0
PHYS 131/132 Physics 1: Part 1 and 2	6.0
PHYS 231/232 Physics 2: Part 1 and 2	6.0
SURV 108 Engineering Survey	7.0

DIPLOMA OF TECHNOLOGY

	Credit
Prerequisite: Year 1 equivalency	82.0
BLDG 354 Construction Law in Project Management	3.0
BLDG 454 Project Management: Construction Management	3.0
CIVL 110 Asphalt Technology	3.0
CIVL 169 Soil Mechanics 1	3.0
CIVL 201 Construction Documents and Cost Control	3.0
CIVL 270 Soil Mechanics 2	3.0
CIVL 275 Highway Design 2	3.0
CIVL 278 Municipal Services 1	3.0
CIVL 282 Land Use Planning	3.0
CIVL 314 Urban Street Design	3.0
CIVL 315 Subdivision Planning	3.0
CIVL 378 Municipal Services 2	3.0
CIVL 383 AutoCAD 1 for Civil Engineering	3.0
CIVL 386 Computer Highway Design	3.0
CIVL 431 Soil Mechanics 3	3.0
CIVL 450 Structural Design 2	6.0
CIVL 473 Hydraulics 3	3.0
MATH 204 Technical Mathematics 4: Calculus	6.0
OPMT 187 Project Planning and Scheduling	3.0
SURV 313 Field Survey	7.0

POST-DIPLOMA COURSES

Post-diploma or graduate courses are designed for technologists or engineers with industrial experience who wish to upgrade, update or expand their career opportunities.

CIVL 501 Reinforced Masonry Design	3.0
CIVL 502 Advanced Concrete Technology	3.0
CIVL 503 Transportation Planning	3.0
CIVL 504 Design in Pre-stressing and Post-tensioning Concrete	3.0
CIVL 505 Formwork Design 1	3.0
CIVL 506 Formwork Design 2	3.0
CIVL 507 Structural Design in Reinforced Concrete	3.0
CIVL 508 Highway Drainage Design	3.0

Surveying and Mapping Technology

D. Jarvos, Dipl.T., A.Sc.T., Program Coordinator
Telephone: 432-8283
Program Advisor
Telephone: 432-8467

The programs leading to the award of the Certificate of Technology, or Intermediate Certificate, in Surveying will consist of survey courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program advisor for approval by the Technology Department.

The Surveying Technology program is accredited by the Applied Sciences Technologists and Technicians of British Columbia.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN SURVEYING

		Credit
COMM 160	Business and Technical Communication ...	3.0
MATH 101	Technical Mathematics 1: Trigonometry	3.0
MATH 102	Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MECH 140	Drafting Fundamentals	3.0
PHYS 131	Physics 1 Part 1	3.0
PHYS 132	Physics 1 Part 2	3.0
SURV 108	Engineering Survey	7.0
SURV 112	Survey Computations 1	7.0
SURV 118	Programmable Calculators: H.P.'s	3.0
SURV 119	Programmable Calculators: Sharp's	3.0
	Electives from list below	10.0

NOTE: Either SURV 118 or SURV 119 is required but not both.

CERTIFICATE OF TECHNOLOGY IN SURVEYING

Prerequisite: Intermediate Certificate of Technology in Surveying.

COMM 183	Technical Reports	3.0
MECH 216	Drafting: Civil/Survey	3.0
SURV 311	Survey Computations 2	3.0
SURV 313	Field Survey	7.0
	Electives	14.0

Electives for above programs

COMM 175	Letters and Memos	3.0
MATH 203+	Technical Mathematics 3: Calculus	6.0
MATH 204+	Technical Mathematics 4: Calculus	6.0
PHOT 217+	Photogrammetry 1	7.0
PHYS 231	Physics 2 Part 1	3.0
PHYS 232	Physics 2 Part 2	3.0
SURV 215	Engineering Graphics: Programming Concepts	3.0
SURV 225	AutoCAD 1 for Surveying and Mapping	2.0
SURV 358	Introduction to Hydrographic Surveying	3.0

NOTE: Courses marked + may be replaced by electives from list below.

YEAR 1 EQUIVALENCY

Completion of all the above courses are necessary for Year 1 full-time equivalency.

Advanced, Optional and Elective Courses

MATH 125	BASIC 1: An Introduction to Microcomputers IBM PCs	3.0
PHOT 102	Photo Interpretation and Remote Sensing	7.0
SURV 320	Land Use Control	3.0
SURV 325	Survey CAD 1	2.0
SURV 362	Geodetic Surveying 1	3.0
SURV 363	Adjustment of Survey Measurements	3.0
SURV 410	Survey Computations 3	3.0
SURV 411	Survey Computations 4	3.0
SURV 426	Astronomy 1 and 2	7.0
SURV 463	Mathematical Cartography	3.5
SURV 465	Survey CAD 2	3.0

Transportation Systems (Highways) Technology

Ron Isaak, Dipl.T., A.Sc.T., Program Coordinator
Telephone (604) 432-8607
Mike Boyle, B.Eng., M.I.C.E., C.Eng., P.Eng.,
Course Writer/Developer, on leave
Shari Monsma, Program Assistant
Telephone (604) 432-8784
Program Advisor
Telephone: 432-8467

The Transportation Systems (Highways) Technology program, jointly developed with the Ministry of Transportation and Highways, provides opportunities in Civil Highways Technology for distance education learners through correspondence credit courses. Many courses are also accepted for credit in the Civil and Structural Program. All programs consist of technology courses and mandatory core subjects. Experienced students can apply for experiential learning or skill competency credit in some courses. For the Intermediate Certificate or Certificate of Technology in Transportation Systems (Highways) Technology, courses are now available, with course development nearing completion for the full Diploma of Technology Program.

Students are advised to complete subject area courses in sequence; however, registration in individual courses is open, based on a student's self-assessment of need, application and capability.

For an information package, course outlines or registration details, write to: Transportation Systems Department, BCIT, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

		Credit
TSYH 101	Introduction to Technical Communication Part 1	2.0
TSYH 102	Introduction to Technical Communication Part 2	2.0
TSYH 129	Network Analysis	3.0
TSYH 140	Hydrology Part 1	2.0
TSYH 142	Hydrology Part 2	1.0
TSYH 150	Strength of Materials Part 1: Forces on Systems	2.0
TSYH 151	Strength of Materials Part 2: Stress/Strain	3.0
TSYH 160	Graphical Communication Part 1: Basic Drafting	2.0
TSYH 201	Soils Technology Part 1: Basic Properties	2.0
TSYH 206	Soils Technology Part 3: Field Investigation	3.0
TSYH 220	Aggregates Part 1: Basic Properties	1.0
TSYH 230	Concrete Technology Part 1: Basic Properties	1.0
TSYH 240	Asphalt Technology Part 1: Basic Properties	1.0
TSYH 301	Surveying Fundamentals Part 1: Basic Instrumentation	1.0
TSYH 302	Surveying Fundamentals Part 2: Methods and Procedures	2.0
TSYH 303	Surveying Fundamentals Part 3: Basic Computations	2.0
TSYH 304	Surveying Fundamentals Part 4: Field Applications	1.0
TSYH 501	Highway Design Part 1: Basic Design Data	2.0
TSYH 530	Subdivision Planning/Design Part 1: Land Use Planning	2.0

CERTIFICATE OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

Prerequisite: Intermediate Certificate in Transportation Systems (Highways) Technology.

	Credit
TSYH 103 Reporting Technical Information	2.0
TSYH 143 Hydrology Part 3: Rational Method Application	1.0
TSYH 145 Hydraulics Part 1: Fundamentals of Fluids	2.0
TSYH 146 Hydraulics Part 2: Flow Under Pressure	1.0
TSYH 147 Hydraulics Part 3: Flow in Open Channels	1.0
TSYH 152 Strength of Materials Part 3: Resistance of Materials	2.0
TSYH 153 Strength of Materials Part 4: Testing Practices and Analysis	2.0
TSYH 162 Graphical Communication Part 2: Interpreting Topographical Drawings or	
TSYH 165 Graphical Communication Part 3: Interpreting Construction Drawings	3.0
TSYH 203 Soils Technology Part 2: Engineering Properties	3.0
TSYH 209 Soils Technology Part 4: Testing Practices	1.0
TSYH 221 Aggregates Part 2: Production and Quality Control	2.0
TSYH 222 Aggregates Part 3: Testing Practices	1.0
TSYH 231 Concrete Technology Part 2: Mix Design	2.0
TSYH 233 Concrete Technology Part 3: Placing and Transporting	1.0
TSYH 241 Asphalt Technology Part 2: Mix Design	2.0
TSYH 242 Asphalt Technology Part 3: Testing Practices	1.0
TSYH 310 Surveying Site Control	3.0
TSYH 311 Surveying Highways Part 1: Horizontal Alignment	2.0
TSYH 312 Surveying Highways Part 2: Vertical Alignment	1.0
TSYH 314 Surveying Highways Part 3: Field Applications	1.0
TSYH 315 Surveying Quantity Measurement	1.0
TSYH 450 Estimating Part 1: Quantity Take-off	2.0
TSYH 453 Estimating Part 2: Costing	2.0
TSYH 460 Contracts Part 1: Types of Contracts and Contract Documents	2.0
TSYH 461 Contracts Part 2: Cost Control	2.0
Computer Course Electives	3.0

DIPLOMA OF TECHNOLOGY IN TRANSPORTATION SYSTEMS (HIGHWAYS) TECHNOLOGY

Prerequisite: Certificate of Technology in Transportation Systems (Highways) Technology.

TSYH 104 Writing Analytical Reports	2.0
TSYH 120 Technical Mathematics Part 1	3.0
TSYH 123 Technical Mathematics Part 2	3.0
TSYH 126 Statistics Part 1	1.0
TSYH 127 Statistics Part 2	2.0
TSYH 128 Statistics Part 3	2.0
TSYH 162 Graphical Communication Part 2: Interpreting Topographical Drawings or	
TSYH 165 Graphical Communication Part 3: Interpreting Construction Drawings	3.0
TSYH 199 Technical Report	6.0
TSYH 210 Geotechnical Design Part 1: Earth Slope Stability	3.0
TSYH 212 Geotechnical Design Part 2: Rock Slope Stability	3.0

Credit

TSYH 214 Geotechnical Design Part 3: Foundations	3.0
TSYH 216 Geotechnical Design Part 4: Retaining Structures	3.0
TSYH 231 Concrete Technology Part 2: Mix Design	2.0
TSYH 233 Concrete Technology Part 4: Testing Practices	1.0
TSYH 241 Asphalt Technology Part 2: Mix Design	2.0
TSYH 242 Asphalt Technology Part 3: Testing Practices	1.0
TSYH 503 Highway Design Part 2: Route Selection	4.0
TSYH 507 Highway Design Part 3: Earthworks	3.0
TSYH 510 Highway Design Part 4: Drainage and Culvert Design	4.0
TSYH 520 Pavement Design Part 1: Design Criteria	2.0
TSYH 522 Pavement Design Part 2: Specifications	1.0
TSYH 532 Subdivision Planning/Design Part 2: Urban Street Design	3.0
TSYH 535 Subdivision Planning/Design Part 3: Storm Sewers	2.0
TSYH 537 Subdivision Planning/Design Part 4: Water Supply and Sanitary Sewers	2.0
TSYH 540 Subdivision Planning/Design Part 5: Subdivision Layout	2.0
TSYH 560 Traffic Technology Part 1: Traffic Characteristics	1.0
TSYH 561 Traffic Technology Part 2: Data Collection and Traffic Control	1.0
TSYH 562 Traffic Technology Part 3: Traffic Characteristics	1.0
TSYH 563 Traffic Technology Part 4: Parking and Loading	1.0
TSYH 570 Structural Design Part 1: Loads on Structures	1.0
TSYH 571 Structural Design Part 2: Structural Analysis	4.0
TSYH 572 Structural Design Part 3: Basic Timber Design	3.0
TSYH 580 Transportation Planning Part 1	2.0
TSYH 582 Transportation Planning Part 2	2.0
Elective Credits	4.0

Optional, Elective and Advanced Courses

These courses may be substituted in a program, with approval.

TSYH 132 Calculus Part 1	2.0
TSYH 134 Calculus Part 2	2.0
TSYH 136 Calculus Part 3	2.0
TSYH 168 Graphical Communication Part 4: Structural Steel Detailing	2.0
TSYH 170 Graphical Communication Part 5: Reinforcing Steel Detailing	2.0
TSYH 180 Computers Part 1: Introduction to Data Processing	2.0
TSYH 313 Mapping Systems and Route Reconnaissance	1.0
TSYH 330 The Legal Surveying System	1.0
TSYH 335 Basic Field Astronomy	2.0
TSYH 401 Highway Construction Part 1: Clearing and Excavation	1.0
TSYH 402 Highway Construction Part 2: Earthmoving	1.0
TSYH 403 Highway Construction Part 3: Compaction and Stabilization	1.0
TSYH 404 Highway Construction Part 4: Culvert and Drainage Installation	2.0
TSYH 405 Highway Construction Part 5: Blasting and Drilling	1.0

		Credit
TSYH 440	Pavement Construction Part 1: Construction Methods	2.0
TSYH 442	Pavement Construction Part 2: Inspection and Quality Control	1.0
TSYH 574	Structural Design Part 4: Basic Reinforced Concrete Design	3.0
TSYH 576	Structural Design Part 5: Basic Structural Steel Design	3.0
TSYH 720	Engineering Economics Part 1: Funda- mentals of Financial Calculations	2.0
TSYH 721	Engineering Economics Part 2: Introduction to Engineering Economics	2.0

COMPUTER SYSTEMS TECHNOLOGY

Ken Takagaki, B.A.(Hons), R.I.A., C.D.P., Acting Associate Dean
Telephone: (604) 432-8584

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Chris Lloyd, Dipl.T., Program Advisor Part-time Business Studies
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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 (called a program) to follow to solve the problem. It is the human element which determines the degree of success in any computer application.

BUSINESS CERTIFICATE IN COMPUTER SYSTEMS

This program is designed for people working in or seeking employment in the Data Processing Industry. Graduates will qualify to work as programmers, programmer/analysts, or junior systems analysts. All programs must be submitted to the program advisor for approval by the Computer Systems Technology.

Program Requirements

Where the student has never before used a computer, COMP 901 COMPUTING FOR THE TIMID should be completed first. Ten of the Mandatory Courses listed below. Students with programming experience or managerial experience in a business environment should consider taking COMP 261/361 Computer Systems Development instead of COMP 160/260 Computer Systems Introduction. For clarification, read the course description in this calendar and/or contact the Manager, Information Technology Programs.

Five Computer Programming "high level" language courses which may be selected from the Electives Computer list below. At least 4 courses must be non-computer courses which may be selected from the Electives Business (non-computer) list below.

Mandatory Courses

	Credit
COMP 107 Understanding PC/MS DOS	1.5
COMP 114 Word Processing Concepts	1.0
COMP 115 Spread Sheet Concepts	1.0
COMP 116 Microcomputer Data Base Concepts	1.0
COMP 126 Programming Concepts and Methods	3.0
COMP 130 Assembler Programming Language Level 1	3.0
COMP 160 Computer Systems Introduction 1 and	3.0
COMP 260 Computer Systems Introduction 2 OR	3.0

	Credit
COMP 261 Computer Systems Development 1 and	3.0
COMP 361 Computer Systems Development 2	3.0
FMGT 101 Accounting 1	4.0
FMGT 201 Accounting 2	6.0

Electives: Computer

COMP 132 FORTRAN IV Programming Language Level 1	3.0
COMP 135 RPG II Programming Language Level 1	3.0
COMP 137 C Programming Language Level 1	3.0
COMP 145 BASIC Programming Language (IBM PC) Level 1	3.0
COMP 232 FORTRAN IV Programming Language Level 2	3.0
COMP 233 COBOL Programming Language Level 1	3.0
COMP 234 PL/1 Programming Language Level 1	3.0
COMP 236 Pascal Programming Language	3.0
COMP 333 COBOL Programming Language Level 2	3.0
COMP 334 PL/1 Programming Language Level 2	3.0

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. All programs must be submitted to the program advisor for approval by the Computer Systems Technology.

ADMN 100 Microeconomics 1	4.0
ADMN 110 Management 1	4.5
ADMN 200 Macroeconomics 2	6.0
ADMN 211 Management 2	4.0
COMM 160 Business and Technical Communication	3.0
COMM 196 Writing User-Friendly Manuals	1.5
FMGT 301 Cost and Managerial Accounting 1	4.0
FMGT 401 Cost and Managerial Accounting 2	6.0
MKTG 102 Introduction to Marketing	3.0
MKTG 323 Public Speaking and Oral Communication	13.0
OPMT 188 Management Information Systems	3.0
OPMT 197 Statistics for Business and Industry	4.5

Courses from the School of Engineering Technology may be selected instead, with approval of the program advisor. In selecting electives, students are advised to read this calendar to determine the courses they feel would be appropriate for their certificate programs.

OTHER CERTIFICATES

1. Students working on a high-level certificate such as the Senior Certificate should choose not more than 33% of their courses from non-computer electives. All programs must be submitted to the program advisor for approval by the Computer Systems Technology.
2. Students with a university degree or graduates from BCIT with a National Diploma of Technology may receive a Special Certificate by taking further part-time studies. Please read the policies regarding special certificates in the general information section of this calendar.

Prerequisite Exemptions

Students wishing to apply for an exemption from the 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.

STATEMENT OF COMPLETION IN OFFICE SKILLS

This statement 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 course cluster. The aim is to provide the student with confidence and transform a novice into a competent user capable of using popular productivity tools in an office environment. With the exception of COMP 107 which is 6 weeks long, all courses are of 4 weeks duration.

New courses may be added and existing courses may be modified or deleted in accordance with the market trend in the industry.

Program Requirements

15 courses chosen from the Mandatory and Electives lists below must be successfully completed within 5 years. The courses chosen from the list of Electives must be approved by the Manager, Information Technology Programs (P.T.S.).

Where the student has never used a computer, COMP 901 COMPUTING FOR THE TIMID should be completed first.

Mandatory courses

	Credit
COMP 107 Understanding PC/MS Dos	1.5
COMP 117 WordPerfect 5 Level 1 or	
COMP 127 Microsoft Word 4 Level 1	1.0
COMP 136 Ventura Desktop Publishing	1.0
COMP 147 Lotus 1-2-3 Level 1	1.0
COMP 157 dBASE III Plus Level 1	1.0
COMP 175 Accpac General Ledger or	
COMP 178 NewViews Accounting Level 1 or	
COMP 181 Bedford Accounting Level 1	1.0

Electives

COMP 118 WordPerfect 5 Level 2	1.0
COMP 119 WordPerfect 5 Level 3	1.0
COMP 128 Microsoft Word 4 Level 2	1.0
COMP 129 Microsoft Word 4 Level 3	1.0
COMP 148 Lotus 1-2-3 Level 2	1.0
COMP 149 Lotus 1-2-3 Level 3	1.0
COMP 158 dBASE III Plus Level 2	1.0
COMP 159 dBASE III Plus Level 3	1.0
COMP 176 Accpac Accounts Receivable	1.0
COMP 177 Accpac Order Entry/Inventory Control	1.0
COMP 179 NewViews Accounting Level 2	1.0
COMP 180 NewViews NPL Programming	1.0
COMP 182 Bedford Accounting Level 2	1.0

ELECTRONICS TECHNOLOGY

J. H. Casimir, B.A.Sc., P.Eng., Associate Dean

Telephone: 432-8251

E. G. Hancock, Dipl.T., B.Eng., P.Eng., Program Coordinator

Telephone: 432-8253

Program Advisor

Telephone: 432-8467

Microcomputers, electrical energy, 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, the office, the small business, the hospital and the home.

There is a need for persons trained in the principles and applications of electronics to take their places in the technical team. The positions held by these persons are found in design, development, production, installation, sales and maintenance. The posi-

tions may be with commercial companies, government agencies, or educational institutions. The technologist graduate of the Electronics Technology program is an essential member of the team.

The Electronics Technology program is accredited by the Applied Sciences Technologists and Technicians of British Columbia.

Electronics Technology Evening Classes and Prerequisite Requirements

The following courses are normally available during evening sessions. Many other electronics technology courses are available on a part-time day basis. Most electronics technology day courses are available twice a year, starting in September and again in February.

Most courses listed below are identical to day school courses. Easy transfer between part-time and full-time studies is thus facilitated.

Courses	Credit
ELEX 100 Circuit Analysis 1	7.0
ELEX 101 Electronic Manufacturing Processes	5.5
ELEX 102 Digital Techniques 1	5.5
ELEX 112 Digital Techniques 1 Upgrade	3.0
ELEX 163 Printed Circuit Board Design	2.5
ELEX 200 Circuit Analysis 2	5.5
ELEX 201 PASCAL for Electronics	4.5
ELEX 202 Digital Techniques 2	7.0
ELEX 203 Electronic Circuits 1	8.0
ELEX 208 Circuit Analysis AC/DC	11.0
ELEX 302 Digital Systems	7.0
ELEX 303 Electronic Circuits 2 (Control)	7.0
ELEX 307 Pulse Techniques	5.5
ELEX 309 Professional Practice	2.5
ELEX 311 Applications Software	6.0
ELEX 325 Electrical Equipment	3.0
ELEX 331 Telecommunications Circuits and	
Systems 1	7.0
ELEX 333 Electronic Circuits 2 (Telecom)	5.5
ELEX 406 Data Communication	7.0
ELEX 412 Computer Systems	3.5
ELEX 512 Introduction to Single Chip Microcomputers	2.5

**** See seasonal flyers for other courses not listed here.

**** Specialty courses made to order on request.

Certificate Programs

The Intermediate Certificate and Certificate of Technology are available to those students who maintain a 60% average and earn at least 50% of the required course credits in a pre-approved program of part-time studies.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN ELECTRONICS TECHNOLOGY

*ELEX 100 Circuit Analysis 1	7.0
ELEX 101 Electronic Manufacturing Processes	5.5
ELEX 102 Digital Techniques 1	5.5
*ELEX 200 Circuit Analysis 2	5.5
ELEX 203 Electronic Circuits 1	8.0
*ELEX 208 Circuit Analysis AC/DC	11.0
MATH 114/115 Mathematics for Electronics Parts A & B	8.0
PHYS 106 Physics for Electronics Technology	7.0
TCOM 114 Technical Writing for Electronics	3.5

*ELEX 208 is an accelerated combined (ELEX 100 and 200) course for those with previous training. This course proceeds at a very rapid pace. Successful students usually have a strong mathematics background. After approximately four weeks, a written examination will determine those who will be permitted to continue in ELEX 208, and those who will be advised to transfer to ELEX 100.

ELEX 208 is normally taken concurrently with MATH 114 and MATH 115. Please read course descriptions for further information.

CERTIFICATE OF TECHNOLOGY IN ELECTRONICS TECHNOLOGY

	Credit
ELEX 201 PASCAL for Electronics	4.5
ELEX 202 Digital Techniques 2	7.0
*ELEX 303 Electronic Circuits 2 (Control)	7.0
ELEX 307 Pulse Techniques	5.5
ELEX 331 Telecommunications Circuits and Systems	17.0
ELEX 333 Electronic Circuits 2 (Telecom)	5.5
MATH 116/117 Calculus for Electronics	7.0
PHYS 206 Physics for Electronics Technology	4.5

* When ELEX 303 is not offered in the evening schedule, it may be may take ELEX 333 instead.

Persons on existing programs whose previously approved courses are not on the above list should apply for a program modification. The modified program will typically require between 85 and 90 credits depending on individual circumstances. On a case-by-case basis, the department may adjust the total credits required.

MECHANICAL DESIGN TECHNOLOGIES

Charles Goodbrand, B.A., Acting Associate Dean.

CAD/CAM

Computer Aided Engineering

- Geographical Information Systems
- Spatial information Systems
- Advanced Manufacturing
- Resource Processing
- CAD Programming

Mechanical

Mechanical Systems

Plastics

Robotics and Automation

CAD/CAM Technology

Phillip Dollan, H.N.C., Program Co-ordinator

Telephone: 434-5734, Local 5554

Program Advisor

Telephone: 432-8467

The program leading to the award of the Diploma of Technology in CAD/CAM Technology consists of CAD/CAM courses plus mandatory core courses and other technology courses to the required total credits. The program is the equivalent of Year 2 of the full-time program, i.e. it contains courses that are equivalent to all the CAD/CAM related courses taken by a student in the second year of the full-time Diploma program.

The program may be completed in four years of part-time study, and the courses will be offered in sequence each term to facilitate logical progression through the program. Course enrolment is restricted to about 20 students. Courses will definitely run with as few as 12 students. A surcharge may be levied to run courses with fewer than 12 students.

The prerequisite for entry into the program is an approved Certificate of Technology or equivalent in an engineering technology from a recognized educational institute, plus satisfactory completion of the pre-entry CAD training courses, CDCM 213 and 214. Approval must be sought from BCIT before entry to the program. Applications should be submitted to the program advisor for approval by the Technology Department.

DIPLOMA OF TECHNOLOGY

Prerequisite: Approved Certificate of Technology or equivalent in an engineering technology, plus CDCM 213 and 214 or AICO 213 and 214 or 215 and 216.

	Credit
AICO 313 AutoLISP Programming	2.5
AICO 501 Graphics Programming in FORTRAN 77	6.0
AICO 502 Systems Analysis	3.0
AICO 601 File Handling and Database	8.0
AICO 602 Systems Management	2.0
AICO 603 Systems Acquisitions	2.0
CDCM 303 Computer Aided Manufacture	5.5
CDCM 311 3D CAD Drafting	3.0
CDCM 312 Graphics Programming Language	3.0
CDCM 402 CAD/CAM Projects	8.0
CDCM 404 CAD Design	4.0
MATH 349* Numerical Methods for Mechanical	4.0
MATH 460* Mathematics for CAD/CAM	5.5
MECH 301 Machine Design1	4.0
MECH 320 Fluid Power1	3.0
ROBT 411 Computer Integrated Manufacturing	TBA

* Available through part-time day study only. For information contact David Sabo, Program Head, 432-8698.

Computer Aided Engineering

Phillip Dollan, H.N.C., Program Co-ordinator

Telephone: 434-5734, Local 5554

GIS Information: 432-8424

Program Advisor

Telephone: 432-8467

Computer Aided Engineering (CAE) embraces a diverse field of engineering disciplines. Programs in CAE have in common the use of emerging computer technology to solve traditional problems. All of these programs mix courses of interest to discipline specialists with general courses in new technologies.

The foundation courses in computers include Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Spatial Information Systems (SIS), Geographical Information Systems (GIS), Computer Numerical Control (CNC), and Direct Numerical Control (DNC). Programming languages, file handling and database systems, theory and practice of networking, and distributed systems are used where relevant.

These programs are of interest to the practicing technologist and engineer, recent graduates from technology level programs, and others with relevant engineering backgrounds. Post-diploma level programs currently offered are:

- Geographical Information Systems
- Spatial Information Systems
- Advanced Manufacturing
- Resource Processing
- CAD Programming

COMPUTER AIDED ENGINEERING: GEOGRAPHICAL INFORMATION SYSTEMS

Telephone: 432-8424

Geographical Information Systems (GIS) partially or wholly automates the collection, storage, and analysis of spatial data. GIS is an evolving technology with practical applications in legal and base mapping, engineering mapping, land use planning, environmental impact analysis, forestry inventory and mine modelling.

The GIS program is designed as an upgrading program. It targets those people best able to apply the technology: current employees in industry and governmental agencies. The delivery format is unique; it will allow the student to access the program without a major interruption in his/her work. It will allow industry and governmental agencies to upgrade their employees' skills in an incremental fashion by providing a fit with existing training plans.

Prerequisite

Applicants must have a Diploma of Technology equivalent to BCIT or better, or approval by the Associate Dean. Applicants should have good communication and engineering skills, ability to reason in a logical manner and a good disposition towards teamwork.

Recommended: Students may enrol in a practical, non-credit, introductory course: AICO 980 Introduction to UNIX System V.

DIPLOMA PROGRAM

	Credit
AICO 502 Systems Analysis	3.0
AICO 503 CAD and Graphics	4.0
AICO 507 Applied Mathematics 1	4.0
AICO 521 Spreadsheets for Engineers	3.0
AICO 522 Introduction to "C" Programming	2.0
AICO 523 Data Structures in "C"	2.0
AICO 524 Forest Management Systems GIS	3.0
AICO 525 Introduction to GIS (PAMAP)	3.0
AICO 526 Introduction to GIS (TERRASOFT)	3.0
AICO 527 Land Related Information Systems (LRIS)	3.0
AICO 601 File Handling and Data Base	8.0
AICO 602 Systems Management	2.0
AICO 603 Systems Acquisitions	2.0
AICO 605 Issues in Networking	4.0
AICO 607 Projects	6.5
AICO 608 Natural Resources and Engineering Mapping	5.5
AICO 619 Spatial Information Systems 2	4.0
AICO 620 Spatial Information Systems 3	4.0
AICO 621 Applied Mathematics 2	4.0
CDCM 312 Graphics Programming Language	3.0

COMPUTER AIDED ENGINEERING: SPATIAL INFORMATION SYSTEMS OPTION

Computers are affecting all engineering practice, but nowhere is the technology more exciting than in the creation and maintenance of earth models. With the computer, our traditional flat, deformed representations of the earth are being transformed into fully informative models with a myriad of applications. The development of Spatial Information Systems has been accelerated by advances in computer hardware, software and space technology.

Prerequisite

Applicants must have a Diploma of Technology equivalent to BCIT or better, or approval by the Associate Dean. Applicants should have good communication and engineering skills, ability to reason in a logical manner and a good disposition towards teamwork.

DIPLOMA PROGRAM

	Credit
AICO 501 Graphics Programming in FORTRAN 77	6.0
AICO 502 Systems Analysis	3.0
AICO 503 CAD and Graphics	4.0
AICO 504 Data Structures in "C"	6.0
AICO 505 Spatial Information Systems1	3.0
AICO 507 Applied Mathematics 1	4.0
AICO 601 File Handling and DataBase	8.0
AICO 602 Systems Management	2.0
AICO 603 Systems Acquisitions	2.0
AICO 605 Issues in Networking	4.0
AICO 607 Projects	6.5
AICO 608 Natural Resources and Engineering Mapping	5.5
AICO 618 Remote Sensing	2.5
AICO 619 Spatial Information Systems 2	4.0
AICO 620 Spatial Information Systems 3	4.0
AICO 621 Applied Mathematics2	4.0
CDCM 312 Graphics Programming Language	3.0

COMPUTER AIDED ENGINEERING: ADVANCED MANUFACTURING OPTION

It is a widely recognized fact that Canadian industrial and engineering practices are being radically transformed by the introduction of automation into the workplace. Nowhere is this transformation in greater evidence than the area of manufacturing techniques. A variety of tools - CAD (Computer Aided Design), CAM (Computer Aided Manufacturing), CIM (Computer Integrated Manufacturing), are available to the manufacturing technologist which, if properly exploited, lead to productivity increases.

Prerequisite

Applicants must have a Diploma of Technology equivalent to BCIT or better, or approval of the Associate Dean. Applicants should have good communication and engineering skills, ability to reason in a logical manner and good disposition towards teamwork.

DIPLOMA PROGRAM

AICO 501 Graphics Programming in FORTRAN 77	6.0
AICO 502 Systems Analysis	3.0
AICO 508 CNC Programming 1	9.0
AICO 510 3D Graphics and Design	8.0
AICO 512 Manufacturing Management	4.0
AICO 601 File Handling and Data Base	8.0
AICO 605 Issues in Networking	4.0
AICO 611 Advanced Manufacturing Projects	6.0
AICO 613 Quality Control	2.0
AICO 614 Interactive Graphics NC Programming	10.5
AICO 615 Robot Applications	5.5
AICO 616 Computer Integrated Manufacturing	4.0

COMPUTER AIDED ENGINEERING: RESOURCE PROCESSING OPTION

Computers are changing the way we do business. One of the major areas of automation has been in the means used for the processing of our natural resources. In the past, this area of automation has been left in the hands of computer experts and automation specialists. The end users of the technology: forestry, mining and mechanical production technologists and engineers, have been hard pressed to stay current with these techniques.

The program will attempt to address this problem by allowing these technologists to upgrade their existing skills with a comprehensive understanding of how computer techniques can be applied to many phases of natural resource processing.

Prerequisite

Applicants must have a Diploma of Technology equivalent to BCIT or better, or approval of the Associate Dean. Applicants should have good communication and engineering skills, ability to reason in a logical manner and good disposition towards teamwork.

DIPLOMA PROGRAM

	Credit
AICO 501 Graphics Programming in FORTRAN 77	6.0
AICO 502 Systems Analysis	3.0
AICO 504 Data Structures in "C"	6.0
AICO 506 Linear Algebra with Computer Applications	4.0
AICO 509 Technical Aspects of Process Control	5.0
AICO 511 Programmable Controllers	5.0
AICO 601 File Handling and Data Base	8.0
AICO 602 Systems Management	2.0
AICO 603 Systems Acquisitions	2.0
AICO 604 Real Time Systems	8.0
AICO 605 Issues in Networking	4.0
AICO 606 Advanced Software Systems	8.0
AICO 610 Systems Projects	8.0

COMPUTER AIDED ENGINEERING: CAD PROGRAMMING

CAD (Computer Aided Design) is becoming a commonplace tool in the offices of general engineering companies, architects and mapping agencies. This program has as its objective the development of a computer skill set that will allow engineers and technologists to take full advantage of this emerging technology.

CAD has important applications in the production, supervision, distribution and storage of computerized drawings. CAD design tools are used in the development of machines, tools, buildings and structures. Associated nongraphic information can be stored and retrieved affecting a wide range of corporate data bases. This challenging field offers exciting opportunities for the modern technologist.

Prerequisite

A National Diploma of technology in a relevant engineering discipline (mechanical, C & S, building, mining, geology, etc.), or an engineering degree.

Applicants should have good communication and engineering aptitudes, ability to reason in a logical manner and a good disposition towards teamwork.

DIPLOMA PROGRAM

	Credit
AICO 214 AutoCAD 2	2.5
AICO 313 AutoLISP Programming	2.5
AICO 501 Graphics Programming in FORTRAN77	6.0
AICO 502 Systems Analysis	3.0
AICO 503 CAD and Graphics	4.0
AICO 504 Data Structures in "C"	6.0
AICO 506 Linear Algebra with Computer Applications	4.0
AICO 510 3D Graphics and Design	8.0
AICO 601 File Handling and DataBase	8.0
AICO 602 Systems Management	2.0
AICO 603 Systems Acquisitions	2.0

	Credit
AICO 605 Issues in Networking	4.0
AICO 622 CAD Project	9.5
CDCM 312 Graphics Programming Language	3.0
CDCM 404 CAD Design	4.0
MATH 460 Mathematics for CAD/CAM	5.5

Mechanical Technology

Eric A. Morse, P.Eng., Coordinator

Telephone: 432-8638

Program Advisor

Telephone: 432-8467

The mechanical technologist may be involved in the design, construction and installation of machines and mechanical devices, or in the production side of manufacturing. It is a field of tremendous scope in that specialists must be able to analyze problems, propose efficient technical solutions, implement these solutions and evaluate the results.

Job Opportunities

Graduates can choose from a diversity of work situations. Consulting engineering offices employ mechanical 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 BC.

Prerequisites

Algebra 12 and Physics 11 are course requirements for this program. Applicants should have a solid academic background and good communication skills, be able to apply ideas in practical situations and be able to work effectively with people in a team situation.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN MECHANICAL TECHNOLOGY

CDCM 101 Computer Science 1	or	3.0
MATH 125 BASIC 1: An Introduction to IBM PC		3.0
CHSC 156 Metallurgy 1		6.0
COMM 175 Letters and Memos		3.0
MATH 101 Technical Mathematics 1: Trigonometry		3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry		3.0
MECH 104 Statics		4.0
MECH 106 Manufacturing Processes 1		4.0
MECH 140 Drafting Fundamentals		3.0
MECH 200 Mechanical Drafting 2		4.0
MECH 206 Mechanics of Materials		5.5
MECH 208 Dynamics		5.5
MECH 240 Manufacturing Processes 2		5.5

CERTIFICATE OF TECHNOLOGY IN MECHANICAL TECHNOLOGY

Prerequisite: Intermediate Certificate of Technology in Mechanical Technology

	Credit
COMM 183 Technical Reports	3.0
MATH 203 Technical Mathematics 3: Calculus	6.0
MECH 107 Thermal Processes	3.0
MECH 460 Engineering Economy	2.0
PHYS 231/232 Physics 2: Part 1 and 2	6.0
Electives	10.0

DIPLOMA OF TECHNOLOGY IN MECHANICAL TECHNOLOGY

Mandatory courses

COMM 160 Business and Technical Communication	3.0
ELEC 257 Electrical Equipment	4.0
MATH 204 Technical Mathematics 4: Calculus	6.0
MATH 349 * Numerical Methods for Mechanical	4.0
MECH 301 Machine Design 1	4.0
MECH 302 Thermal Engineering 1	4.0
MECH 303 Fluid Mechanics	3.0
MECH 304 Manufacturing Processes 3	4.0
MECH 320 Fluid Power 1	3.0
MECH 401 Machine Design 2	6.5
MECH 420 Fluid Power 2	4.0
MECH 466 Fluid Systems	2.0
Electives	24.5

Optional/Elective Courses

AICO 213 AutoCAD 1	3.0
AICO 214 AutoCAD 2	2.5
CDCM 213 Intergraph 1	3.0
CDCM 214 Intergraph 2	3.0
ELEC 255 Instrumentation for Mechanical	5.5
MATH 125 BASIC 1: An Introduction to IBM PC	3.0
MATH 449 * Statistics/Quality Control for Mechanical	5.5
MATH 494 * Computer Graphics for Mechanical	4.0
MECH 402 Theory of Mechanisms	5.5
MECH 404 Thermal Engineering 2	5.5
MECH 413 Tool Design	4.0
MECH 420 Fluid Power 2	4.0
MECH 432 Automatic Sprinkler System Design 1	3.0
MECH 436 Automatic Sprinkler System Design 2	3.0
MECH 444 Metrology	4.0
MECH 445 Computer Numerical Control	4.5
MECH 466 Fluid Systems	2.0
MSYS 103 Plumbing	4.0
MSYS 220 Heating and Ventilation 1	3.5
MSYS 320 Heating and Ventilation 2	3.5
MSYS 403 System Noise Control	2.5
MSYS 420 Air Conditioning Design	3.5
MSYS 430 Air Conditioning Controls and Systems	5.0
OPMT 103 Quality Control Methods 1	3.0
OPMT 182 Operations Management	6.0
OPMT 203 Quality Control Methods 2	3.0
OPMT 411 ** Production Engineering Management	5.5

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NAVAL ARCHITECTURE

	Credit
CDCM 101 Computer Science 1	3.0
COMM 160 Business and Technical Communication or	3.0
COMM 175 Letters and Memos or	3.0
COMM 183 Technical Reports	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MECH 104 Statics	4.0
MECH 140 Drafting Fundamentals	3.0
MECH 200 Mechanical Drafting 2	4.0
MECH 206 Mechanics of Materials	5.5
MECH 208 Dynamics	5.5
NAVL 150 Naval Architecture Introduction	3.0
NAVL 152 Naval Architecture Fundamentals	6.0
NAVL 253 Applied Naval Architecture	9.0
NAVL 300 Ship Systems	3.0

* Available through part-time day study only. For information contact David Sabo, Program Head, 432-8698.

** Available through part-time day study only. For information contact Glen Murray, Program Head, 434-5734 local 5232.

Mechanical Systems Technology

R.G. Graham, B.Sc., M.A.S.H.R.A.E., P. Eng., Program Head

Telephone: 432-8331

Program Advisor

Telephone: 432-8467

The graduate of this program will be able to pursue a career in the field of Mechanical Systems for residential, commercial, institutional and industrial buildings. Graduates will be prepared for the design and installation of water supply, drainage, fire protection, refrigeration, heating, ventilating and air conditioning.

Job Opportunities

Mechanical engineers, working in liaison with architects, structural engineers and electrical engineers, oversee design work on systems for most large buildings. As support staff, trained mechanical systems technologists are required who can function with minimum supervision as designers, specification writers, field inspectors and drafting personnel. Mechanical contractors bid competitively for mechanical systems work and require trained systems technologists as estimators and project management assistants.

Systems in newly completed and existing buildings have been receiving more attention in recent years. Services in this area include system management programs to optimize energy efficiency; testing and balancing of new systems; and physical changes to existing systems to realize greater fuel economy.

The Program

Course material encompasses water supply, drainage, fire protection, refrigeration, heating, ventilating and air conditioning, backed by support courses which include fluid engineering, thermodynamics, engineering economy and computer science. In recent years, the pursuit of greater energy efficiency and safety in buildings has placed new demands on the systems base from which the graduate can effectively participate in achieving these objectives.

It is anticipated that this program will be accredited by the Applied Science Technologists and Technicians of British Columbia.

Prerequisites

Algebra 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.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN MECHANICAL SYSTEMS

	Credit
CDCM 101 Computer Science 1 or	
MATH 125 BASIC 1 Intro to Microcomputers/IBM PC	3.0
COMM 175 Letters and Memos	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
MECH 140 Drafting Fundamentals	3.0
MECH 104 Statics	4.0
MECH 107 Thermal Processes	3.0
MECH 208 Dynamics	5.5
MECH 303 Fluid Mechanics	3.0
MSYS 103 Plumbing	4.0
MSYS 200 Systems Drafting 2	4.0
MSYS 220 Heating and Ventilation 1	3.5

CERTIFICATE OF TECHNOLOGY IN MECHANICAL SYSTEMS

Prerequisite: Intermediate Certificate of Technology in Mechanical Systems.

COMM 183 Technical Reports	3.0
MECH 466 Fluid Systems	2.0
MSYS 320 Heating and Ventilation 2	3.5
MSYS 403 System Noise Control	2.5
MSYS 420 Air Conditioning Design	3.5
MSYS 430 Air Conditioning Controls and Systems	5.0
Electives	7.5

DIPLOMA OF TECHNOLOGY IN MECHANICAL SYSTEMS

Prerequisite: Certificate of Technology in Mechanical Systems

BLDG 152 Construction 1	6.0
ELEC 255 Instrumentation for Mechanical	5.5
MATH 203 Technical Mathematics 3: Calculus	6.0
MATH 349 * Numerical Methods for Mechanical	4.0
MECH 206 Mechanics of Materials	5.5
MECH 302 Thermal Engineering 1	4.0
MECH 460 Engineering Economy	2.0
MSYS 405 Maintenance	2.5
MSYS 406 Fire Protection	2.5
OPMT 460 ** Industrial Engineering	5.5
Electives	33.0

Optional/Elective Courses

AICO 213 AutoCAD 1	3.0
AICO 214 AutoCAD 2	3.0
CDCM 213 Intergraph 1	3.0
CDCM 214 Intergraph 2	3.0
ELEC 250 Electrical Systems	4.0

	Credit
MATH 449 * Statistics/Quality Control for Mechanical	5.5
MATH 494 * Computer Graphics for Mechanical	4.0
MECH 106 Manufacturing Processes 1	4.0
MECH 320 Fluid Power 1	3.0
MECH 404 Thermal Engineering 2	5.5
MECH 410 Mechanical Estimating	2.5
MECH 420 Fluid Power 2	4.0
MECH 432 Automatic Sprinkler System Design 1	3.0
MECH 436 Automatic Sprinkler System Design 2	3.0
MSYS 404 Mechanical Equipment	5.5
PHYS 231/232 Physics 2 Part 1 and 2	6.0

* Available through part-time day study only. For information contact David Sabo, Program Head, 432-8698.

** Available through part-time day study only. For information contact Glen Murraray, Program Head, 434-5734

Plastics Technology

D.F. Wilson, B.Sc, M.Sc., Ph.D., Program Head

Telephone: 432-8350

J.E. Pretzlaff, Dipl.T.

Telephone: 432-8366

The two year full-time diploma program commenced September 1987. The program is designed to provide practical and theoretical training in production processes used in the manufacture of plastic products for a variety of applications: packaging, recreational, construction, electronics communications, domestic and automotive, to name but a few.

For more information on the plastics technology please refer to the full-time calendar or call our staff to discuss the possibility of offering courses through part-time studies or as Industry Services courses.

Robotics and Automation Technology

D. Lewis, P.Eng., Program Head

Telephone: 434-5734, local 5485

Program Advisor

Telephone: 432-8467

The Robotics and Automation Technology provides students with the knowledge and skills necessary for employment in the area of Computer Aided Manufacturing utilizing computer controlled machinery, robotics and flexible automation.

The graduate will be skilled in the specification, evaluation, selection and layout of automated equipment; tooling - gripper and fixture design, the design and application of modern computer controls to existing equipment, interfacing and communication between automated machinery within an integrated environment; programming of computer controlled systems using both high level language and low level assembly language code, and electrical/electronic and mechanical troubleshooting and maintenance of these systems.

Employment may be found at the technical or managerial level in the areas of component and system design and specification, technical sales, installation and commissioning of equipment, maintenance or research and testing.

The program of study leading to the award of the Certificate of Technology, or the Intermediate Certificate in Electro-Mechanical Technology, and the Diploma in Robotics and Automation Technology will consist of electronic, mechanical and specialized

robotics, and automation courses as well as mandatory core courses and other technology courses to the required total credits. Students who already hold Certificates or Diplomas in Electronics Technology or Mechanical Technology may be able to enter directly into the Diploma program after taking the necessary prerequisite courses. All programs must be submitted to the program advisor for approval by the Technology department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN ELECTRO-MECHANICS

	Credit
ELEX 100 * Circuit Analysis 1 (DC Circuits)	7.0
ELEX 102 Digital Techniques 1	5.5
ELEX 200 * Circuit Analysis 2 (AC Circuits)	5.5
ELEX 203 Electronic Circuits 1	8.0
MATH 114/115 Mathematics for Electronics Parts A and B	8.0
MECH 106 Manufacturing Processes 1	4.0
MECH 240 Manufacturing Processes 2	5.5
MECH 320 Fluid Power 1	3.0
PHYS 106 Physics 1 for Electronics Technology	7.0
TCOM 114 Technical Writing for Electronics	3.5

*ELEX 208 is an accelerated combined course (ELEX 100 and 200) for those with previous training. This course proceeds at a very rapid pace. Successful students usually have a strong mathematics background. After approximately four weeks a written examination will determine those who will be permitted to continue with ELEC 208, and those who will be required to transfer to ELEX 100. This course must be taken concurrently with MATH 114 and MATH 115. Please read course descriptions for further information.

CERTIFICATE OF TECHNOLOGY IN ELECTRO-MECHANICS

ELEX 201 PASCAL	4.5
ELEX 202 Digital Techniques 2	7.0
ELEX 341 Data Acquisition and Signal Conditioning	7.0
MATH 116/117 Calculus for Electronics Parts A and B	7.0
MECH 420 Fluid Power 2	4.0
PHYS 206 Physics for Electronics Technology	4.5
ROBT 301 Robot Applications	8.0
ROBT 302 Automation Equipment	5.5

DIPLOMA OF TECHNOLOGY IN ROBOTICS AND AUTOMATION

ELEX 460 Feedback Systems	8.0
MATH 343 Transform Calculus for Electronics	3.0
OPMT 183 Industrial Engineering for Robotics	4.0
ROBT 303 Microprocessors: Programming and Interfacing	7.0
ROBT 401 Robot Sensors	5.5
ROBT 402 Computer Integrated Manufacturing	5.5
ROBT 403 Project	4.5
TCOM 214 Technical Writing for Electronics	3.5

PROCESS TECHNOLOGIES

Ron Hyde, B.S.A., M.Sc., P.Ag., Associate Dean
Telephone: 432-8887

Biological Sciences Technology
Chemical Sciences Technology
- Nondestructive Testing
- Metallurgy
- Paint Technician

Landscape Technology

Mining

Petroleum

Pulp and Paper Technology Summer Institute

Wood Products Manufacturing

Biological Sciences Technology

Victor J. Martens, M.Sc., P. Ag., Program Co-ordinator
Telephone: 432-8320
Program Advisor
Telephone: 432-8467

	Credit
BISC 903 Canned Foods: Thermal Processing and Container Evaluation	0.0
BISC 904 Sanitation for Food Plants	0.0

Please see Course Descriptions section.

Chemical Sciences Technology

Bob Pike, Coordinator
Telephone: 434-5734, local 5769
Program Advisor
Telephone: 432-8467

Intermediate Certificate Programs in:

- Nondestructive Testing
- Metallurgy
- Paint Technician

The programs leading to the award of the Intermediate Certificate of Technology in the above areas of Chemical Sciences Technology, will consist of chemical sciences courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program advisor for approval by the Technology Department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN NONDESTRUCTIVE TESTING

Mandatory Courses	Credit
CHSC 156 Metallurgy	6.0
CHSC 169 NDT Radiography Level 1	3.0
CHSC 170 NDT Ultrasonics Level 1	3.0
CHSC 171 NDT Eddy Current Level 1	3.0
CHSC 172 NDT Magnetic Particle and Liquid Penetrant	3.0
CHSC 173 NDT Strain Gauge and Acoustic Emission	3.0
CIVL 250 Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
COMM 160 Introduction to Business and Technical Communication	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MECH 304 Manufacturing Processes 3	4.0

PLUS at least FOUR NDT courses selected from list below:

Optional, Elective and Advanced Courses

	Credit
CHSC 269 NDT Radiography Level 2	3.0
CHSC 270 NDT Ultrasonics Level 2	4.5
CHSC 301 * Physical Metallurgy	3.0
CHSC 404 * Physical Metallurgy	8.0
COMM 175 Letters and Memos	3.0
COMM 183 Technical Reports	3.0
MATH 106 Probability and Statistics 1	6.0
MECH 140 Drafting Fundamentals	3.0
OPMT 103 Quality Control Methods 1	3.0
OPMT 203 Quality Control Methods 2	3.0

* This course is available through part-time day study only.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN PAINT TECHNOLOGY

Mandatory Courses

CHEM 101 Applied Chemical Principles 1	6.0
CHEM 201 Applied Chemical Principles 2	8.0
CHEM 317 Gas and Liquid Chromatography	3.0
CHSC 163 Paint Technology	4.5
CHSC 164 Paint Technology: Latex Paints	1.5
CHSC 165 Paint Technology: Modern Coating Resins ..	1.5
COMM 175 Letters and Memos	3.0
COMM 183 Technical Reports	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0

Elective Courses

CHEM 204 **Chemical Laboratory Techniques	4.0
CHEM 309 **Organic Chemistry	6.0
CHEM 314 **Analytical Chemistry 1	6.0
CHEM 409 **Organic Chemistry for Chemical Sciences	28.0
CHEM 414 **Analytical Chemistry 2	8.0
CHSC 246 * Industrial Chemical Processes	4.5
MATH 106 Probability and Statistics 1	6.0

* These courses are available through part-time day study only.

**These courses are available through part-time day study only.
For information contact Cam Barnetson, Program Head 432-8260.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN METALLURGY

Mandatory Courses

CHSC 156 Metallurgy	6.0
CHSC 301 * Physical Metallurgy	3.0
COMM 175 Letters and Memos	or
COMM 183 Technical Reports	3.0
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry	3.0
PHYS 131 Physics 1 Part 1	3.0
PHYS 132 Physics 1 Part 2	3.0

Optional/Elective Courses

CHSC 314 Mineral Processing	3.5
CHSC 404 * Physical Metallurgy	8.0
CHSC 414 Mineral Processing	4.5
CIVL 101 Statics	6.0

Credit

CIVL 250 Stress Analysis 1 (Strength of Materials)	3.0
CIVL 350 Stress Analysis 2 (Strength of Materials)	3.0
COMM 160 Introduction to Business and Technical Communication	3.0
MECH 140 Drafting Fundamentals	3.0

Landscape Technology

S.M. Murray, BSc.(Agr.), MSc., P.Ag., Program Coordinator

Telephone: 434-5734 Local 5321

Program Advisor

Telephone: 432-8467

The program leading to the award of the Intermediate Certificate of Technology in Landscape Technology consists of landscape courses plus mandatory core courses and other technology courses to the required total credits. All programs must be submitted to the program consultant for approval by the Technology Department.

INTERMEDIATE CERTIFICATE OF TECHNOLOGY IN LANDSCAPE

COMM 160 Introduction to Business and Technical Communication	3.0
LAND 101 Structural Material	3.0
LAND 102 Soil Improvement	4.5
LAND 103 Grading and Drainage Plan Production	3.0
LAND 104 Horticulture	4.5
LAND 105 Plant Introduction	3.0
LAND 201 Landscape Structurals	3.0
LAND 202 Plant Material Study	3.0
LAND 203 Residential Landscape Design	4.5
MATH 101 Technical Mathematics 1: Trigonometry	3.0
MECH 140 Drafting Fundamentals	3.0
Approved Electives	7.5

Elective Courses

ADMN 124 Supervisory Skills	3.0
LAND 106 Pesticides for Retailers and Landscape Applicators	1.5
LAND 204 Parks and Recreation	4.5
LAND 205 Management for Landscape	3.0
LAND 207 Landscape Irrigation	3.0
LAND 208 Sports Turfgrass Management	3.0
LAND 209 Cost Estimation	3.0
MATH 125 BASIC 1: Introduction to Microcomputers IBM PC	3.0
MECH 214 Drafting: Structural	3.0

Mining Technology

J. Fairley, Program Co-ordinator

Telephone: 432-8323

Program Advisor

Telephone: 432-8467

MINE 154 The Mining Industry	3.0
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Please see Course Description section.

Petroleum Technology

D.A. Campbell, B.A. (Hons.), M.Ed., Program Co-ordinator
Telephone: 434-8326
Program Advisor
Telephone: 432-8467

Credit

PETR 152	Petroleum Production and Transmission	6.0
PETR 154	Gas Distribution and Utilization	6.0

Please see **Course Description** section

PULP AND PAPER TECHNOLOGY SUMMER INSTITUTE

Gordon Harris, Technical Program Coordinator and Co-chairman
Telephone: 435-1908
Stephen Berghold, Technical Program Co-chairman
Telephone: 432-8550

The annual Pulp and Paper Technology Summer Institute, a well-established technology program in the field of pulp and paper manufacture, has been presented yearly at various locations in British Columbia since 1979. It is always offered in the second week of June.

The program presents an overview of the pulp and paper industry together with current innovations in technology. It is presented by speakers recruited from pulp and paper and related industries. The discussions are directed primarily to the principles and methods of manufacture, however, emphasis is placed on product quality within various unit processes, and their potential effect on end-use application.

A Certificate of Attendance is issued to students who successfully complete the program.

Wood Products Manufacturing

H. Kettner, Coordinator
Telephone: 432-8885
Program Advisor
Telephone: 432-8467

WOOD 110	Wood Products Manufacturing	7.5
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Please see **Course Descriptions** section.

RENEWABLE RESOURCES TECHNOLOGIES

Roy Strang, B.Sc., Ph.D., R.P.F., Associate Dean

Forestry, Wildlife and Recreation Salmonid Enhancement Training Program

A.G. Jakoy, B.S.F., M.Sc., R.P.F., Program Coordinator
Telephone: 434-5734, local 5275/5278
D. Campbell, Dipl.T., Dipl. Adult Ed., Log Scaling Coordinator
Telephone: 434-5734, local 5276
Program Advisor
Telephone: 432-8467

FSTR 120	Ecology of Southern B.C. Introduction	2.0
FSTR 151	Forest Measurement 1	5.0
FSTR 153	Plant Identification	3.0
FSTR 154	Principles and Practices in Wildlife Management	3.0
FSTR 156	B.C. Fish and Fisheries	3.0

Credit

FSTR 157	Log Scaling	7.0
FSTR 250	Ecology	4.5
FSTR 306	Forest Management	3.0
FSTR 900	Conservation Outdoor Recreation Education	0.0
FSTR 921	B.C. Log Scale fbm Course	0.0
FSTR 922	Log Scaling Refresher Course	0.0
FSTR 940	Starting a Business in Wilderness Tourism	0.0

Please see **Course Descriptions** section.

SALMONID ENHANCEMENT PROGRAM

A series of seven courses designed as part of the Federal/Provincial Salmonid Enhancement Training Program. The courses are offered by special request only.

FSTR 931	SETP: Introduction to Salmonid Enhancement
FSTR 932	SETP: Fish Health Level 1
FSTR 933	SETP: Environmental Awareness Level 1
FSTR 934	SETP: Bio-reconnaissance
FSTR 935	SETP: Ponding and Feeding
FSTR 936	SETP: Project Management 1
FSTR 937	SETP: Project Management 2

WOOD PRODUCTS MANUFACTURING

H. Kettner, Coordinator
Telephone: 432-8885
Program Advisor
Telephone: 432-8467

WOOD 110	Wood Products Manufacturing	7.5
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Please see **Course Descriptions** section.

Course Descriptions & Credits

ADMINISTRATIVE MANAGEMENT

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. **4 credits**

ADMN 110 Management 1 – Gives students an appreciation of the application of management principles and business techniques. Students are given an opportunity to develop their skills in using lecture material by analyzing typical business problems and proposing and discussing feasible problem solutions. Subjects covered include planning, organizing, leadership, control and financial management. **4 credits**

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

ADMN 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. **6 credits**

ADMN 211 Management 2 – A continuation of the study of functions of management begun in ADMN 110. Prerequisite: ADMN 110. **4 credits**

BUILDING

BLDG 151 Drafting and Design 1: Introduction to Architectural Drafting and Design - Elementary drafting techniques, lettering and symbols. Development of a technical vocabulary. Assignments concentrate on building element description rather than on geometrical objects. **6 credits**

BLDG 152 Construction 1 - Introduces the basic principles of building construction. Develops skills to produce a basic set of construction working drawings. Topics include site layout, foundation details, western wood frame detailing, preparation of a partial set of working drawings for a single family residence. A list of necessary drafting equipment will be issued on the first evening. **6 credits**

BLDG 154 Construction Industry Procedures: Introduction - Topics include the basis of building development; design, bidding and contracting procedures; types of construction contracts; principles of measurement and pricing; specification of construction work; the basis of construction costs and construction methodology. **3 credits**

BLDG 155 Construction Contracts - Fundamentals of contracts. Parties to construction contracts. Basic types of construction contracts. Relationship between information and risk. Standard forms of construction contracts used in Canada and elsewhere. Appropriate documentation and related issues. **3 credits**

BLDG 159 Architectural and Industrial Illustration - Provides grounding in architectural and industrial illustration and the scope, styles and techniques of contemporary presentation. Introduces illustration, elements of rendering form and space, entourage techniques, perspective, photographic techniques, black/white, color and mixed media. **3 credits**

BLDG 181 Fire Protection Engineering - This course reviews requirements and other considerations which must be taken into account when designing fire protection systems for buildings. It is a practical (hands-on) approach to fire protection engineering and will not deal with interpretations of the National Building Code or other related jurisdictional documents. **3 credits**

BLDG 210 Building Materials and Methods 2 - High-tech materials (polymers and epoxies) used in concrete work, roofing membranes and wood products. Behavior of these materials under given circumstances. Techniques of application. Methods of incorporating and specifying the design of new and old buildings. **3 credits**

BLDG 211 Building Materials and Methods 3 - Identification of various types of building failures or impending failures due to incorrect material selection and design, construction errors or maintenance neglect and deterioration in buildings. Finding solutions to these problems. Prerequisite: BLDG 210. **3 credits**

BLDG 212 Building Materials and Methods 4 - Investigative techniques and constraints involved in the process of solving building failures and problems. Topics include: compilation of data, report writing, use of photography, litigation requirements and interpretation of contract documents. Prerequisite: BLDG 211. **3 credits**

BLDG 249 Building Computer Drawing: Management and Productivity - Offers the practical skills required to produce cost effective CADD drawings. The course covers the most utilized DOS commands, tips on system configuration and equipment selection, efficient use of AutoCAD commands, productive management techniques, advantages of customization and related subjects. **3 credits**

BLDG 251 Drafting and Design 2: Architectural Presentation - A continuation of BLDG 151. Topics include descriptive geometry and its use in design presentation, description of building elements through isometric and axonometric projection, one and two point perspectives; application of regulations and other restrictions in design drafting and presentation; design and drafting services, drawing applications. Prerequisite: BLDG 151 or permission of the instructor. **6 credits**

BLDG 252 Construction 2 - A continuation of BLDG 152. Topics include western frame and modified post and beam construction; details for fireplaces, stairs, doors and windows; further development of working drawings to include the foregoing elements. Prerequisite: BLDG 152 or permission of the instructor. **9 credits**

BLDG 253 B.C. Building Code: Housing - Gives students a working knowledge of Part 9 of the 1985 B.C. Building Code for housing. Prepares students to write the exam which fulfills the technical requirements for the Building Inspectors Association of B.C. Certificate Level 1 (housing) Inspector. **3 credits**

BLDG 254 Project Management: Introduction to Building Development - Introduces students to the considerations of the process for the development of raw land from the recognition of the need for a building/facility to feasibility studies, financing, budget control and design evolution. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 256 Construction Estimating 1 - Introduces general theories of measurement and pricing of construction work. Specific study of particular methods of measurement and pricing techniques; application to elementary examples of work; introduction to bidding procedures and documentation; cost data sources; preparation for CIQS exam 103. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 351 Drafting and Design 3: Fundamentals of Architectural Design - Studies specific aspects of design principles - simple design problems resolution, client statement of needs, basic design vocabulary and delegation of directions from a superior to a junior. Topics include site determinants; program planning; living, dining, sleeping, dressing, kitchen and utility facilities; planning multiple dwellings; student residences and other residential topics. Prerequisite: BLDG 251. **6 credits**

BLDG 352 Construction 3 - A continuation of BLDG 252. Principles of fire-resistive construction. Fundamentals of building science relative to weathering, deterioration and heat transfer. Industrial post and beam systems. Masonry, steel and concrete structures. Drawing applications. Prerequisite: BLDG 252 or permission of the instructor. **3 credits**

BLDG 353 B.C. Building Code: General - A study of the current B.C. Building Code (exclusive of housing, Part 9). The purpose, scope and content is examined through a brief history of the Code and a general review of its structure and contents, principles and concepts. Part 3 is considered in detail. This course will be of use to architects, draftsmen, interior designers, building inspectors, fire department inspectors, contractors, project managers, construction superintendents, mortgage authorities, and those in similar areas of the construction industry who are designing, approving, or carrying out projects. **3 credits**

BLDG 354 Construction Law in Project Management - Designed to provide construction professionals (architects, engineers, project managers, superintendents and estimators) with an understanding of the basic principles of law as it applies to building construction projects. The areas of law to be covered include contract formation and interpretation; negligence law; bonding and insurance; labor law and industrial relations; builders' liens; delay and acceleration claims; and sale of goods legislation. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 355 Construction Specifications - Language as a means of communication; style in specifications. Organization and presentation of information in construction contract documentation. Filing and retrieval of information using master format. Preparation and reproduction procedures for production of project manuals. Study of construction materials and methods. Specification office organization. Prerequisite: Good knowledge of building construction. **4.5 credits**

BLDG 356 Construction Estimating 2 - A continuation of BLDG 256. More detailed study and application of measurement and pricing of work for specific trades, with emphasis on wood framing, concrete work and masonry construction. Detailed examination of CIQS methods for measurement of construction work. Tendering procedures and budget estimating. Preparation for CIQS exam 203. Prerequisite: BLDG 256 or permission of instructor. **3 credits**

BLDG 452 Construction 4 - A continuation of BLDG 352. Curtain walls, panel walls and partitions. Exterior and interior finishes, drawing applications. Preliminary freehand sketching of details. Prerequisite: BLDG 352 or permission of instructor. **4.5 credits**

BLDG 454 Project Management: Construction Management - Students prepare for the administrative and operations management demands of a construction company. Topics include forms of ownership, head office practices and contracts, cash flow, subtrade co-ordination, field supervision, cost control, equipment management, purchasing controls, warehousing and labor relations. Prerequisite: Some knowledge of building construction. **3 credits**

BLDG 456 Construction Estimating 3 - A continuation of BLDG 356. Measurement and unit pricing of specific construction details. Preparation of estimate summaries and bids or proposals to owners or clients. Construction cost accounting. Documentation used in estimating and cost accounting processes. Bid strategies, bid depositories, bid procedures in general. Preparation for CIQS exam 303. Prerequisite: BLDG 356 or permission of instructor. **3 credits**

BLDG 459 Architectural Acoustics - Theory and principles of sound, including properties, propagation, sources and measurement techniques. Noise criteria and control of noise in buildings. Selection of materials having appropriate acoustical and aesthetic qualities for buildings. Calculations encountered in acoustical considerations. **3 credits**

CAD/CAM

CDCM 101 Computer Science 1 - Introduction to computer science and programming using the BASIC language. Emphasis will be on engineering problems using structured problem-solving techniques. **3 credits**

CDCM 213 Intergraph 1 - Rudiments of Computer Aided Drafting. Machine log-on procedures, simple 2-D drawings. Stress on orthographic projections, dimensioning, annotations and standard assemblies. Prerequisite: MECH 140 or other appropriate drafting experience. **3 credits**

CDCM 214 Intergraph 2 - A continuation of Intergraph 1. Customizing a CAD system using cell libraries and tablet menus. Prerequisite: CDCM 213. **3 credits**

CDCM 303 Computer Aided Manufacture - Introduction to computer aided manufacturing, computer integrated manufacturing and automated process control. Generation of machine instructions from computerized 3D models. Prerequisite: CDCM 311, ROBT 411. **5.5 credits**

CDCM 304 Engineering Design - An introductory course. The emphasis is on mechanical and structural applications through analysis, and conceptual drawing and design. Prerequisite: CDCM 311, MECH 219 or other approved technology courses. **4 credits**

CDCM 311 3D CAD Drafting - Elementary 3D modeling, auxiliary, isometric and perspective projections using a computer. Prerequisite: CDCM 213, 214 or AICO 213, 214. **3 credits**

CDCM 312 Graphics Programming Language - Graphics programming using INTERGRAPH's User Command Language (UC). Upon completion, students will be able to obtain and display user information in an INTERGRAPH work session, perform math calculations using UC, use the logic control structures of UC, access and change system-wide INTERGRAPH settings, and write elementary graphics programs in UC. Prerequisite: CDCM 311. **3 credits**

CDCM 402 CAD/CAM Projects - Student managed projects with applications in students area of interest. Projects integrate programming in graphics, data base integration and engineering problem-solving. Prerequisite: CDCM 406, 404 or permission of the department. **8 credits**

CDCM 404 CAD Design - Understanding how computers can help in the design process. Interaction with software packages using surfaces and/or solids modeling. Prerequisite: CDCM 311. **4 credits**

CHEMISTRY

CHEM 101 Applied Chemical Principles 1 - Provides the necessary background for chemical calculations and analysis. Included are stoichiometry; atomic structure; bonding; solution preparation; acid-base and oxidation-reduction reactions; titrations. Lab work consists of qualitative and quantitative analysis. Meets the Chemistry 12 entrance requirement for BCIT programs. Prerequisite: Chemistry 11 or CHEM 001. **6 credits**

CHEM 201 Applied Chemical Principles 2 - Theory of gravimetric and volumetric analysis; qualitative analysis of cations and anions; electro-chemistry including cells, electroplating and corrosion. Study of physical chemistry provides theory of solids, liquids and gases leading to fractional distillation and colligative properties. Lab work covers qualitative and quantitative analysis. Throughout CHEM 101/201 attention is given to industrial and everyday applications. Prerequisite: CHEM 101. **8 credits**

CHEM 204 Chemical Laboratory Techniques - This course is available through part-time day study only. For information contact Cam Barnetson, Program Head 432-8260. Emphasizes the safe analysis of natural samples where interfering elements or substances must be removed before the final analysis, with particular emphasis on safety awareness and application. The student will gain experience in: weighing, moisture and ashing; use of the muffle furnace and Parr Bomb; gravimetric separations and analysis; volumetric separations and analysis including acid-base, redox and complexometric determinations; ion exchange separation and analysis; spectrophotometric analysis; physical methods including viscosity and specific gravity

measurements and use of the centrifuge. In addition, various solvent extraction, distillation and similar methods will be studied. The course starts with an introduction to sampling procedures.

4 credits

CHEM 309 Organic Chemistry - This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Organic compounds are classified according to functional groups. Naming using IUPAC, common names and trade names of many industrial chemicals. Factors affecting boiling point and solubility, theory of extraction. Preparation and reactions of alkanes, alkenes, aromatics, and alcohol. Petroleum refining, addition polymerisation, synthetic rubber. Theory of infra-red spectroscopy, interpretation of spectra.

6 credits

CHEM 314 Analytical Chemistry 1 - This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. The course covers the theory and practice of conventional methods of inorganic analysis and includes methods of sample decomposition, sampling, treatment of analytical data, precipitation and complex formation titration, solvent extraction and ion exchange methods, and fire assaying. Laboratory exercises include the ore analysis for iron, chromium, tin, copper, arsenic, zinc, sulphur and silica, as well as fire assaying for gold and silver.

6 credits

CHEM 317 Gas and Liquid Chromatography - The uses of gas chromatography (GC) and high performance liquid chromatography (HPLC) in solving organic analysis problems relating to the energy, chemical, food and forest industries; clinical and environmental laboratories. Covers separation theory, instrument operation, troubleshooting, detectors, quality and quantity analysis applications and sample preparation. Laboratory experiments demonstrate the principles covered in the lectures.

3 credits

CHEM 409 Organic Chemistry for Chemical Sciences 2 - This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. A continuation of CHEM 309. Covers properties, preparations, and reactions of all major classes of organic compounds - aliphatic and aromatic hydrocarbons, halides, alcohols, ethers, carboxylic acids and their derivatives, aldehydes, ketones, amines, amino acids, carbohydrates, heterocyclics, dyes and polymers. Lab work emphasizes organic techniques, qualitative chemical analysis and instrumental methods, infra-red, ultraviolet and gas chromatography.

8 credits

CHEM 414 Analytical Chemistry 2 - This course is available through part-time day study only. For information contact Cam Barnettson, Program Head 432-8260. Introduces the basic principles of analytical instruments and their application to a variety of analyses. Major topics include analytical absorption methods (visible, ultraviolet, infra-red and atomic absorption), emission methods (flame, spectrographic, ICP), x-ray fluorescence and diffraction methods, chromatographic methods (gas and HPLC), electrochemical methods (pH, specific ion, polarography) and trace analysis (electrothermal atomization, hydride generation, etc.).

8 credits

CHEMICAL SCIENCES

CHSC 156 Metallurgy - Includes casting and forming of metals, heat treatment, physical testing, nondestructive testing and metallurgy of welding. Laboratory work involving metallography, heat treatment and corrosion constitutes approximately half of the course.

6 credits

CHSC 163 Paint Technology - An introductory course for those actively engaged in paint and coatings manufacture (both technical and production sides), raw material suppliers, architects, professional decorators and paint salesmen. Students study the raw materials used in the coating industry, methods of coatings manufacture, application and formulating techniques.

4.5 credits

CHSC 164 Paint Technology: Latex Paints - Complements CHSC 163. Students study latex paints including aspects of polymer emulsion manufacture and the formulation and manufacture of latex paints. Prerequisite: CHSC 163.

1.5 credits

CHSC 165 Paint Technology: Modern Coating Resins - Complements CHSC 163. Students study the production and end use of contemporary surface coating resins. Prerequisite: CHSC 163.

1.5 credits

CHSC 166 Glassblowing - Recommended for persons working in a chemical laboratory setting to develop skills in the natural gas and oxygen flame working of glass tubing and rods. Topics include identification of glasses; preparation and cutting of glass; procedure for working with tubing; pulling points, seals, straight tubes, round and flat bottom tubes; sealing, bands, blowing bulbs, ring seals; side arms, small condensers, flask joints, columns and coil wings. Students learn to perform minor repairs to laboratory glassware.

3 credits

CHSC 169 NDT Radiography Level 1 - Covers the general principles of radiography: nature of penetrating radiation, and its interaction with radiation and matter; radiation sources; detection and measurement of radiation; radiation safety and darkroom procedures. Students learn the proper selection of a radiation source for a given application, film type, screens, etc., and should be able to perform radiographic examinations according to prescribed techniques. The course meets the requirements for classroom training as stipulated in CGSB Standard 48-GP-4M, condition (b).

3 credits

CHSC 170 NDT Ultrasonics Level 1 - Combines theory with practice, using a variety of ultrasonic testing equipment and test samples to cover generation of ultrasound. Instrumentation, frequency, velocity, wavelength, attenuation, calibration, reference standards, longitudinal, transverse and surface waves, reflection, Snell's Law, sensitivity and resolution. Meets the requirements of CGSB Standard 48-GP-7M, condition (b) for classroom training.

3 credits

CHSC 171 NDT Eddy Current Level 1 - Covers basic concepts and characteristics of induced eddy current, factors affecting conductivity, permeability and hysteresis; coil characteristics, impedance method-balanced bridge, signal to noise ratio, readout mechanisms, phase analysis, modulation analysis, methods and applications of eddy current testing, relationship of indications to discontinuities, advantages and limitations of the method, probe arrangement, design and manufacture. Meets classroom training requirements as stipulated in CGSB Standard 48-CP-13M for levels 1 and 2.

3 credits

CHSC 172 NDT Magnetic Particle and Liquid Penetrant - Covers theory of magnetism and magnetic properties of materials; comparison with other NDT methods; current characteristics; direct and indirect induction; residual and continuous methods; black light - principles and requirements; dry vs. wet method; indicating the mediums; material controls and calibration; discontinuities - their causes and detectability; demagnetization; inspection, interpretation and evaluation of indications. Meets CGSB Standard 48-GP-8M and 9M condition (b) levels 1 and 2.

3 credits

CHSC 173 NDT Strain Gauge and Acoustic Emission - Includes reviews of the theory and applications of electrical resistance strain gauges and acoustic emission techniques.

3 credits

CHSC 246 Industrial Chemical Processes - A description of the chemical processes involved in major industrial chemical plants in B.C. Emphasis is placed on chemical operations associated with the pulp and paper industry including chemical pulping and water treatment. Lab sessions involve the testing and control procedures utilized in industrial applications.

4.5 credits

CHSC 254 Pollution Control Equipment and Techniques - Familiarizes the student with current engineering methods for the control/treatment of major air and water pollutants. Methods include electrostatic precipitators, scrubbers, cyclone collectors, fabric filters, control of motor vehicle emissions, stack sampling, cooling towers, industrial and municipal wastewater treatment processes, oil spill recovery techniques, solid waste disposal methods and treatment of radioactive wastes.

3 credits

CHSC 260 Mineral Analysis - Deals specifically with chemical methods of ore analysis. Presents basics of analytical chemistry ore assaying and an opportunity to develop laboratory skills. The course covers the general methods of ore analysis, principles and practice of fire assaying for gold and silver, and gravimetric and volumetric analysis.

12 credits

CHSC 267 Air Pollution: Chemistry and Sampling Techniques - Examines the chemistry of the major air pollutants and their interactions in the atmosphere - the oxides of sulphur and nitrogen, carbon monoxide, carbon dioxide, hydrocarbons, particulates (including heavy metals), chlorocarbons and fluorocarbons; the effects of air pollutants on human health and on the environment; the collection and analysis of air pollutant samples by various methods - infra-red, gas chromatography and atomic absorption.

3 credits

CHSC 268 Water Pollution: Chemistry and Sampling Techniques - Discusses the processes that take place in water systems when pollutants are present, and the various techniques used for detection and control of these pollutants. The course examines the chemistry and microbiology of the major water pollutants; the major sources of pollutants, their interactions in the environment and methods of control/treatment; laboratory analysis of water samples.

4.5 credits

CHSC 269 NDT Radiography Level 2 - Meets the requirements of CGSB Standard 48-GP-4M, condition (b) for classroom training. The course includes a review of radiation theory, physical principles, radiation sources, detection and safety. Topics include the radiographic process, miscellaneous applications, test result interpretation, material considerations, codes standards, specifications and procedures. Prerequisite: CHSC 169 or be a certified level 1 radiographer.

3 credits

CHSC 270 NDT Ultrasonics Level 2 - Meets the requirements of CGSB Standard 48-GP-7M, condition (b) for classroom training. The course includes a review of the theory of ultrasonic testing and its practical applications. Emphasis will be on the operation of special equipment, applications requiring specific testing procedures and the consideration of variables affecting test results. Prerequisite: CHSC 170 or be a certified level 1 operator.

4.5 credits

CHSC 274 Pulp and Paper Manufacture - Presents a detailed background to the pulp and paper industry of British Columbia for those presently employed in manufacturing, service functions and allied industries. The course discusses the processes employed and the mechanical equipment utilized in the manufacture of pulp and paper. It examines wood structure and chemistry, water treatment, mechanical and chemical pulp manufacture, pulp bleaching, kraft recovery systems, chemical preparation and handling, pollution abatement, paper and paperboard manufacture, future developments. Guest lecturers discuss specific topics.

7.5 credits

CHSC 301 Physical Metallurgy - Physical testing of metal; tensile, hardness and impact testing. Crystal structure of metals, cold working and annealing. Iron and steelmaking processes. Phase diagrams. basic stress analysis.

3 credits

CHSC 306 Precious Metal Analysis - This course develops the precious metal analyst's expertise and aptitude relating to his 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, analytical methods of precious metal analysis including silver, gold, platinum, etc.

3.5 credits

CHSC 314 Mineral Processing - Deals specifically with mineral processing as applied to the B.C. mining industry. Covers the essential operations of applied mineral processing: crushing, grinding, screening, gravity separation, cyclone classification; flotation, sedimentation, thickening, filtration. Emphasizes numerical solution of operating and design problems. Course includes laboratory work.

3.5 credits

CHSC 404 Physical Metallurgy - A continuation of CHSC 304. Strain measurements, strain gauge and photoelastic methods. Steel structures and heat treatments. Metallography of ferrous materials. Structure and properties of cast iron. Solidification of metals, casting methods. Metal forming methods. Defects in metals. Failure mechanisms and investigation methods. Welding methods and metallurgy. Prerequisite: CHSC 304.

8 credits

CHSC 414 Mineral Processing - A continuation of CHSC 314. Prerequisite: CHSC 314.

4.5 credits

CHSC 900 Introduction to Nondestructive Testing (NDT) - (18 hours) - A survey of the field of nondestructive testing. Introduces students to the different types of NDT radiography, ultrasonics, magnetic particle and liquid penetrant. Certification criteria, employment opportunities and training requirements for those seeking careers in NDT are discussed. Prerequisite: Grade 12 math and science.

non credit

CIVIL AND STRUCTURAL

CIVL 100 Introduction to Lotus 1-2-3 Engineering Application

- A short course on the use of Lotus 1-2-3 to solve engineering problems. Each student will have the use of a computer and will be able to successfully use Lotus software at the completion of the course.

1 credit

CIVL 101 Statics - Vectors, force systems, graphical analysis, resultants, components, moments, equilibrium laws, force polygons, funicular polygons, frames and trusses, stress diagrams, Bowes' notation, flexible tension members, load shear and bending moment curves. Closely supervised problem sessions are used to provide the student with practice in common analytical and graphical solutions to problems of static load on statically determinate structures. Prerequisite: MATH 101.

6 credits

CIVL 102 Public Works Inspection - Specially designed by the public works inspection committee (a joint committee of the industry and BCIT) to provide training for those in public works inspection. The course is a highly practical one with instructors drawn from public works inspectors currently active in this area. It includes field sessions to complement classroom activities. Enrollment is limited, so if you are interested you are advised to act now, or to contact our program advisor for further information.

4 credits

CIVL 104 Construction Materials Testing Fundamentals - Provides students with the opportunity to become proficient in lab procedures for construction materials. It will prepare students for other courses requiring knowledge of testing procedures. CIVL 104 is a prerequisite for CIVL 109, 110 and 169. **2.5 credits**

CIVL 108 Graphical Communication 1 (Drafting Fundamentals) - Graphical communication requires the ability to sketch and knowledge of civil engineering terminology. This introductory course utilizes common engineering and survey conditions to illustrate its application. The ability to produce freehand sketches is developed without the use of conventional drafting equipment. A brief review of formal drafting equipment and techniques establishes the necessary discipline required for sketching and its interpretation by a draftsman. Sketching ability is developed both in the classroom and in the field and simulates field conditions as often as possible. Terminology is introduced with each lecture and covers site work, excavations, profiles, cut and fill sections, topographical features, open channel flow, drainage facilities, survey layout and calculations. **2.5 credits**

CIVL 109 Concrete Technology - Gives students the knowledge required to select suitable materials for making quality concrete; design a concrete mix for strength, workability and economy; sample and conduct quality control tests on concrete and aggregates; understand the theory and practices used in concrete manufacturing and construction. Topics include cements, water/cement ratio, admixtures, concrete properties manufacturing, transportation, placing, finishing, curing, CSA code A23. 1 and 2 Inspection Techniques. Prerequisite: CIVL 104. **3 credits**

CIVL 110 Asphalt Technology - Upon completion students will know how to select suitable materials for asphaltic concrete design using the Marshall method. Topics include plant and paving quality control, asphaltic cement testing, calculation for asphaltic design. Prerequisite: CIVL 104. **3 credits**

CIVL 159 Hydrology 1 - Focuses on the fundamental concepts of the hydrologic cycle, measurement of precipitation, streamflow measurement and calculation. The determination of drainage basins and catchment areas, and analysis of basin characteristics for determination of run-off coefficients, will provide the student with a basis for further studies in run-off calculation and the evaluation of hydrologic data. **2 credits**

CIVL 169 Soil Mechanics 1 - Teaches the basic principles of soil mechanics and soil testing. Topics are mass/volume relationships, soil testing, soil classification, compaction, geology, sub-surface investigation, permeability and pressure diagrams, effective stress. Prerequisite: CIVL 104. **3 credits**

CIVL 173 Estimates and Contracts for Heavy Construction 1 - Presents the basic concepts and techniques for the preparation of estimates and tenders for the construction of civil engineering projects by contract. The course consists of lectures and the preparation of estimates for basic operations and components of a typical job. Topics include an introduction to the heavy construction industry, contracts and specifications, preparation of estimates and estimates resources; estimates for various projects; overhead costs; estimate adjustments; cost accounting and job cost control. **2.5 credits**

CIVL 175 Introduction to Highways - Introduces the fundamentals of highways design and the basic concepts of highway engineering, including some geometric design theory. Topics include road classification, cross-section elements, horizontal and vertical alignment, capacity, level of service and the effect of vertical grades on traffic. This course leads to further studies in either highways or urban street design. **3 credits**

CIVL 180 Introduction to Urban Traffic Engineering - Introduces basic traffic engineering concepts. In general, traffic engineering entails the study of the movement and storage of vehicles on road systems. The topics are of particular interest to persons involved in municipal and highway engineering and/or land development. The course comprises lectures and assignments. Topics include driver, vehicle and traffic stream characteristics, highway and intersection capacity, intersection and parking layout, data collection techniques and traffic control. **3 credits**

CIVL 201 Construction Documents and Cost Control - Examines the three major types of construction contracts, their specific applications, the contractual relationship between the parties involved in a construction project and methods of recording and controlling construction costs in the planning and construction phases. A set of contract documents will be examined and critical areas highlighted through the use of construction scenarios. The student will gain an appreciation for the necessity of a thorough, understandable set of documents, and for the owner's representative/contractor to understand those documents. **3 credits**

CIVL 208 Graphical Communication 2 - Builds on the material in CIVL 108 and continues with architectural and structural drawings and details in timber, steel, concrete and masonry. Freehand sketching and industry graphics standards are the methods used to introduce students to graphical communication. Emphasizes traditional drafting skills rather than freehand sketching. **2.5 credits**

CIVL 250 Stress Analysis 1 (Strength of Materials) - Examines simple stresses, stress/strain relationships and elasticity, material properties, temperature stress, Pollson's ratio, safety factors, compound bars and columns, simple bolted and welded connections, and flexural stress. Testing techniques in the lab are introduced, along with strain gauges, extensometers and data evaluation. Prerequisite: CIVL 101 or CIVL 161. **3 credits**

CIVL 259 Hydrology 2 - Commences with the statistical basis for frequency and probability calculation and then introduces the analysis of existing data for the purpose of determining peak and flood flows. Future flood flow forecasting and design to accommodate specified flood and peak flows are discussed. Streamflow analysis including development of unit hydrograph; flood flow analysis based on prior streamflow history; the determination of snowmelt factors based on prior streamflow and temperature records are introduced. The general principles of hydrology and the specifics of the rational method are applied to the evaluation of small watersheds in determining design peak discharge flows based on established criteria. Prerequisite: CIVL 159. **2 credits**

CIVL 270 Soil Mechanics 2 - Basic soil mechanics theory is completed through lectures and laboratory work. This theory is then applied to geo-technical design problems. Topics covered are consolidation, shear strength, shallow and deep foundations and retaining walls. Prerequisite: CIVL 169. **3 credits**

CIVL 273 Hydraulics 1 - The first half of the course covers hydrostatics, including forces on plane and curved surfaces, and buoyancy. The second half introduces pipe flow and covers Bernoulli's equation and pipe friction. Prerequisite: CIVL 101, 160 or 259. **3 credits**

CIVL 274 Estimates and Contracts for Heavy Construction 2 - Allows students to gain further experience in the preparation of estimates, and to consider problems which arise in the administration of contracts for heavy construction jobs. The course consists of lectures and the preparation of an estimate for a highway construction job, and, possibly, a small bridge using SI standards. Topics include labor agreements, equipment ownership/rental and operating costs, materials, subcontracts, use of cost reports in preparing estimates, financial and legal aspects, and the administration of contracts. Prerequisite: CIVL 173.

2.5 credits

CIVL 275 Highway Design 2 - Provides the working knowledge to design highways in accordance with RTAC standards. The course consists of lectures and a design project. Topics include detailed considerations of route selection, vertical and horizontal alignment, cross-sections, earthwork, mass haul diagrams and includes basic computer applications in the adjustment of design for earthwork balances. Prerequisite: CIVL 175.

3 credits

CIVL 278 Municipal Services 1 - Illustrates the detail design process and the preparation of plan and profile drawings for municipal storm drainage projects. After an introduction to municipal drainage systems, hydrology and master drainage plans, the student will review basic sewer structures and appurtenances common to most drainage systems. Preparation of detailed catchment area plans and design tabulations will enable the student to finalize a plan and profile drawing for a portion of the overall design. Knowledge of hydraulics and hydrology will be required to comprehend the design concepts. Prerequisite: CIVL 272 or 273, and 315.

3 credits

CIVL 282 Land Use Planning - This course provides a working knowledge of the terms, definitions, criteria, considerations and process of urban land development. The required servicing for development, patterns of development, the process for approval of development, financial considerations and roles of agencies and parties in the development process are also presented. Topics include: natural state land use assessment, planning elements, community zoning and site plans, neighbourhoods, lot and dwelling types, traffic considerations, road classifications, road patterns and names, lot layout design, cul-de-sacs, walkways and emergency routes.

3 credits

CIVL 314 Urban Street Design - Through a review of the urban street classification system, students will determine the basic requirements for a road right-of-way and its relationship to other utilities. In preparing the design of a major road, it will be necessary to understand both vertical and horizontal design elements and the use of cross-sections to correlate design controls. The concepts of road drainage, intersection design, sidewalks, channelisation and drawing preparation will be discussed. A review of the design process, extent of field information, legal surveys and the preparation of as-constructed drawings will conclude the course. Prerequisite: CIVL 175, 208.

3 credits

CIVL 315 Subdivision Planning - Provides an understanding of the planning concepts and restraints for subdivision development at the municipal/city level. Sections of the Municipal Act and local bylaws are reviewed to establish layout criteria, subdivision procedures and rezoning applications. Consideration will be given to engineering requirements and the concerns of external approving agencies. In preparing an actual subdivision plan, students will be evaluated based on the city, developer and engineers' view points, complete with a preliminary cost analysis. Prerequisite: CIVL 175, 208.

3 credits

CIVL 350 Stress Analysis 2 (Strength of Materials) - Topics include: shear stresses in beams, deflection and rotation, restrained and continuous beams, eccentric loading and combined stresses, Mohr's circle analysis and column theory. Testing in the

materials lab illustrates theoretical principles. Prerequisite: CIVL 250.

3 credits

CIVL 373 Hydraulics 2 - A continuation of CIVL 273 which completes the topic of pipe flow. The course begins with simple networks and progresses through pump selection, flow measurement and waterhammer to complex networks and the application of Hardy Cross method and computer programs. Prerequisite: CIVL 272 or 273.

3 credits

CIVL 378 Municipal Services 2 - This course completes the analysis of municipal servicing systems. The design of sanitary sewer collection and water distribution systems is discussed in detail. Principles of gravity flow are applied for the design of gravity sanitary sewer systems. Detail calculations and plan and profile drawings are prepared, to illustrate the final design. Following an overview of municipal water distribution systems, students will apply concepts of pressurized flow in the design of these systems. Details of materials and appurtenances are also discussed. Prerequisite: CIVL 272 or 273, and 278.

3 credits

CIVL 383 AutoCAD 1 for Civil Engineering - Basic CADD commands for controlling elements, views, drawings and files. Project using this knowledge/skill to produce civil/structural drawing and hard copy. Project to make a modified version of this drawing utilizing power of CADD system. Project to utilize data from this drawing for design and quantities take off. Prerequisite: CIVL 211.

3 credits

CIVL 384 Civil Engineering Computer Applications - An introduction to computer applications in civil technology. Course covers introductory BASIC; development of flowcharts and programs for highway alignments, vertical and horizontal parabolas and Euler spirals; earthworks, use of spreadsheets, word processing, data bases; using PC type computers and existing software to solve engineering problems.

3 credits

CIVL 386 Computer Highway Design - Hands-on use of PC-AT type computers in a project framework designing a highway from contours to Bill of Quantities. Design is to preliminary stage. RTAC standards are employed. Prerequisite: CIVL 275.

3 credits

CIVL 400 Structural Design 1 - Having previously studied forces and material properties, students learn to apply these to the analysis of real structures. They also study the effects of wind, snow and earthquake loads as determined by national standards. Design and analysis of steel and timber beams, columns, trusses and their connections are used as examples. Prerequisite: CIVL 350.

6 credits

CIVL 431 Soil Mechanics 3 - Soil mechanics theory is used in geo-technical analysis and design. Topics include excavations and retaining structures, seepage analysis and flow nets, and slope stability. Prerequisite: CIVL 270.

3 credits

CIVL 450 Structural Design 2 - For students taking Civil options. Through analysis and design projects, students are introduced to reinforced concrete as a structural material. The effects of continuity with structures are discussed and connection details for structural components in basic building materials are developed. Prerequisite: CIVL 400.

6 credits

CIVL 473 Hydraulics 3 - Begins with normal flow and progresses through critical flow and control sections (weirs and the hydraulic jump) to gradually varied flow and natural channels. Includes the effects of channel constrictions and changes in streambed, as well as culvert design. Prerequisite: CIVL 373.

3 credits

CIVL 483 AutoCAD 2 for Civil Engineering - Students will learn how to use LISP programming language and AutoCAD menu customizing to produce their own applications in civil and structural engineering. Prerequisite: CIVL 383.

3 credits

CIVL 501 Reinforced Masonry Design - A course on the structural design, specification and inspection of reinforced load bearing masonry. The design of reinforced concrete block and hollow clay brick for axial, bending and shear forces to comply with CSA standards S304M84. Design of slender walls. Properties of local masonry materials including grouts and mortar; construction methods, inspection and testing of masonry; bricklaying workshop. Prerequisite: CIVL 450. **3 credits**

CIVL 502 Advanced Concrete Technology - Presents concrete theory to technicians and technologists familiar with concrete technology. Students learn to use statistical analysis to calculate strength trends; identify various behavioral characteristics of cement; analyze new trends in admixtures; design concrete mixes; use various nondestructive methods to determine concrete quality. New technology and the Canadian Standards are discussed. Class size limited to 20 students. Prerequisite: CIVL 109. **3 credits**

CIVL 503 Transportation Planning - Reviews the field of transportation engineering. Various transportation modes are investigated and related to the overall transportation network. Environmental, economic and political aspects of transportation systems are considered through discussion and films. Students prepare a report suitable for presentation to a planning department on some aspect of transportation. Prerequisite: CIVL 175, 180. **3 credits**

CIVL 504 Design in Pre-stressing and Post-tensioning Concrete - Designed for technologists and engineers involved in the construction and erection of pre-stressing and post-tensioning concrete members. Topics include construction design, installation, grouting and jacking techniques, and the materials and hardware used in this type of construction. Prerequisite: CIVL 450. **3 credits**

CIVL 505 Formwork Design 1: Under development. **3 credits**

CIVL 506 Formwork Design 2: Under development. **3 credits**

CIVL 507 Structural Design in Reinforced Concrete - Provides basic knowledge of structural design in reinforced concrete for individuals working in the design field. Enables students to design simple structures in reinforced concrete using the ultimate strength design method. The course covers bending and shear in reinforced concrete; simple beams and one-way slabs; compressive reinforcement; tee-beams; two-way slabs, columns; concentric loading; footings; retaining walls; introduction to simple pre-stressed concrete beams. Prerequisite: CIVL 450. **3 credits**

CIVL 508 Highway Drainage Design - Incorporates the fundamentals of hydrology, hydraulics and highway alignment design to provide a working knowledge of drainage control and drainage facilities design. Topics include legal implications of drainage control, hydraulic and structural design of culverts, ditch design, storm water system design, environmental considerations and the specification of materials. Prerequisites: CIVL 275, 373. **3 credits**

COMMUNICATION

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

COMM 175 Letters and Memos - Covers communications inside and outside the office. Internal correspondence includes routine requests and replies and short, informal memos. External correspondence includes request, reply, sales and collection letters. Job applications and resumes are also covered.

COMM 183 Technical Reports - Gives writers from technical or industrial backgrounds practice in writing problem-solving reports. The emphasis is on the communication skills needed when solving engineering problems. Specific applications include comparison and feasibility reports, technical proposals, journal reviews, executive summaries, graphics and formal report format. Persuasive presentations are included. **3 credits**

COMPUTER AIDED ENGINEERING

AICO 213 AutoCAD 1 - Microcomputer-based CAD using the latest release of AutoCAD software on IBM ATs. The course includes an introduction to CAD machine components, architecture, logon procedure and displays. An introduction to AutoCAD functions includes: windows, views, measuring, element placement, and advanced geometric construction. Prerequisite: MECH 140 or appropriate drafting experience. **3 credits**

AICO 214 AutoCAD 2 - A continuation of AutoCAD 1. Topics are: annotations, dimensioning, screen menu creation, plotting and digitizing. Class assignments may be tailored to one of four discipline areas: mechanical, architectural, survey or electronic drafting, depending upon students background. Prerequisite: AICO 213 or equivalent. **2.5 credits**

AICO 215 Computervision 1 - The first course that all Personal Designer users should attend. It provides an introduction to the system and discusses the menus and screen icons needed for design and engineering functions. The course teaches the procedures required to set up, build, edit and manipulate 2D models and drawings using MicroCADD's geometric construction and detailing. **3 credits**

AICO 216 Computervision 2 - A continuation of Computervision 1, 3D and surface models. Prerequisite: AICO 215. **3 credits**

AICO 218 AutoCAD A.E.C. (Architectural) - Emphasizes the production of 2D/3D production drawings for the architectural environment. Using AutoCAD AEC software, the student will progress from basic drawings to the generation of more advanced projects using customized AEC templates. **3 credits**

AICO 220 SmartCAM - Automatic tool path takeoff from a CAD model. Exposure to production model CNC milling machines and lathes. Software tools will be SmartCAM and may also include AutoCAD and Computervision in the production of the CAD model. **3 credits**

AICO 230 Intergraph Surfaces - 3D surfaces: modeling and rendering techniques. From geodesic domes to propellers, to irregular and patched surfaces-all in color using Intergraph. Of special interest to architects, industrial designers, product technologists. **3 credits**

AICO 313 AutoLISP Programming 1 - Introduction to AutoLISP. Enables students to obtain and display user information in an AutoCAD work session, perform math calculations using AutoLISP, use the logic control structures of AutoLISP, access and change system-wide AutoCAD settings, and write elementary graphic programs in AutoLISP. **2.5 credits**

AICO 501 Graphics Programming in FORTRAN 77 - Introduction to FORTRAN programming. Emphasis will be on the solution of engineering problems and theory of CAD systems using structured programming techniques. At the completion of the course the student will understand how a simple CAD system is implemented. Prerequisite: CDCM 101, 201 or equivalent. **6 credits**

AICO 502 Systems Analysis - Introduction to standard problem analysis tools: flow charting, Nassi-Schneidermann, decision tables, systems analysis, flow graphs, structure charts, and data flow analysis, scheduling and CP methodology. **3 credits**

AICO 503 CAD and Graphics - This concentrated CAD course will give the student extensive hands-on practice on leading-edge CAD equipment. Students will be given exposure to both 2D and 3D graphics with examples drawn from the earth sciences. **4 credits**

AICO 504 Data Structures in "C" - Introduction to "C". Emphasis will be on the solution of problems solvable in a microcomputer environment; software package design and implementation, and programming techniques. Problems will be selected from polygon processing algorithms. Prerequisite: CDCM 101 or equivalent. **6 credits**

AICO 505 Spatial Information Systems 1 - Gives the student a broad overview of hardware, software systems and capability measuring. The course establishes the perspective for subsequent courses in Spatial Information Systems. **3 credits**

AICO 506 Linear Algebra with Computer Applications - Stress on techniques required for modeling and simulation. Transformations and projections. Practical applications implemented on computers. Discrete and stochastic models. Modeling packaged software versus modeling programs. Practical examples from the mining, petroleum, pulp and paper and manufacturing environments. Projects will be completed in higher level languages and/or a variety of simulation packages. **4 credits**

AICO 507 Applied Mathematics 1 - Gives students expertise in numerical methods. Floating point computations, matrices, simultaneous linear equations, interpolation and approximation methods, numerical integration, solutions to non-linear equations, and random number generation. **4 credits**

AICO 508 CNC Programming - Introduces the student to current CNC and Robot languages such as APT and VAL. Investigates the integrated manufacturing centre. Special emphasis on exposure to CNC machines, model milling machines and lathes, drill presses, and 2.5 axis milling machines. **9 credits**

AICO 509 Technical Aspects of Process Control - Introduction to process control. Applications of process control in petrochemical and forestry industries. Hardware and software issues involved in process control. **5 credits**

AICO 510 3D Graphics and Design - This concentrated CAD course will give the student extensive hands-on practice on leading-edge micro-based CAD equipment. Both the AutoCAD system and ComputerVisions MicroCAD packages will be used. 2D drafting, 3D wire frame models, and surface modeling. **8 credits**

AICO 511 Programmable Controllers - Introduction for the non-electrical specialist to PLC's. Ladder diagrams, electronic theory and programming. Discussion of selection criteria. **5 credits**

AICO 512 Manufacturing Management - At the completion of this course, students will be familiar with techniques, models, procedures and philosophies for managing a manufacturing process. **4 credits**

AICO 521 Spreadsheets for Engineers - Introduction to spreadsheets with applications for engineers. Emphasis on DOS fundamentals and structured programming techniques, budgets and simulations. **3 credits**

AICO 522 Introduction to "C" Programming - Emphasis on structured programming techniques in either a UNIX or DOS environment. ANSI Standard "C". Problems drawn from engineering, GIS and graphics. **2 credits**

AICO 523 Data Structures in "C" - A continuation of AICO 522. Stress on data structures, type definitions and fields. Problems drawn from Geographical Information Systems. **2 credits**

AICO 524 Forest Management Systems (GIS) - An overview for forest resource managers of the capabilities of Geographical Information Systems. Stress on economical applications using case demonstrations. **3 credits**

AICO 525 Introduction to GIS (PAMAP) - Introduction to operational aspects of Geographical Information Systems using the PAMAP GIS in a microcomputer environment. Working problems drawn from resource management. **3 credits**

AICO 526 Introduction to GIS (TERRASOFT) - Introduction to operational aspects of Geographical Information Systems using TERRASOFT GIS in a microcomputer environment. Working problems drawn from resource management. **3 credits**

AICO 527 Land Related Information Systems (LRIS) - An overview course from the survey engineer's perspective of LRIS. Control, CADASTRAL, municipal mapping, data entry, map-merging and analysis. Case studies will be used to illustrate. **3 credits**

AICO 601 File Handling and Database - Sequential, direct and keyed indexed file handling. Introduction to data base systems: hierarchical, network and relational. Stress on micro-based systems and engineering applications. Inventory control, BOM, etc. Discussion of DB and its impact in an integrated DP environment. Prerequisite: AICO 501. **8 credits**

AICO 602 Systems Management - Issues related to the management of computer systems: backup strategies, security issues, system utilization measures, system accounting, vendor liaison, preventive maintenance scheduling. Stress on micro and minicomputer support. **2 credits**

AICO 603 Systems Acquisitions - Documentation required for the acquisition of automating equipment. Cost/benefit analysis. Analysis of organizational issues. Identifying scope of automation. Impact of implementation on existing structures. **2 credits**

AICO 604 Real Time Systems - Fundamentals of Real Time Systems development. Signal interpretation. Peripheral and sensor interfaces. Integrity checks. Audit trails. **8 credits**

AICO 605 Issues in Networking - Communication between computers. Networking theory and practice. Distributed processing with special emphasis on microcomputers. Software management of LAN systems. Theory of ETHERNET and ISO standards. **4 credits**

AICO 606 Advanced Software Systems - Point of entry systems. Integrated process control systems. Inventory control. Students will attempt the design and development of large software systems. Examples drawn from engineering and industrial systems with emphasis on integration with Management Information Systems. **8 credits**

AICO 607 Projects - Affords students the opportunity to work on a comprehensive project with an industry mentor, or on a project of their own choosing with the aid of an advisor. The project is intended to demonstrate the student's practical grasp of SIS.

6.5 credits

AICO 608 Natural Resources and Engineering Mapping - Informs students of the fundamental operations for digital base mapping through analytical photogrammetry, and how to compile, transform, edit and store data sets in a form equivalent to government standards for this type of information. **5.5 credits**

AICO 610 Systems Projects - Students working in small groups will propose and develop projects relevant to their disciplines. Groups will be interdisciplinary and will act under the guidance of selected faculty/industrial experts. Presentations, documentation and development will be to industry standards. **8 credits**

AICO 611 Advanced Manufacturing Projects - At the completion of this course the student will be able to analyze the causes of a CIM related problem in an industrial setting and prepare a written report describing a feasible solution to the problem.

6 credits

AICO 613 Quality Control - Provides the student with a concentrated applications-focused overview of the fundamentals of statistical process control.

2 credits

AICO 614 Interactive Graphics NC Programming - Automatic tool path takeoff from a CAD model. Exposure to production model CNC milling machines and lathes. Software tools will be popular microbased systems.

10.5 credits

AICO 615 Robot Applications - Theory and practice in automated manipulators and servers. Multi-axis arms, painters, welding units, pick and place devices. Programming methodologies. Effective selection of devices.

5.5 credits

AICO 616 Computer Integrated Manufacturing - This course is the capstone course of the advanced manufacturing management program. The CIM course has been designed to integrate and expand on topics covered in the other courses in the program.

4 credits

AICO 618 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.

2.5 credits

AICO 619 Spatial Information Systems 2 - Defines the components of a GIS; gives system functions and capabilities; examines weaknesses and strengths of GIS, DEMs, raster vs polygon systems, micro vs minicomputer implementations. Various applications are addressed.

4 credits

AICO 620 Spatial Information Systems 3 - Examines a variety of data structures used in SIS. Develops a number of the common algorithms used in GIS development and gives the student an appreciation of the internals of a GIS. Students will understand the reasons for the strengths and weaknesses of the different systems.

4 credits

AICO 621 Applied Mathematics 2 - A continuation of AICO 507.

4 credits

AICO 622 CAD Project - Student managed projects with applications in students' area of interest. Projects integrate programming in graphics, database practice and engineering problem-solving. Prerequisite: Permission of the department.

9.5 credits

AICO 976 Desktop Publishing - A practical hands-on course teaching design, layout and production of professional, high impact publications, using the Aldus Pagemaker Version 3.0 desktop publishing software. Students have their own workstations using an IBM AT or compatible computer. **non credit**

AICO 980 Introduction to UNIX System V - A practical introduction to AT&T's UNIX operating system. It will allow users to manage machine resources effectively, provide a variety of utility programs, and exposure to networking using ETHERNET in a UNIX environment. **non credit**

COMMUNICATION

COMM 160 Introduction to Business and Technical Communication - Introduces students to the basics of communicating in business and industry. It offers practical techniques for planning, organizing, selecting and presenting information, effective business and technical style. Students apply these skills to communications common to most office jobs - writing routine memos, instructions, procedures and summaries. Presenting information orally is also covered. Practical "case" assignments are used. For those with little experience in business or technical communication.

3 credits

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

1.5 credits

COMPUTER SYSTEMS TECHNOLOGY

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 101/102/103/105/126.

3 credits

COMP 107 Understanding PC/MS DOS - Gives the beginning student an in depth knowledge of the PC/MS Disk Operating System (DOS). This course covers all the essential commands contained in the DOS, including formatting and copying disks. The course provides an understanding of how to use PC/MS DOS files, essentials of Hard Disk management, and Batch File creation. Prerequisite: COMP 901 or equivalent.

1.5 credits

COMP 114 Word Processing Concepts - Introduces the beginning student to word processing by giving "hands-on" experience on a microcomputer, combined with lectures using a popular word-processing package. Topics include text entry, saving and retrieving files, editing, spell check and printing. Prerequisite: COMP 107/701 or equivalent.

1 credit

COMP 115 Spreadsheet Concepts - Introduces the beginning student to spreadsheets by giving "hands-on" experience on a microcomputer, combined with lectures using a popular spreadsheet package. Topics include data entry, saving and retrieving files, formulas, editing, formatting and graphs. Prerequisite: COMP 107/701 or equivalent.

1 credit

COMP 116 Microcomputer Database Concepts – Introduces the beginning student to databases by giving “hands-on” experience on a microcomputer, combined with lectures using a popular database package. Topics include data entry; saving and retrieving files; adding, updating and deleting records; printing. Prerequisite: COMP 107/701 or equivalent. **1 credit**

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 107/701. **1 credit**

COMP 118 WordPerfect 5 Level 2 – Continues from COMP 117. Explores additional features such as spelling-checker, thesaurus, creating newspaper and parallel columns of text, handling reveal codes, using macros, generating indexes and tables of contents. This course is particularly useful for those who plan to use Word Perfect extensively in their work. Prerequisite: COMP 117. **1 credit**

COMP 119 WordPerfect 5 Level 3 – Continues from COMP 118. Topics include line drawing, integrating graphics into documents, performing calculations, outlining, sort/merge and writing macros. Prerequisite: COMP 118. **1 credit**

COMP 126 Programming Concepts and Methodology – Introduces the principles and concepts of computer programming to those who intend to become involved in the computer industry. A prerequisite for most systems and programming courses. Lectures and “hands-on” exercises are used to present principles of programming. Prerequisite: COMP 107/701, 114, 115, 116. **3 credits**

COMP 127 Microsoft Word 4 Level 1 – Introduces Microsoft Word and its uses for various word-processing applications. Topics include creating, modifying and printing a document. Covers the editing features of inserting, replacing, formatting and justifying text. Style sheets are also explored. Prerequisite: COMP 107/701. **1 credit**

COMP 128 Microsoft Word 4 Level 2 – Continues from COMP 127. Covers additional skills such as using the spell-checker, thesaurus, calculator and glossaries, creating tables of contents and indexes, using macros and creating columnar formats. Prerequisite: COMP 127. **1 credit**

COMP 129 Microsoft Word 4 Level 3 – Continues from COMP 128. Covers more advanced features. Topics include creating macros, outlining, merging and sorting documents, using forms and summary sheets, and interfacing with other programs. Prerequisite: COMP 128. **1 credit**

COMP 130 Assembler Programming Language Level 1 – Introduces programming to persons intending to become computer programmers. IBM Assembler language is used to familiarize the student with the inner workings of the computer. Students learn to produce working, fully documented Assembler programs for elementary business problems, and to write, test and debug a series of Assembler programs in an online 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 101/102/103/105(65% or better)/126 or equivalent data processing experience. **3 credits**

COMP 132 FORTRAN IV Programming Language Level 1 – Presents programming in a “high-level” programming language which provides sufficient knowledge and experience to design, flowchart, write, test and debug simple computer programs using FORTRAN IV. Additional topics include the syntax and use of a subset of the statements comprising the FORTRAN IV language, application of these statements to solve simple numeric problems, preparation and submission of programs to available computer. Serves as preparation for COMP 232. Prerequisite: Grade 12 mathematics and COMP 101/102/103/105/126. **3 credits**

COMP 135 RPG II Programming Language Level 1 – Teaches the fundamentals of programming in RPG II to people with an understanding of data processing concepts. Presents RPG II 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 II logic cycle, control breaks, matching records, arrays, tables and programming techniques. Prerequisite: COMP 101/102/103/105/126. **3 credits**

COMP 136 Ventura Desktop Publishing – Deals with the exciting application of producing “typeset-quality” documents/forms/flyers without using a print shop by using this package by Xerox. Topics include creating textual materials, incorporating pictures with texts, working with style sheets and producing “typeset-quality” outputs. Prerequisite: COMP 117/127 or equivalent. **1 credit**

COMP 137 C Programming Language Level 1 – Covers basic data types, control constructs, operators and syntax, followed by discussion of functions, arrays and pointers. A brief introduction to the Standard C Library functions is also provided. The course consists of lectures and labs with a number of programming assignments, and serves as preparation to COMP 237. Knowledge of an Assembler language or PASCAL is required for maximum benefit from this course. Prerequisite: COMP 130/236 or equivalent. **3 credits**

COMP 144 Assembler Microcomputer Programming Language: IBM PC Level 1 – Introduces programming to persons intending to program in the Assembler language on the IBM PC microcomputer. Lectures and practical “hands-on” experience using IBM PC’s introduce the fundamentals of the PC Assembler Language. Prerequisite: COMP 101/102/103/105/126. **3 credits**

COMP 145 BASIC Programming Language (IBM PC) Level 1 – Teaches the fundamentals of writing business-type data entry and report writing programs. Lectures and “hands-on” experience using IBM PC type computers and Microsoft QUICKBASIC cover structured programming; using sequential and random type files; subtotals on reports; report design; program documentation; string handling; and validating input data. Prerequisite: COMP 101/102/103/105/126. **3 credits**

COMP 147 Lotus 1-2-3 Level 1 – Focuses on spreadsheet functions. Spreadsheet basic functions are explained, then how to enter data, change the appearance of the display, use the basic worksheet commands and built-in functions, work with files and print spreadsheets. Prerequisite: COMP 107/701. **1 credit**

COMP 148 Lotus 1-2-3 Level 2 – Continues from COMP 147. 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 147. **1 credit**

COMP 149 Lotus 1-2-3 Level 3 – Continues from COMP 148. Focuses on managing a database using database functions, and using graphics capabilities to produce graphs. Prerequisite: COMP 148. **1 credit**

COMP 157 dBASE III Plus Level 1 – Uses dBASE III Plus to create a database, enter data into it, make changes, manipulate, inquire, and retrieve/print the data. Building indexes, creating customized data-entry forms, and generating formatted reports are also covered. Prerequisite: COMP 107/701. **1 credit**

COMP 158 dBASE III Plus Level 2 – Continues from COMP 157. Emphasizes the dot prompt mode of using dBASE III Plus. Explores the important concept of linking multiple tables and the application generator. Proper relational database design is discussed. Prerequisite: COMP 157. **1 credit**

COMP 159 dBASE III Plus Level 3 – Continues from COMP 158. Begins the programming aspect of dBASE III plus. The course covers the major statements used in command file programming and illustrates how to develop a working database system in dBASE III Plus. Prerequisite: COMP 158. **1 credit**

COMP 160 Computer Systems Introduction Level 1 – Introduces the basic definition and design of computer systems. Emphasizes the fundamentals of systems analysis including development of system objectives, problem definition, information gathering, effective written and verbal communication (particularly with user department personnel) about systems problems and possible computer solutions. The course presents the systems development process and covers basic systems theory, the systems development cycle, information gathering, flowcharting, report writing, forms design and presentation techniques. Additional techniques and their applications to common business systems are presented in COMP 260. Prerequisite: COMP 101/102/103/105/126. **3 credits**

COMP 162 Microcomputers Using dBASE Level 1 – Broadens the knowledge of microcomputer users in the field of data base management using a well established data base system. Explores all aspects of dBASE III's powerful programming capabilities. Students develop a menu-driven system using multiple data base files. Programming and DOS experience would be helpful to the student. Prerequisite: COMP 101/102/103/105/126. **3 credits**

COMP 164 Microsoft WORD – Introduces the fundamentals of a powerful word processor to students with little or no word processing experience in this six week course. Although this program can be used with both the Macintosh and the IBM PC, this course will be taught on the IBM PC with a mouse. Familiarity with MS/PC DOS would be helpful. **1.5 credits**

COMP 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 data base 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 Framework's programming language. Students complete a major project. Prerequisite: No previous experience of computers is required but keyboard skills are desirable and access to Framework in the work environment is a considerable asset. **3 credits**

COMP 169 LOTUS 1-2-3 – Provides an understanding of the value and uses of a spreadsheet program, and the detailed commands of Lotus 1-2-3 with respect to spreadsheets, graphics, data management and macros. "Hands-on" experience gives thorough practical knowledge. **3 credits**

COMP 175 Accpac General Ledger – Implements a general ledger (G/L) system. Topics include converting an existing manual system to Accpac, adding and editing transactions in batches, posting batches to the ledger, and printing various financial reports. The financial statement report writer is explored. Prerequisite: COMP 107/701 and a basic understanding of accounting principles. **1 credit**

COMP 176 Accpac Accounts Receivable – Explores monitoring the accounts receivable functions of a business. The entire cycle of accounts receivable from setup to producing management reports is examined. Covers the interface to Accpac General Ledger. Prerequisite: COMP 175. **1 credit**

COMP 177 Accpac Order Entry/Inventory Control – Covers the entire cycle of handling orders and keeping track of inventory. Explores the interface to Accpac Accounts Receivable and General Ledger. Prerequisite: COMP 175, 176. **1 credit**

COMP 178 NewViews Accounting Level 1 – Exposes students to a revolutionary approach to computerized accounting where everything is fully integrated and no month-end or year-end closing is required. The basic concepts and navigation commands are covered, followed by accounting using NewViews. Prerequisite: COMP 107/701 and a basic understanding of accounting principles. **1 credit**

COMP 179 NewViews Accounting Level 2 – Continues from COMP 178. Covers handling history, budgeting, security and exporting/importing. The concept of 'procedures' is discussed and supplied procedures are used. Prerequisite: COMP 178. **1 credit**

COMP 180 NewViews NPL Programming – Continues from COMP 179, and uses the 'NewViews Procedure Language' (NPL). Topics include adding, running, deleting and interrupting procedures. The course covers the NPL constructs of macros, data declarations, numeric and string operations, control of flow, handling screen and keyboard, data handling, and DOS Access. Prerequisite: COMP 179. **1 credit**

COMP 181 Bedford Accounting Level 1 – Covers setting up a set of books using this integrated accounting package. Topics include general ledger, accounts receivable and accounts payable. Prerequisite: COMP 107/701 and a basic understanding of accounting principles. **1 credit**

COMP 182 Bedford Accounting Level 2 – Continues from COMP 181. Covers the handling of payroll, inventory and job costing. Prerequisite: COMP 181. **1 credit**

COMP 187 Computerized Accounting – Uses IBM PC's or equivalent, and the "Bedford Accounting Package" to cover general ledger, payables and receivables, payroll, job costing, and preparation of financial statements for persons with some knowledge of computing and accounting. Prerequisite: COMP 101/102/103/105/107/701 and FMGT 101, or equivalent. **3 credits**

COMP 230 Assembler Programming Language Level 2 – Continues COMP 130 offering more detail of IBM Assembler language and computer architecture. Students learn the architecture and principles of IBM computer operation and how to use Assembler language for common business programming. Topics include Assembler instruction formats; binary instructions; registers, base/displacement addressing; tables and table look-up techniques; sub-routines and program structure; IOCS: file definition and imperative macros. Prerequisite: COMP 130. **3 credits**

COMP 232 FORTRAN IV Programming Language Level 2 – Provides progression into aspects of FORTRAN IV language beyond those covered in COMP 132. Students study the use of FORTRAN IV to design, flowchart, write, test and debug assigned programs and programs within their own fields of endeavor, and follow the logic of programs written by others. Topics include the syntax and use of FORTRAN IV statements related to double precision and logical constants; variables and expressions; sub-routine, function and block data sub-programs; processing sequential files on tape and disk devices; the application of these statements to solving both numeric and non-numeric problems; preparation and submission of programs to computer. Prerequisite: COMP 132. **3 credits**

COMP 233 COBOL Programming Language Level 1 – Presents business computer programming using the popular "high-level" COBOL language. Suitable for accountants or accounting students wanting to understand programming in a data processing environment. Serves as preparation for COMP 333 for COBOL programming as a career. The student learns to apply the basic principles and practices of business computer programming and to write simple programs in COBOL. Topics include programming methods; structured programming; documentation standards; flowcharting; report design; sequence checks; page 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 101/102/103/105/126. **3 credits**

COMP 234 PL/1 Programming Language Level 1 – Covers typical business programming techniques including coding, testing and debugging PL/1 programs of a relatively complex nature using the PL/1 "high-level" language. Lectures and lab sessions cover data declaration; record and stream I/O; PL/1 arithmetic; structures; arrays; built-in functions; procedure and begin blocks. Prerequisite: COMP 130. **3 credits**

COMP 236 PASCAL Programming Language – Covers the entire PASCAL instruction set for students who understand general programming principles. Also covers characteristics and advantages of structured and modular programming as well as reading and writing structured programs in PASCAL. Topics include structured programming; modularity; basic and complex data types and structure including arrays, trees, lists and pointers; control statements and structures including recursion, procedures and functions, and PASCAL syntax diagrams. Prerequisite: Work experience in programming and/or one of the following BCIT language courses (or equivalent) COMP 126/234/130/131/132/233. NOTE: COMP 101/102/103/105 is not a sufficient prerequisite to this course. **3 credits**

COMP 237 C Programming Language Level 2 – Continues the material covered in COMP 137. Intended for programmers with a good working knowledge of C. Topics include data structures, advanced use of pointers, machine level operations, programming style, portability and efficiency. Special emphasis will be placed on the development and use of program libraries and software tools in the C environment. Prerequisite: COMP 137 or equivalent. **3 credits**

COMP 241 Data Communications Concepts Level 1 – Introduces data communication systems and provides a basic understanding of business data communication applications and related concepts, for those involved in communication and computer industries or wanting to become conversant with data communication. Topics include basic principles and components of communication systems; line facilities and service offerings provided by common carriers; protocols and data offerings provided by common carriers; protocols and data link controls; local area networks; communication network performance. Prerequisite: Programming or systems design experience. **3 credits**

COMP 242 Microcomputers: Exploring Technical Aspects – Provides a theoretical perspective of the microcomputer field exposing the student to the capabilities and limitations of a number of real 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 101/102/103/105/126. An understanding of the computer field from COMP 130 or other computer language courses is highly recommended. **3 credits**

COMP 244 Assembler Microcomputer Programming Language: IBM PC Level 2 – Continues from COMP 144 and provides more detail 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 144. **3 credits**

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 248 PROLOG Programming Language – Explains PROLOG, chosen for the Japanese Fifth Generation computer project. This popular language for Artificial Intelligence/Knowledge Systems (AI/KS) work is a "logic based" language, which encourages elegant and concise solution to many difficult programming problems. PROLOG origins and uses in industry, language features, and various AI programming techniques (e.g. meta-interpreters) are examined. Students will build PROLOG applications. Prerequisite: IBM micro experience and successful completion of at least one Level 1 programming language, or permission of the instructor. **3 credits**

COMP 249 POWERHOUSE Programming Language Level 1 – Provides a solid base in programming with POWERHOUSE, a fourth generation language. Includes the use of all the 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 260 Computer Systems Introduction Level 2 – Expands on the fundamentals learned in COMP 160 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 roles of data communications, data base usage and small computers in systems design are also discussed. A major systems project utilizes the material presented in COMP 160/260. Scheduling techniques such as Gantt charts, PERT/CPM are introduced. Prerequisite: COMP 160. **3 credits**

COMP 261 Computer Systems Development Level 1 – Provides a working knowledge of systems analysis and develops job skills related to the design of information processing systems, including the ability to contribute 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 160/260 or an advanced programming course. **3 credits**

COMP 262 Data Base Concepts Level 1 – Studies evaluation, selection and implementation of principles of management systems. Introduces the purpose, functions and facilities of data base systems. Familiarizes students with various approaches taken to data base software and the procedures for installing a data base management system. Topics include evaluation of data structures, advantages and disadvantages of data base, existing data base applications and insights into the various data base management systems on the market. The role of the data base administrator is developed. Prerequisite: Programming or systems design experience. **3 credits**

COMP 263 Microcomputers Using dBASE Level 1 – Broadens the student knowledge of dBASE III, not only from a programming vantage, but also to cover systems overview and design. Students design, program, and implement dBASE III systems of their own selection. Prerequisite: COMP 162, or a thorough knowledge of the dBASE III Command Language. **3 credits**

COMP 266 Microcomputers: Business Applications – Uses LOTUS 1-2-3 to construct business models in areas such as budgeting, inventory control, cash flow analysis, etc. "Hands-on" exercises will be stressed, including "what-if" analyses. Other current popular application packages may be discussed and demonstrated. Prerequisite: COMP 169. **3 credits**

COMP 267 Microcomputers: Package Implementation – Provides the knowledge and experience for the successful installation of a microcomputer business application package. Using lectures, hands-on experience and data, students will be guided through all phases of the installation of an up-to-date accounting package on an IBM PC microcomputer. Topics will include: review of the operating systems (DOS) and hardware requirements as they relate to a package implementation. Other current popular application packages may be discussed and demonstrated. Prerequisite: COMP 101/102/103/105/107/701. **3 credits**

COMP 268 FRAMEWORK III Level 2 – Covers the use of FRAMEWORK III's programming language, FRED. Students become familiar with concepts and procedures involving: project analysis and evaluation so Framework's programming capability can be used to successfully complete business projects; program design to plan programs logically and efficiently; program writing

to create project-required programs; program refinement and completion to ensure that programs meet project needs. Prerequisite: Thorough familiarity with Framework III capabilities, features, operations, and basic functions. A minimum of COMP 168 or equivalent. **3 credits**

COMP 284 Decision Support Systems 1: Forecasting and Simulation – Utilizes scientific methods to analyze management problems and formulate 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 101/102/103/105/126 or equivalent, plus OPMT 197. **3 credits**

COMP 285 SPSS – Introduces the student to programming techniques using the statistical package SPSS. The student learns how to generate descriptive statistics, graphs (i.e. bar charts, histograms, pie charts, etc.), and frequency distributions. Inference, sampling and data handling techniques as well as reporting on our data (non-statistical reports) follows. Hypothesis testing, forecasting techniques (such as moving average, exponential smoothing, linear and multiple regression, and Box-Jenkins, descriptive measures, bivariate data, and ANOVA) are also covered. Some real world applications are also examined. Prerequisite: OPMT 197 or equivalent. **3 credits**

COMP 287 Smalltalk and Object Oriented Programming – Addresses the issues of programmer productivity, graphical interfaces, data modeling, and symbolic programming (e.g. artificial intelligence). Major software companies such as MicroSoft and IBM are designing new development tools (e.g. for OS/2) based on the OOP approach. Smalltalk, the original and dominant OOP language, provides a sophisticated development environment for creating software. This course introduces OOP concepts, Smalltalk programming, graphical interfaces and some knowledge ('expert') system concepts. Prerequisite: IBM micro experience and successful completion of at least one Level 1 programming language, or permission of the instructor. **3 credits**

COMP 330 Assembler Programming Language Level 3 – Offers advanced study of IBM Assembler language and the opportunity to develop the ability to write extensive programs in this language. Persons already employed in programming find this course helpful in broadening their understanding of programming concepts and IBM operating systems. Students study input/output control and operating interfaces, learn to use the Assembler macro language and magnetic tape and disk storage devices. Lectures and laboratory exercises provide practical experience and cover operating systems interfaces, tape and disk storage, macro writing sub-programs, and logical IOCS operations. Prerequisite: COMP 230. **3 credits**

COMP 332 FORTRAN IV Programming Language Level 3 – Continues the study of FORTRAN IV language beyond COMP 232. On successful completion, students can make a meaningful contribution to projects assigned in industry with a minimum of supervision. Emphasis is on developing programs within students' fields of endeavor rather than on assigned projects. Topics include the syntax and use of FORTRAN IV statements related to areas such as complex variables, constants and expressions; varying dimensions of arrays and formal elements during processing of a program; processing direct access files on disk devices; the application of statements to solving both numeric and non-numeric problems; preparation of submission of programs to an available computer. Prerequisite: COMP 232. **3 credits**

COMP 333 COBOL Programming Language Level 2 – Develops an understanding of tape file organization and the COBOL instructions associated with tape files; disk file organization, including indexed-sequential and random access files and the COBOL instructions associated with their use; utility programs and proper libraries; special techniques. Topics include efficient COBOL programming techniques; sequential and binary table look-ups; subprograms; overlay techniques; multiple disk and tape file handling; indexed sequential and direct (random) file organizations, and all the associated COBOL instructions. Disk libraries, DOS utility support, and sort programs are also taught. Prerequisite: COMP 233 or previous programming experience in COBOL. **3 credits**

COMP 334 PL/1 Programming Language Level 2 – Covers the PL/1 "high-level" language using typical business programming including coding, testing and debugging programs of a relatively complex nature. The course continues COMP 234 and includes tapes and disk processing, more advanced programming techniques and language features. Prerequisite: COMP 234. **3 credits**

COMP 341 Data Communication Concepts Level 2 – Continues COMP 241. Valuable to students involved in communication and computer industries. Students are exposed to advanced topics relating to communication systems for business applications. Topics include the methods and techniques necessary to develop data communication systems and computer teleprocessing; performance modeling of existing and planned networks; future and planned service offerings by common carriers; network control centre operation; common carriers and regulatory matters. Prerequisite: COMP 241. **3 credits**

COMP 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 data bases 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 262 and one high level language. **3 credits**

COMP 349 POWERHOUSE Programming Language Level 2 – Expands on the material covered in COMP 249. Topics include procedures, QTP in depth, file linkages, multi-pass programming, and security. Prerequisite: COMP 249. **3 credits**

COMP 360 Computer Systems Testing – Introduces students to the discipline of software testing. It discusses various levels of testing and focuses on the testing effort within the framework of the life cycle of a development project. Some areas covered are levels of testing - unit, integration, system, etc.; scenario development for online transactions and batch jobs. Students will develop plans, write scenarios, execute tests and document results and problems. Prerequisite: A programming course and COMP 160/260 or 261/361. **3 credits**

COMP 361 Computer Systems Development Level 2 – Expands on material covered in COMP 261 and provides a working knowledge of systems analysis. The course develops the job skills for the documentation and implementation of information processing systems. Lectures and discussion, and a continuation of the case study from Level 1, cover controls, communication techniques, scheduling systems conversion and post-implementation auditing. Prerequisite: COMP 261. **3 credits**

COMP 362 Data Base Concepts Level 2 – Addresses information modeling, logical object analysis and normalizing relationships, for persons involved in the logical and physical design of data bases. Students are confronted with problems related to design compromises and performance optimization, and are encouraged to investigate details of specific DBMS and present conclusions. Prerequisite: COMP 262. **3 credits**

COMP 384 Decision Support Systems 2: Resource Allocation – Covers the methodology of deterministic models and techniques in solving management problems. The areas covered are linear programming, dynamic programming, mathematical programming, Games Theory II, heuristic methods and an introduction to expert systems. The course also examines some distribution models and some real world applications. Prerequisite: COMP 284. **3 credits**

COMP 385 Applied Artificial Intelligence: Design of Expert Systems – Examines the formalization and storage of knowledge, automated reasoning strategies, problem selection, software tools and industry trends. Expert or knowledge systems is a sub-field of Artificial Intelligence with many practical applications. Briefly, problem-solving knowledge in a narrow domain is encoded and a specialized control program uses this knowledge base to determine solutions to relevant problems. Students will develop knowledge systems using a "shell", LISP, or PROLOG. Prerequisite: Microcomputer and programming experience, or COMP 101/102/103/105/126 and another language. **3 credits**

COMP 440 CICS – Teaches experienced PL/1 and COBOL programmers to design and code on-line programs using CICS. Topics include screen mapping and the CICS commands to handle required processing. Prerequisite: COMP 333/334 or equivalent experience. **3 credits**

COMP 484 Decision Support Systems 3: Implementation – Explains the architecture which is the structure of a DSS (data base management system), model base management system, user interface, communications package, spreadsheet, and knowledge based and simulation systems. The design phase covers the different design types for each of the above components. Based on the chosen design, a small DSS is written which has a user interface, a simple DBSM and a model base management system. The student is able to use this as a kernel for a real world system. C is the programming language used. Prerequisite: A Level 2 programming language, preferably COMP 237 (or equivalent), and COMP 384. **3 credits**

COMP 761 Developing Computer Aided Instruction – Covers using the computer as an effective educational tool. Topics include: evaluating CAI packages, instructional development cycle, screen design, use of color, animation, user friendliness, instructional design, feedback, testing, team approach, tools to use, benefits, costs, issues, and an introduction to interactive video. The hands-on lab involves creating a lesson based on these principles, using an authoring package on an IBM PC. Familiarity with DOS and the keyboard is recommended. Prerequisite: COMP 107/701. **3 credits**

COMP 901 Computing for the Timid – Provides a short course for those who have never used a computer - particularly those who are afraid of them. Explains common terminology and the major parts of the computer, keyboard, disks. Gives hands-on experience on IBM PC's to familiarize the student with computers. **non credit**

COMP 925 Build Your Own PC – Gives the student an understanding of the internal physical components of the IBM. An I.B.M.-compatible kit is purchased and assembled by the student. Teaches how to care for and maintain it, including problem diagnosis, and how to upgrade computer hardware. Cost of the kit is extra. **non credit**

ELECTRONICS

ELEC 150 Illumination - An introductory course in illumination which examines electrical systems pertaining to buildings. Deals with the language of lighting, design methods, characteristics and types of light sources and the economics of lighting. As the lighting system is generally designed by the electrical system designer, it is necessary to have a working knowledge of lighting systems when studying the electrical system. Prerequisite: MATH 101 and 102. **2 credits**

ELEC 250 Electrical Systems - Students learn how to plan the electrical system for a specific building with the electrical designer. How to read and work with common electrical drawings and specifications, understand single and three-phase systems, and power factor correction for minimal operations costs; recognize and avoid building designs that create costly electrical design problems. Prerequisite: ELEC 150. **4 credits**

ELEC 255 Instrumentation for Mechanical - Topics include basic devices used for measuring pressure, temperature, level, density and flow. Instrument static and dynamic performance. Instrument application to industrial processes. Design of pneumatic and hydraulic measurement and control equipment using high-gain amplifiers and negative feedback. Basic principles of automatic control, process, dynamic behavior and controllability. On/off, proportional, integral and derivative control. Control strategy. Ratio, cascade, multivariable and feedforward systems. Introduction to computer control. **5.5 credits**

ELEC 257 Electrical Equipment - An introduction to industrial electrical equipment. Topics include AC and DC motors and their application to electro-mechanical drive systems; protecting and controlling related equipment; sources of energy; transformation into primary and secondary voltage levels, distribution of power throughout the plant; switching; voltage control and power factor correction. **4 credits**

ELEX 100 Circuit Analysis 1 - Teaches the principles and methods of analysis related to DC circuits. Topics include SI units and terminology, voltage, current, work, energy, power and resistance. Series, parallel, and series-parallel circuits are analyzed and designed. Methods of analysis for more complex circuits include mesh, superposition, nodal, Thevenin and Norton. Transients in RC and RL circuits are analyzed. Average and RMS values for sinewaves and rectangular waves are calculated. Labs are synchronized with lectures so that theory is studied and confirmed by application. Prerequisite: Algebra 12, Physics 11. **7 credits**

ELEX 101 Electronic Manufacturing Processes - Through the design and manufacture of electronic projects, students learn the skills required to do basic soldering, printed circuit repair and rework, high reliability soldering, design and fabrication of single and double-sided printed circuit boards. Upon successful completion, the student will be able to demonstrate a good understanding of the components used in the manufacture of electronic equipment, chassis and metal cabinet design, electronic drafting conventions, tools and techniques used in electronic fabrication, printed circuit design and manufacturing methods, tools used for PC board repair, high reliability soldering requirements, repair of heat and mechanically damaged PC boards, as well as techniques required for the design and manufacture of single and double-sided printed circuit boards. **5.5 credits**

ELEX 102 Digital Techniques 1 - Begins with a description of the fundamental theory of the decimal and binary number systems, followed by an introduction to the binary (two states or levels) concept and binary variables as related to mechanical switches. Various digital logic circuits are discussed and truth tables and Boolean output equations are generated. Various logic sources are defined and interfaced to combinational logic circuits comprising electronic logic gates. A TTL data book will be utilized to facilitate combinational logic circuit design. Boolean identities and Karnaugh mapping will be used to minimize algebraic expressions. Combinational digital logic will be designed and constructed implementing NAND and NOR GATES using Demorgan's equivalent logic symbols (Duality of Gates). Encoders and decoders will be introduced. Upon successful completion of this course, students will be able to use the standard logic symbols correctly and apply proper gating techniques to the analysis and construction of basic logic circuits from word problems, or in the laboratory environment. **5.5 credits**

ELEX 112 Digital Techniques 1 Upgrade - Provides an upgrade from the old ELEC 202 which was 3 credits to the new ELEX 102 which contains more material and is now 6 credits. Also for those having previous trades, technical digital training. **3 credits**

ELEX 163 Printed Circuit Board Design - Trains students in the design and manufacture of single and double-sided printed circuit boards. This course is designed with the electronic hobbyist in mind. For those students seeking credit for ELEX 101, but without PC board training, this course will complete the credit requirement. **2.5 credits**

ELEX 200 Circuit Analysis 2 - Introduces the behavior of electrical circuits and networks when driven by single-phase alternating current (AC) source; preparation for courses in electronics and power systems. The course includes the sine wave, average and effective values, power and power factor; resistance, capacitance and inductance as elements in single-phase AC circuits; phaser diagrams, impedance, admittance, voltage, current and power diagrams; analysis of AC circuits with complex algebra; resonance and resonant circuits, highpass and lowpass filters; the application of circuits laws and theorems to single-phase AC circuits, coupled circuits. Circuit theory is verified using multimeters, sine wave generators and dual trace oscilloscopes. Prerequisite: ELEX 100, MATH 143. **5.5 credits**

ELEX 201 PASCAL - An introductory course on microcomputer use, DOS operating system, programming language, compiler and interpreter. The IBM personal computer is used throughout this course for interactive student training. The main part of the course covers PASCAL programs for electronics engineering applications. Students will also learn to document, debug, and utilize available software libraries. Prerequisite: ELEX 200 or ELEX 208 (may be taken concurrently). **4.5 credits**

ELEX 202 Digital Techniques 2 - Builds on the knowledge gained in ELEX 102. Studies the utilization of logic gates in larger combinatorial circuits such as magnitude, comparators, etc.; digital arithmetic and associated hardware; sequential logic devices such as D, J-K, and T; flip-flops, counters, shift registers and their application in systems such as frequency counters and parallel/serial data manipulation circuits; gathering and comprehension of electrical specifications from data books; noise margins; propagation delay and loading considerations. Interfacing techniques to discrete devices, analog and digital data multiplexing, bus structures and techniques, and an introduction to solid state memory devices. Successful completion will lead to entry in ELEX 302. Prerequisite: ELEX 102, 203* (* may be taken concurrently). **7 credits**

ELEX 203 Electronic Circuits 1 - Explains how electronic circuits work; how to analyze, design, modify and combine them to perform complex functions. Topics include interpretation of bipolar and field-effect transistor characteristic curves; voltage and current amplifying circuits; the transistor as a switch; loadline analysis; choice of Q-point; bias circuits; equivalent circuits; frequency response, feedback, oscillation response; oscillator circuits; power amplifiers; heat sink calculations; DC power supplies and characteristics, application of switching devices. Prerequisite: MATH 143, PHYS 106, ELEX 200* (*may be taken concurrently). **8 credits**

ELEX 208 Circuit Analysis AC/DC - Enables persons with a strong background 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; please apply for written permission to attend. Counseling will be provided. Prerequisite: Recent Algebra 12 and Physics 11 both with minimum C+, or equivalents, plus additional higher level Math course(s) (recommended). **11 credits**

ELEX 302 Digital Systems - Applies knowledge gained in ELEX 102/202 to perform a detailed study of a microcomputer system. This includes data bussing and addressing schemes, memory devices, internal architecture of a microprocessor, machine/assembly language programming, an operating system and its software development tools, A/D and D/A converters, peripheral and support IC's and interrupts. Throughout the course, a single board microprocessor system is used to facilitate a detailed analysis of microprocessor software and waveforms. Prerequisite: ELEX 201, 202, 203, 303*, or 333* or 341 (may be taken concurrently). **7 credits**

ELEX 303 Electronic Circuits 2 (Control) - A continuation of ELEX 203. Begins with the differential amplifier and its small signal analysis and performance. This material forms an introduction to linear integrated circuits, particularly the operational amplifier and its circuit applications. These include an introduction to active filters, comparators, sine wave oscillators, and simple function generators. Other circuits include digital/analog and analog/digital converters; three terminal regulator based power supplies; and SCR phase control circuits. Prerequisite: ELEX 200 or 208, 203, MATH 243 or 116/117. **7 credits**

ELEX 307 Pulse Techniques - Introduces pulse signal circuits such as clippers and clamps, transistor switches, astable and monostable multivibrators, Schmitt triggers, ramp generators, DC to DC converters and phase lock loops. Both discrete transistors (bipolar and FET) and CMOS integrated circuits are used in building these circuits. Each circuit is analyzed in detail and its practical application is considered. Prerequisite: ELEX 200, 202, 203, MATH 243. **5.5 credits**

ELEX 309 Professional Practice - The Canadian legal system: business organizations; tort liability; proof; contracts; offers and acceptance; intent; consideration; capacity; legality; fraud; misrepresentation, duress and undue influence; mistakes; contract interpretation; discharge of contract; breach of contract; client/professional agreement; concurrent liability; honesty; construction contracts; arbitration; mechanics lien legislation; Combines Investigation Act; engineering legislation and statutes; industrial property; patents; trademarks; copyright; industrial design; trade secrets; federal and provincial laws relating to labor. Engineering technology organizations in Canada: development; legal status; professional designations; codes of ethics; discipline; errors and omissions and operation. Prerequisite: TCOM 114. **2.5 credits**

ELEX 311 Applications Software - Introduces various PC-based software packages and their use as development tools. Types of software include the following general categories: an electronic spreadsheet, printed circuit board layout, logic circuit design and simulation, computer-aided drafting, word processing, and various disk and memory utilities. Throughout the course the student will be encouraged to become self-sufficient at using the software through experimentation, accessing reference manuals, and practical assignments. Prerequisite: ELEX 101, 201, 302* (may be taken concurrently). **6 credits**

ELEX 325 Electrical Equipment - Begins as a continuation of circuit analysis, then studies motors, generators, transformers and rectifiers. Topics include a review of phaser diagrams, power factor, three-phase power and circuit analysis, single- and three-phase power distribution systems, DC motors and generators, induction motors, synchronous motors and generators, motor control circuits, transformers (single- and three-phase), and three-phase rectification. Prerequisite: ELEX 200, MATH 243, PHYS 106. **3 credits**

ELEX 331 Telecommunications Circuits and Systems 1 - Introduces the principles of telecommunications and defines the telecommunication system. Various modulation systems are explained including amplitude modulation, single-sideband and frequency and phase modulation. A typical transmitter and receiver are examined, first in block form, then the various component circuits are examined in more detail. Frequency synthesis is also covered. Prerequisite: ELEX 200 or 208, 202, 333*, MATH 243 (*may be taken concurrently). **7 credits**

ELEX 333 Electronic Circuits 2 (Telecom) - Provides further knowledge of electronic circuits with emphasis on their application in telecommunications. Topics include small-signal tuned amplifiers; control of gain; tuned power amplifiers; stability of tuned amplifiers; wideband amplifiers; operational amplifiers; active filters; and parameter systems and their use in small-signal analysis. Prerequisite: ELEX 202 or 208, 203, MATH 243. **5.5 credits**

ELEX 341 Data Acquisition and Signal Conditioning - Examines the application and design of precision analog circuits to interface and signal conditioning systems. Topics include the specification, design and evaluation of amplifier systems commonly used in transducer interfacing applications, high accuracy and stability signal conditioning design techniques and analog signal transmission and multiplexing systems, with emphasis on the 2-wire current loop. A strong practical approach is ensured by lab exercises and projects. Prerequisite: ELEX 203. **7 credits**

ELEX 406 Data Communication - Introduces the techniques used to communicate digital data from one point to another. Topics include transmission media, channel characteristics and interface standards (RS 232C, RS 449, current loop), techniques for modulation (FSK, PSK, QPSK) and data coding (NRZ, RZ, Manchester), error detection and correction. Other topics include bandwidth bit rate limitations, character-oriented (HDLC) and bit-oriented (Bisync) protocols, as well as networking schemes. Prerequisite: ELEX 302, 303 or 333, and 307. **7 credits**

ELEX 412 Computer Systems - Examines the techniques used in troubleshooting and design of microprocessor systems including memory systems, extended memory, dynamic memories, bus buffering, relocatable and modular software, eeprom burning, support chips, display and keyboard interface, and direct memory access. These topics introduce the student to hardware and software concepts and strategies that are essential for the continued operation and development of computer systems. Prerequisite: ELEX 302, 307. **3.5 credits**

ELEX 460 Feedback Systems - An introduction to linear feedback theory and practice as applied to motor position and speed control. Topics include block diagram representation and block diagram reduction of closed-loop systems; the characteristics and transient behavior of closed-loop control systems. Classification of systems into type, sensitivity to parameter variation, and system stability. Design of compensated motion control systems based on the Root Locus method and the Frequency Response method are discussed. The Z-Transform is introduced as an aid in the design of digital rather than analog controllers. Students are issued engineering software to aid them in problem-solving. Both analog and digital motion control systems are designed, assembled and tested. Prerequisite: MATH 343, ELEX 341, ROBT 301, 302 AND 303. **8 credits**

ELEX 512 Introduction to Single Chip Microcomputers - Examines the structure, operation and applications of the Motorola 68HC11 single chip microcomputer. Each student will have the use of an IBM-type MS-DOS -based computer for machine language program development and a 68HC11 emulator board for interfacing and programming. Prerequisite: Previous digital hardware and assembly language programming experience is essential. **2.5 credits**

**** See seasonal flyers for other courses not listed here.

**** Specialty courses made to order on request.

FINANCIAL MANAGEMENT

FMGT 101 Accounting 1 - Permits students with little or no accounting background to become familiar with the techniques of working through the full accounting cycle. The course provides theoretical and practical training in basic accounting as preparation for FMGT 201. Topics include an introduction to accounting theory; income measurement; traditional record-keeping procedures; the accounting cycle; special journals; cash; merchandising operations; inventory estimation and costing. **4 credits**

FMGT 115 Accounting 1L - Enables students to start the basic accounting course in January. It is the equivalent of FMGT 101 and the first part of FMGT 201. The balance of FMGT 201 material is covered in FMGT 215. For a description of the course content see FMGT 101/201. **6 credits**

FMGT 201 Accounting 2 - The follow-up to FMGT 101, topics include notes and accounts receivable, long-lived assets, liabilities, partnerships and corporations, cash-flow, manufacturing accounting, management accounting, consolidated statements and analysis of financial statements. Prerequisite: FMGT 101. **6 credits**

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

FMGT 301 Cost and Managerial Accounting 1 - Emphasizes the role of the management accountant, cost concepts and terminology, CVP analysis, cost flows, job costing, budgeting and control, standard costs and variances, and variable costing. Prerequisite: FMGT 201 or 215. **4 credits**

FMGT 401 Cost and Managerial Accounting 2 - Emphasizes relevant costing for decision-making, cost behaviour, cost allocation, joint and by-products, process costing, linear programming, and mix and yield variances. Prerequisite: FMGT 301. **6 credits**

FOOD TECHNOLOGY

BISC 903 Canned Foods: Thermal Processing and Container Evaluation - Designed to provide certification for supervisors of heat processing and container evaluation operations in food canning plants. Topics include: the microbiology of canning, food container handling, food plant sanitation, records for product protection, principles of heat processing; heat processing systems, container closure evaluation, for metal and glass containers. **non credit**

BISC 904 Sanitation for Food Plants - The major emphasis of the program will be on the basic fundamentals of food plant sanitation. The workshop will offer a broad range of information incorporating specific technology. General topics are: the microbiology of sanitation; insect and rodent control, cleaning and sanitizing, plant storage control, handling toxic materials, waste material handling, plant inspections. Open to persons employed and associated with the food processing industry. There are no special educational requirements for admission. **non credit**

FORESTRY, FISH, WILDLIFE, RECREATION

FSTR 120 Ecology of Southern B.C. Introduction - This course is a field trip through Southern B.C. focusing on the geology, ecology and wildlife of the region. Preceded by three introductory lectures, the field trip will cover the Fraser Valley, Fraser Canyon and Southern Interior areas. **2 credits**

FSTR 151 Forest Measurement 1 - Want to work in the woods next spring? This forestry field training course teaches the basics of mapping, note taking, and use of most field instruments used in logging engineering layout, plus, cruising and other renewable resource inventory. **5 credits**

FSTR 153 Plant Identification - An introduction to plant identification using identification keys. Covers all major plant groups: evergreen and broad leaf trees, shrubs, herbs, grasses, ferns and mosses. There are two field trips scheduled for Saturdays and Sundays for those students who seek day school credit. Students must be prepared to provide their own transportation (car pools). The economic and aesthetic values of plants are pointed out and students become familiar with natural surroundings: forests, marshes and rangelands. **3 credits**

FSTR 154 Principles and Practices in Wildlife Management - An introduction to wildlife management covering the basic ecological principles upon which practice is based, and exploring the biology and habitat requirements of common native wildlife species. Basic wildlife techniques are explained, including techniques for habitat improvement. At the end of the course, a day is spent in the field examining local wildlife areas. Suitable for lay persons, such as naturalists or hunters who want a better understanding of wildlife management, and useful to technical and professional graduates in such fields as agriculture and forestry whose work involves wildlife. **3 credits**

FSTR 156 B.C. Fish and Fisheries - Provides basic information and technical data on fish and their management for naturalists, sportsmen, foresters, agriculturists and others in the resources field. Students learn about the biology and characteristics of numerous species of B.C. fish, and develop an insight into the parameters of fisheries management. The course examines population dynamics, fish physiology, survey techniques, pollution sampling, resource problems, and the effects of B.C. fishing regulations, and examination and discussion of preserved specimens supplemented with presentations related to the biology of the species under discussion. The remaining sessions deal with management aspects of the fisheries resource. **3 credits**

FSTR 157 Log Scaling - Prepares candidates for the B.C. Forest Service Licensed Scalers Examination (Coastal). Students learn the skills involved in accurate measurement, volume estimations and grading of coastal logs, through classroom sessions and practical scaling in various locations along the north arm of the Fraser River. Scale sticks and life vest supplied; students must supply suitable caulk boots. Emphasis is on the new B.C. Government metric scale and current (1981) coastal log grades. Appropriate for people with some knowledge or experience in the logging industry. **7 credits**

FSTR 250 Ecology - Introduces students to the basic concepts and terminology of ecology. Develops an appreciation for the components of ecosystems including man and his activities; the energy flow and management aspects of eco-systems. Students learn to identify eco-systems of terrestrial and aquatic environments, energy fixation transfer and the approaches to proper management. The material is presented in the form of lectures and tutorials. Approximately four field trips are held on Saturdays and Sundays in lieu of classroom sessions. Students should be prepared to provide their own transportation (car pools). **4.5 credits**

FSTR 306 Forest Management - Many of the functions once performed by government agencies and industry in the natural resource field are now being contracted out. This course is designed for people interested in embarking on a career in service contracting to the natural resource industry. Upon successful completion of this course, the student will have a basic knowledge of small business planning, be able to read and understand financial statements, understand simple double-entry accounting principles, be able to project a business plan for entrepreneurial activities and develop estimates for work. **3 credits**

FSTR 900 Conservation Outdoor Recreation Education - Introduces recreational options associated with wildlife and provides instruction on safety and enjoyment of the outdoors. Students learn to improve hunting standards, to promote safe and knowledgeable outdoor recreation and appreciate the value of wildlife and natural environments. The student is expected to write the core examination as a prerequisite to obtaining a hunting licence. Topics: Conservation and the future; wildlife management and restoration; habitat requirements of wildlife and animal movements; organization of the Fish and Wildlife Branch; outdoor ethics, firearm handling regulations, etc. **non credit**

FSTR 921 B.C. Log Scale fbm Course - This course is for licensed log scalers who require endorsement in imperial measurements using foot board measure. The course includes classroom sessions and practical scaling in various locations along the north arm of the Fraser River. Scale sticks and life vest supplied; students must supply suitable caulk boots. Prerequisite: FSTR 157 or equivalent, or log scaling ticket. **non credit**

FSTR 922 Log Scaling Refresher Course - A five-day refresher course to prepare candidates for the B.C. Forest Service Licensed Scalers Examination (Coastal). The course includes classroom sessions and practical scaling in various locations along the north arm of the Fraser River. Scale sticks and life vest supplied; students must supply suitable caulk boots. Emphasis is on the new B.C. Government metric scale and current (1981) coastal log grades. Prerequisite: FSTR 157 or equivalent, or log scaling experience. **non credit**

FSTR 940 Starting a Business in Wilderness Tourism - This course is oriented towards those who would like to work in the tourism field as it relates to outdoor recreation. It is well suited to "would-be entrepreneurs" and includes material pertinent to fishing lodges, commercial river running, guided hikes, hunting lodges, sailing charters, diving ventures, climbing schools, horse-

back riding packages, etc. Specific examples are discussed and business and marketing concerns are elaborated upon. Start-up needs for various packages will also be addressed. **non credit**

LANDSCAPE HORTICULTURE

LAND 101 Structural Material - An introductory course in structural material for students with little or no experience of Landscape Technology. Structural materials include rock, brick, unis-tone, wood, asphalt, concrete, glass and plastic. The student studies the origin, qualities and use of materials in landscape design and management; appropriate materials for particular jobs, and a cross-section of these materials with specifications. Topics include selection and location of materials in the landscape. **3 credits**

LAND 102 Soil Improvement - This course offers a basic working knowledge of the physical and chemical properties of soil relevant to the needs of landscape architects, landscape contractors and parks and recreation staff. Students will become equipped to make rational decisions with soils destined for purposes such as landscaping, playingfields, golf courses and home gardens. **4.5 credits**

LAND 103 Grading and Drainage Plan Production - Introduces the production of detailed grading and drainage plans for land development including roadways, parking lots, building sites, sportsfields and parks. Students learn to recognize contour signatures, to grade for cuts and fills, roadways and drainage. Skills and knowledge of grading problems and techniques will be developed through a series of small assignments, culminating in the preparation of a major site grading and drainage plan. MECH 140 recommended but not required. **3 credits**

LAND 104 Horticulture - This introductory course encompasses botany, plant propagation and the scientific principles of the art of horticulture. Practical aspects such as annual flower production, hanging baskets, chrysanthemum culture and related projects will be carried out in the greenhouse. **4.5 credits**

LAND 105 Plant Introduction - This course enables the student to identify the genus, species and variety or cultivar of approximately one hundred and twenty-five to one hundred and fifty trees, shrubs, ground covers and vines commonly used in landscape design. LAND 104 recommended but not required. **3 credits**

LAND 106 Pesticides for Retailers and Landscape Applicators - For persons engaged in retailing, commercial landscape maintenance or nursery crop production, who intend to write examinations under the Pesticide Control Act to become certified pesticide dispensers/applicators. Students study pesticides used in B.C. and have the opportunity to write the Pesticide Control Act examination, in the last week of the course, under the direction of the B.C. Ministry of the Environment. Topics include: legislation, pesticide safety, pesticide formulation, prescribed uses, data interpretation in various bulletins, and the responsibilities of pesticide applicators and dispensers. **1.5 credits**

LAND 201 Landscape Structural - Introduces the production of detailed plans for use in the landscape industry to persons with basic knowledge of landscape materials and fundamental drafting techniques. Students learn to prepare landscape design drawings and detail plans for structural items commonly used in landscape projects. The course includes lectures, field trips and drafting practice covering access - driveways, walks, etc.; retention - walls, cribbing, piling, bulkheads, fencing; water - ponds, streams, waterfalls; miscellaneous - seats, fireplaces, landscape lighting; presentation drawings - preparation, method of presentation, sketches; site work. Prerequisite: LAND 101. **3 credits**

LAND 202 Plant Material Study - Enables the student to identify the genus, species and cultivar of an additional 125 to 150 trees, shrubs, ground covers and vines commonly used in landscape design. LAND 105 recommended but not required. **3 credits**

LAND 203 Residential Landscape Design - Examines site inventory, client requirements, functional analysis and the aesthetics of both hard and soft landscaping to produce functional and pleasant landscape concept plans, and planting plans for single family residences. MECH 140 recommended but not required. **4.5 credits**

LAND 204 Parks and Recreation - An introductory course in the design of parks and recreational facilities and/or their maintenance. Examines the basic facilities required for public parks and recreation areas; the layout of areas for indoor/outdoor sports and other recreational facilities; maintenance requirements for recreational facilities. Course content includes planning principles, space requirements for sports, art education, etc.; facilities, swimming pools, ice arenas, lawn bowling, curling, golf, marinas, resorts, beaches, children's playgrounds; general features, fences, walls, lights, parking and general maintenance. Students design and make drawings for a major community park. **4.5 credits**

LAND 205 Management for Landscape - Introduces landscape technicians to management skills required in landscape development including the legal requirements affecting land use, contract documentation, ethics and professional liability. The student studies professional responsibilities in respect to the consultant's relationship to client/contractor; contractor/client relationship; production of contract documents; legal liability, contract supervision. **3 credits**

LAND 207 Landscape Irrigation - Provides technical information and basic training in turf and landscape irrigation. Topics include basic hydraulic theory, system design and construction fundamentals; scientific and practical aspects of water application; installation, operating and maintenance procedures for major types of irrigation systems. **3 credits**

LAND 208 Sports Turfgrass Management - An introductory course in turfgrass management for persons associated with maintenance of golf courses, municipal parks and outdoor recreational facilities. Topics include turfgrass botany (classification, nomenclature, identification and utilization); weed, disease and insect problems and control strategies; soils (introduction and classification); soil amendments and fertilizers; tillage and cultivation systems. Also includes basic construction of sand playing fields along with cultural practices and management programs for these fields. **3 credits**

LAND 209 Cost Estimation - For persons with limited or no experience in cost estimation for landscape projects. An introduction to methods of area and volume survey from landscape plans; study of work capacity; administration and maintenance costs including quantity and capacity as bases for cost estimation; methods of journal keeping and accounting. Topics include mathematics, surface, area, volume; weights and measures; cuts and fills; work capacity, man-hours, equipment; overhead expenses; journals; bookkeeping, and an introduction to the metric system. **3 credits**

MARKETING MANAGEMENT

MKTG 102 Introduction to Marketing - Includes a detailed study of the basic marketing functions, marketing research, product planning, selection of trade channels, merchandising, advertising, sales promotion and salesmanship, marketing of consumer and industrial goods. **3 credits**

MATHEMATICS

MATH 101 Technical Mathematics 1: Trigonometry - 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 co-ordinates, compound and double angle formulas, trigonometric equations and inverse functions. Prerequisite: C+ or better in Algebra 12 or 65% or higher in MATH 001. **3 credits**

MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry - A study of the theory and applications of common and natural logarithms, and an introduction to analytic geometry. Topics emphasized are the plotting, interpretation and uses of logarithmic/semilogarithmic graphs, the geometrical and practical properties of conic sections and polar/rectangular transformations. A brief consideration of quadratic surfaces is included. Prerequisite: C+ or better in Algebra 12 or 65% or higher in MATH 001. **3 credits**

MATH 106 Probability and Statistics 1 - An introduction to statistical methods and their application to technological problems. This course includes the organization and graphical representation of data, frequency distributions, measure of central tendency and variation, probability theory, random variables, mathematical expectation, theoretical distributions, sampling, estimation, hypothesis testing, analysis of variance, and curve fitting (regression and correlation). Prerequisite: recent Algebra 12 or MATH 001. **6 credits**

MATH 114 Mathematics for Electronics: Part A - 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 transformation, phasor representation of sinusoidal waveforms, application to electrical technology, the derivative, differentiation rules, applied maxima/minima. Prerequisite: C+ or better in Algebra 12 or 65% or higher in MATH 001. **4 credits**

MATH 115 Mathematics for Electronics: Part B - The second of two parts which includes: common and natural logarithms, logarithmic/semilogarithmic graphs, decibels, exponential growth and decay, systems of linear equations, 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. Prerequisite: MATH 114. **4 credits**

MATH 116 Calculus for Electronics: Part A - The first of two parts which includes: implicit differentiation, related rates and approximation using differentials with applications to electrical 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 variable, integration by parts and partial fractions. Prerequisite: MATH 115 or equivalent. **3.5 credits**

MATH 117 Calculus for Electronics: Part B - The second of two parts which includes: implicit differentiation, related rates and approximation using differentials with applications to electrical 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 tech-

niques including change of variables, integration by parts and partial fractions. Prerequisite: MATH 116. **3.5 credits**

MATH 125 BASIC 1: An Introduction to Microcomputers IBM PC - 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 203 Technical Mathematics 3: Calculus - 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 to engineering technology problems. This course will be offered in 89/90 and 91/92. It will not be offered in 90/91. **6 credits**

MATH 204 Technical Mathematics 4: Calculus - A continuation of MATH 203. Topics include further work on integration, partial differentiation, an overview of Maclaurin, Taylor and Fourier series, and the solution of differential equations with special consideration given to the use of Laplace transforms. Prerequisite: MATH 203. This course will be offered every third year only. The next offering will be 89/90. **6 credits**

MATH 343 Transform Calculus for Electronics - First and second order differential equations. The Laplace Transform as an integral function. Transform pairs for functions and operations, inverse transforms from tables, techniques of partial fraction expansion for inverse transformation. Poles, zeroes, s-plot, s-domain circuit diagram and applications. Transients in multimesh circuits, transfer functions and frequency response to sinusoidal inputs. Fourier series, trigonometric Fourier coefficients and frequency spectrum. Prerequisite: MATH 243. or MATH 116/117. This course will be offered in 90/91. It will not be offered in 89/90 or 91/92. **3 credits**

MATH 349 Numerical Methods for Mechanical - The application of numerical methods to engineering problems is introduced. Using the BASIC language, the algorithms are programmed and used in complex problem-solving. Matrix methods and their application to computer graphics, linear programming and other applied mathematics problems are presented. Prerequisite: MATH 204 or equivalent. **4 credits**

MATH 449 Statistics and Quality Control for Mechanical - The application of basic statistical principles and techniques to industrial quality control is emphasized in this course. Topics include descriptive statistics (Pareto and CE analysis), the Hypergeometric, Poisson, Binomial and Normal Probability Models, an introduction to hypothesis testing, tolerances and fits, sampling distributions, basic capability analysis, design of acceptance sampling plans, operating characteristic curves, use of Mil-Std 105D, risks in sampling, use and interpretation of control charting for \bar{x} -bar and R or s, and statistical process control (SPC). Provides a sound foundation for students hoping to eventually challenge the American Society for Quality Control's Certified Quality Technician and Engineer Examinations. Prerequisite: MATH 149 or 203. **5.5 credits**

MATH 460 Mathematics for CAD/CAM - Geometric modeling including cubic splines, bezier curves and surface patches. Matrix approach to transformations. Raster algorithms and techniques including curve generation, halftoning and other special effects. Kinematics and simulation. Solid modeling. Overview of finite element method. Selected algorithms from cartography. Interactive computer graphics concerns. Prerequisite: MATH 349. **5.5 credits**

MATH 494 Computer Graphics for Mechanical - Introduces students to interactive BASIC, and concepts of programming in two and three dimensions. Students experience hands-on practice with computer graphics systems. **4 credits**

MECHANICAL

MECH 104 Statics - Vectors, force systems, concurrent and coplanar, nonconcurrent and coplanar. Graphical representation and solutions. Equilibrium; mathematical representation of equilibrium. Analysis of frames. Statically determined structures. Redundancies. Beams, principles of moments and centroids. Second moment of area. Prerequisite: MATH 101. **4 credits**

MECH 106 Manufacturing Processes 1 - A basic orientation course which provides the student with practice in metal removal, and a study of related theory. **4 credits**

MECH 107 Thermal Processes - Introduction to heat and fluid processes. Steam tables, first law of thermodynamics. Basic steam power and refrigeration cycles. **3 credits**

MECH 135 Interpretation of Technical Drawings - A first principles technical drawing course with strong emphasis on understanding drawings rather than developing drafting skills. **3 credits**

MECH 140 Drafting Fundamentals - A general "hands on" course for students from a broad spectrum of backgrounds and interests. This course covers use of instruments and equipment, sketching, geometric constructions, theory of orthographic projection and dimensioning of detail drawings, auxiliary and sectional views, and isometric drawings. **3 credits**

MECH 200 Mechanical Drafting 2 - Advanced techniques including limits and fits, isometric and orthographic single line piping diagrams, descriptive geometry, intersections, development, gears, threads and fasteners, weld symbols, working drawings and projects. Prerequisite: MECH 100. **4 credits**

MECH 206 Mechanics of Materials - Stress, strain and deflection. Tension, compression, shear, torsion, deflection and buckling of material under load. Beams, columns, shafts, thin and thick-walled cylinders, riveted and welded joints, combined stress situations. Prerequisite: MECH 104. **5.5 credits**

MECH 208 Dynamics - Kinematics: basic equation of motion, motion diagrams, trajectories. Kinetics: Newton's Laws, inertia, rectilinear and rotational kinetics, systems of bodies. Work, energy, power and efficiency, impulse and momentum. Prerequisite: MECH 104. **5.5 credits**

MECH 214 Drafting: Structural - A general insight into graphical aspects of structural problems for managers, construction workers, foremen, planners and estimators. Students study the application of drawing skills and techniques to structural engineering. Drawing assignments relate to wood frame, reinforced concrete and steel structures. Prerequisite: MECH 140. **3 credits**

MECH 216 Drafting: Civil/Survey - A general insight into graphical aspects of civil problems for managers, construction workers, foremen, planners and estimators. Students study the application of drawing skills and techniques to civil engineering. Drawing assignments relate to topographical drafting plans and profiles, cuts and fills and municipal sewage systems or rights of way plans. Prerequisite: MECH 140. **3 credits**

MECH 240 Manufacturing Processes 2 - Machine tool operations, production processing and economics, evaluation of production features, maintenance. Metal joining processes and equipment, production costs and design applications. Prerequisite: MECH 106. **5.5 credits**

MECH 301 Machine Design 1 - An introductory course in machine design, with emphasis on elementary design and analytical procedures for machine components. The course covers theories of failure, combined stresses, stress concentration, fatigue phenomena, welded and threaded connections, shafts, belt drives, geometric and force relationships in spur gearing, and an introduction to other machine elements. Problems are handled in both S.I. and British units. Prerequisite: MECH 206, 208 or 219, 217. **4 credits**

MECH 302 Thermal Engineering 1 - First and second law of thermodynamics. Steady and non-flow energy equations, specific heats of gases, vapor tables, gas and vapor processes. Carnot, Rankine, and basic IC engine cycles. Air compressors. Heat transfer. Prerequisite: MECH 107. **4 credits**

MECH 303 Fluid Mechanics - Basic principles of fluid properties, energy losses, Reynold's number, Moody diagram, flow measuring devices, dynamics of flow lift and drag. Fluid statics. Prerequisite: MECH 208. **3 credits**

MECH 304 Manufacturing Processes 3 - A study of hot and cold fabrication processes; materials and machines, quantities/costs will be investigated. An introduction to CNC programming by both manual and punched tape inputs. **4 credits**

MECH 320 Fluid Power 1 - Provides an understanding of pneumatic control systems. Fluid power components, their symbols, function and construction are examined and used in the design, construction and testing of simple and sequential control systems. Sizing calculations for system components are covered. **3 credits**

MECH 401 Machine Design 2 - The sequel to MECH 301, covers couplings, brakes and clutches; anti-friction and journal bearings; helical, bevel and worm gearing; power screws, springs and machine frame components; introduction to mechanical vibrations, with emphasis on critical speeds of rotating bodies. An introductory treatment of bulk materials handling systems is also included. Problems are handled in both S.I. and British units. Prerequisite: MECH 301. **6.5 credits**

MECH 402 Theory of Mechanisms - A course in the theory of mechanisms (kinematics) with emphasis on graphical methods to relate displacement, velocity, and acceleration in the components of mechanisms. The course covers both analytical and design procedures with applications to mechanisms such as slider/cranks, four-bar linkages, planetary gear trains, cams, and intermittent motion devices. Graphical differentiation is treated in detail for various types of cam follower motions. A comprehensive treatment of Coriolis acceleration is included. Mechanisms in which one or more links can change length (e.g., hydraulic cylinder members) are also investigated. Prerequisite: MECH 208. **5.5 credits**

MECH 404 Thermal Engineering 2 - Mixtures of gases and vapors, Gibbs-Dalton Law, psychrometry, air conditioning, combustion processes and nozzle flow; analysis of steam and gas turbines and jet propulsion. Practical lab investigations by students. Prerequisite: MECH 302. **5.5 credits**

MECH 410 Mechanical Estimating - Basic theories and principles of estimating construction costs and direction for organizing facts from bidding documents. Measurement and pricing using "price master" and "labor calculator" for ventilation, domestic hot water heating and sanitary drainage systems. **2.5 credits**

MECH 413 Tool Design - The course includes introduction to design of special purpose tooling, process planning, design considerations of various types of jigs, fixtures, gauges, metal-cutting dies, feed mechanisms, presses, scrap strip layout, stan-

dard parts. Assignments will be worked on away from classroom. Prerequisite: MECH 200. **4 credits**

MECH 420 Fluid Power 2 - Provides an understanding of hydraulic control systems and an introduction to fluidic control systems and control logic. Fluid power components, their symbols, function and construction are examined and used in the design, construction and testing of a variety of hydraulic control systems. Sizing calculations for system components are also covered. Prerequisite: MECH 320. **4 credits**

MECH 432 Automatic Sprinkler Systems Design 1 - For persons involved in engineering design, supervision or inspection of commercial and industrial automatic sprinkler systems, to gain an understanding of pipe schedule systems and water supply system analysis. The course examines the basics of wet and dry pipe systems; NFPA Standard #13; system components and applications; basic hydraulics of piping systems; water supply system analysis and tests with various examples; quick opening devices. Classroom lectures may be augmented by a Saturday field trip to take water flow tests. Students require an electronic calculator with XY function. Prerequisite: MECH 222 or 303. **3 credits**

MECH 436 Automatic Sprinkler System Design 2 - Advanced detailed instruction for persons involved in fire service, engineering design, supervision or inspection of automatic sprinkler systems in commercial and industrial buildings. The course examines deluge, pre-action, combined dry pipe and pre-action, water spray and special systems; hydraulics of sprinkler systems including tree, looped and gridded systems; computerized calculations; economical design considerations; water tanks; fire pumps, booster pumps, jockey pumps; maintenance. Prerequisite: MECH 432. **3 credits**

MECH 444 Metrology - Includes measurement of surface texture and flatness, optical and electrical comparators, metrology of screw threads, precision measuring instruments, fundamentals of inspection, mass production gauging. Prerequisite: MECH 240. **4 credits**

MECH 445 CNC Laboratory - Computer Numerical Control programming and verification on a 3-axes CNC mill and other CNC machines. **4.5 credits**

MECH 460 Engineering Economy - Emphasizes the importance of making sound economic decisions when faced with alternative methods of solving technical problems. The course material provides the basic skills and concepts required to analyze comparative costs and to understand the time value of money (interest), inflation, depreciation, running costs, salvage value and tax considerations. **2 credits**

MECH 466 Fluid Systems - Dimensionless parameters. Pump and piping characteristics, operation and maintenance. Cavitation. Air movement and supply, fan performance and characteristics, duct sizing and networks. Prerequisite: MECH 303. **2 credits**

MECHANICAL SYSTEMS

MSYS 103 Plumbing - Topics include codes, basic engineering principles and graphic presentations related to plumbing systems design, load calculations, piping methods, sizing of system components for storm and sanitary drainage and water distribution. Some drafting skill will be required. Prerequisite: MECH 100 or 140. **4 credits**

MSYS 200 Systems Drafting 2 - Further topics in mechanical drafting practices and projects on systems in buildings and plants. Prerequisite: MECH 100 or MSYS 100. **4 credits**

MSYS 220 Heating and Ventilation 1 - Covers the principles and practises of heat transfer and occupant comfort in buildings: air-heat systems, components, controls and design procedures. These will be applied to the preparation of heat loss estimates, working drawings for heating and ventilation systems for buildings. Prerequisite: Any first term BCIT drafting course.

3.5 credits

MSYS 320 Heating and Ventilation 2 - Covers the principles and practises of building zoning and fuel cost estimating: hydronic heating system components, controls, boilers, venting of appliances, gas piping, combustion and ventilation air, and design procedures. These will then be applied to the preparation of systems working drawings for buildings. Prerequisite: Any first term BCIT drafting course.

3.5 credits

MSYS 403 System Noise Control - Lab assignments are arranged to solve fundamental problems of sound propagation; use mechanical equipment sound performance data to select equipment to satisfy acceptable noise levels, and to recognize and arrive at solutions to potential mechanical system noise problems in the design stage. The physics of noise propagation will be covered, together with the theory of vibrations and techniques of design and transmissibility of vibration. Prerequisite: PHYS 216 or 206 or 134.

2.5 credits

MSYS 404 Mechanical Equipment - A study of drive configurations, prime movers, fans, pumps, heat exchangers, pressure vessels from an application, specifications, maintenance and safety point of view. Prerequisite: Departmental approval.

5.5 credits

MSYS 405 Maintenance - The elements of this course are basic systems, preventive maintenance and budget costs, maintenance planning, estimating, scheduling, measurement and inventory. Prerequisite: OPMT 145.

2.5 credits

MSYS 406 Fire Protection - Includes mechanical fire protection systems; regulations and codes of practice; building hazard classification; stand pipe and sprinkler systems; systems components and design to NFPA 13. Prerequisite: MECH 303.

2.5 credits

MSYS 420 Air Conditioning Design - Properties of air extending use of psychrometric chart to air conditioning comfort criteria and examination of air conditioning processes; refrigeration for air conditioning, encompassing evaporator, compressor, condensor and expansion valve performance characteristics and selection; air conditioning systems encompassing representative unitary, constant volume and variable volume systems. Prerequisite: MSYS 320.

3.5 credits

MSYS 430 Air Conditioning Controls and Systems - Air conditioning systems fall into different categories. This course enables the student to understand where and when each system applies. Systems include: VAV, constant volume, heat pumps, etc. The student will have the opportunity to design air conditioning projects using the latest software on IBM ATs. The programs will be used for air conditioning system design, ductwork layout and links to AutoCAD piping design.

5 credits

MINING

MINE 154 The Mining Industry - Provides a background for those unfamiliar with the mining industry. Introduces the importance, nature, sub-divisions and economic framework of the mining industry; exploration techniques - brief descriptions of geology, geophysics and geochemical principles; mining methods - surface and underground, particularly those common in B.C., reclamation; treatment methods - ore values are concentrated with crushing, grinding, flotation, gravity separation, leaching and other operations. Smelter contracts and mine evaluations may be covered.

3 credits

NAVAL ARCHITECTURE

NAVL 150 Naval Architecture Introduction - Introduces procedures in the major stages of the design and construction of a ship, and the working environment in the industry. Students wishing to continue to NAVL 152 should take MATH 101, MECH 100, MATH 102 and MECH 200 before NAVL 150, but it is not an essential prerequisite.

3 credits

NAVL 152 Naval Architecture Fundamentals - Includes calculation for a vessel's displacement, hydrostatic particulars, transverse and longitudinal stability, calculation of weights and strength of connections, properties, use and procedures for drawing hydrostatic and launching curves. Prerequisite: NAVL 150, MECH 104, MATH 101, MECH 100, MATH 102, MECH 200, MECH 208. MECH 208 may be taken concurrently.

6 credits

NAVL 253 Applied Naval Architecture - Development of design requirements for typical small ships and boats relative to weight, space, equipment, general arrangements and functional details. Forms of hull structure, structural components and details, including methods of construction. Introduction to rules and regulations for structure, equipment and operation. Note: A large portion of class will be devoted to sketching and conceptual drawing. Prerequisite: NAVL 152 and MECH 206. MECH 206 may be taken concurrently.

9 credits

NAVL 300 Ship Systems - New course under development. Description not available at time of printing. Prerequisite: NAVL 152.

3 credits

OPERATIONS MANAGEMENT

OPMT 103 Quality Control Methods 1 - A basic statistical quality control course focusing on control charting methods. The course will cover basic principles of pre-production process capability studies and process control production. This course and OPMT 201 will assist students preparing to write the A.S.Q.C. Certified Quality Technician Examination.

3 credits

OPMT 182 Operations Management - Students will be introduced to problem situations at the management level of a production organization. Each topic is introduced by lecture and continued by lab practice in various solution techniques. Students are expected to produce management reports for each assignment. The topics covered are: business forecasting at the product level; inventory control including EOQ, ELS and an introduction to MRP; project control using CPM and PERT; quantitative methods including linear programming and waiting line techniques; introduction to business accounting and finance, including production cost accounting. All students are required to work with packaged computer programs. Prerequisite: TCOM 210 or COMM 183.

6 credits

OPMT 183 Industrial Engineering for Robotics - Surveys the general background to operations management in terms of planning and organizing manufacturing operations. Topics include facility location and layout, methods improvement and production/inventory management. **4 credits**

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

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

OPMT 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, quality control, inventory control and business forecasting. The course includes an introduction to the use of statistics in business and industry; descriptive statistical techniques - collection and treatment of data; a review of elementary set theory and probability; inferential statistical topics - sampling, estimation, hypothesis testing, goodness of fit, regression analysis, correlation and time-series analysis. **4.5 credits**

OPMT 203 Quality Control Methods 2 - Provides students with the opportunity to learn and apply the principles of Acceptance Sampling. **3 credits**

OPMT 411 Production Engineering Management - Presents aspects of management and the industrial engineering functions of a manufacturing plant. Intended for technologists, engineers, designers, draft persons and technical sales people who wish to have a clearer understanding of the range of problems and decisions involved in a manufacturing organization. Topics include management and plant organization, plant location and layout, production control, maintenance management, production planning, job design and time standards. Prerequisite: TCOM 210 or COMM 183. **5.5 credits**

OPMT 460 Industrial Engineering - Covers problem-solving and decision-making approaches to project installation. Topics include: PERT networks, CPM bar charts, work measuring techniques in planning and project installations, method study techniques, acceptable management principles in labor supervision. Prerequisite: TCOM 210 or COMM 183. **5.5 credits**

PETROLEUM

PETR 152 Petroleum Production and Transmission - Provides an introduction to the exploration, drilling, production and transmission of petroleum products. Topics include: exploration, testing/evaluation, production, pipeline design, specification control, maintenance, terminals/stations, drilling, completions, treatment, hydrate control, testing, compressors, measurement. Enrolment is open and there are no prerequisites. Offered in 1988/89 and alternate years. **6 credits**

PETR 154 Gas Distribution and Utilization - Provides an introduction to the operation of a natural gas distribution system. Topics include: contracts, planning, measurement, gas load control, maintenance, combustion, LNG and CNG, codes and safety, customer service/sales, pressure control, construction, design, natural gas utilization, alternate fuels. No prerequisites required. Offered in 1989/90 and alternate years. **6 credits**

PHYSICS

PHYS 106 Physics for Electronics Technology - A general level course about physical quantities, their properties, relationships, how they affect each other and their connecting principles. Motion, force, mechanical energy and power are studied concerning translational and rotational motion. Then follows basic electricity, atomic physics and the band theory of solids and its application to semiconductor devices. The lab program emphasizes measurements, data analysis and experimental techniques while confirming and expanding the lecture concepts. Math treatment requires algebra, trigonometry and vector analysis. **7 credits**

PHYS 131 Physics 1 Part 1 - Topics include kinematics, statics, linear and rotational dynamics. Problem solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: Algebra 12, (Physics 11 is desirable). **3 credits**

PHYS 132 Physics 1 Part 2 - Topics include properties of matter, heat and thermodynamics. Problem solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: Algebra 12, (Physics 11 is desirable) and PHYS 131. **3 credits**

PHYS 206 Physics for Electronics Technology - Continued from PHYS 106, a general level course covers magnetism and magnetic materials, fluids, thermal energy, vibrations and waves, optics and electromagnetic radiation, and modern physics. Application and principles in the electrical engineering field are stressed. The lab program emphasizes measurements, data analysis and experimental techniques while confirming and extending the lecture concepts. Prerequisite: PHYS 106. Mechanical Technology students can take this course for PHYS 216 equivalency with their prerequisite being MECH 217. Math treatment requires algebra, trigonometry and some calculus. **4.5 credits**

PHYS 231 Physics 2: Part 1 - Physics 2, with Physics 1, satisfies the knowledge required in various engineering and related technologies. Topics include sound, light and optic magnetism, basic semi-conductor theory, atomic and nuclear phenomena. Mathematical treatment requires algebra and trigonometry and possibly some calculus. Prerequisite: PHYS 132. **3 credits**

PHYS 232 Physics 2: Part 2 - Physics 2, with Physics 1, satisfies the knowledge required in various engineering and related technologies. Topics include sound, light and optics, basic electricity and magnetism, basic semi-conductor theory, atomic and nuclear phenomena. Mathematical treatment requires algebra and trigonometry and possibly some calculus. Prerequisite: PHYS 231. **3 credits**

ROBOTICS AND AUTOMATION

ROBT 301 Robot Applications - Discusses various robot configurations, the coordinate systems in which they operate and the kinematics of robot motion. Investigates specifications such as accuracy, repeatability and load capability and their importance in various applications. Machine elements used in automated equipment and associated machinery will be investigated. Prerequisite: MECH 240, 320, ELEX 201, PHYS 208 or 206, MATH 234 or 243.

8 credits

ROBT 302 Automation Equipment - Covers the basic principles of generators and the construction, speed-torque characteristics, braking conditions and speed control of permanent magnet DC motors. The course will also cover the operation and control of brushless DC motors and stepper motors. Prerequisite: ELEX 200, 202, 203, and PHYS 208 or 206, MATH 234 or 243.

5.5 credits

ROBT 303 Microprocessors: Programming and Interfacing - Investigates the software and hardware involved in the real-time control of a microprocessor based system. Topics include microprocessor architecture, assembly language programming, input/output operations, interrupt handling and interfacing techniques between a computer and an automated controller. Troubleshooting techniques used in fault analysis are taught. Prerequisite: ELEX 201, 202, 203, 341.

7 credits

ROBT 401 Robot Sensors - Investigates various methods of interfacing real-world systems to a digital computer through the use of analog-to-digital and digital-to-analog converters. Machine vision and object recognition, tactile force sensors, and range finding and navigation techniques using proximity sensors are studied. Prerequisite: ROBT 303, ELEX 302, 341.

5.5 credits

ROBT 402 Computer Integrated Manufacturing - Teaches the use of a microcomputer-based Computer Aided Design system. Programming the operation of Computer Numerical Control machine tools, using manual and computer assisted methods is also covered in depth. The integration of Computer Aided Design and Manufacturing is investigated. Prerequisite: MECH 240, ELEX 201.

5.5 credits

ROBT 403 Design Project - A graduation project researched and presented by the student on an aspect of automated technology. Students will give written and oral presentations on their proposed and completed designs. Prerequisite: Concurrent completion of all courses leading towards a Robotics and Automation Diploma.

4.5 credits

ROBT 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. This course runs on Saturday mornings for 5 weeks. Telephone: 434-5734 local 5485 for the dates of the next offering.

non credit

SURVEYING AND MAPPING

SURV 108 Engineering Survey - Covers the basic use of levels: open plate and optic transits, tape measurement methods of horizontal distance and direction determination. Computations: slope reduction, open and closed traverse calculations, benchmark levelling, steel and tape correction techniques, electronic distance measurements, stadia work, tachometers, route surveys, earth work, site work, construction control. Upon completion, students can use a variety of survey instruments and office procedures, and make plans, profiles and maps to determine precise sizes, shapes and locations.

7 credits

SURV 112 Survey Computations 1 - Topics include basic trigonometric functions, algebra and geometry; operation of an electronic calculator; field measurement calculations of chained distances and levelling notes; solution of right and oblique triangles, bearings - magnetic quadrantal and full circle; traverse calculations, polar and rectangular co-ordinates, omitted measurements; adjustments of traverses; area by co-ordinates and DMD's; 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 118 Programmable Calculators: H.P.'s - Covers two aspects of the programmable calculator; manual use: built-in functions, storage registers, the stack, stack manipulation and register manipulation; programming: using the memory of the machine to "remember" algorithms to solve particular problems. Also covered are flowcharts, programming techniques, sub-routines, looping, controlled looping, conditional tests and indirect operations.

3 credits

SURV 119 Programmable Calculators: Sharp's - This course is designed to familiarize the student with the operation of the hand held computer from two perspectives: first, as a calculator to do random computations; second, as a programming tool to solve routine survey problems. Includes modes of operation, operator hierarchy, numeric functions, numeric and string variables, array variables, basic statements and commands, program structure, elementary programming and program editing.

3 credits

SURV 215 Engineering Graphics: Programming Concepts - An understandable and comprehensive presentation of the mathematical formulations and algorithms used in the creation of computer graphics software.

3 credits

SURV 225 AutoCAD 1 for Surveying and Mapping - An introductory course in AutoCAD for persons with little or no experience with computers. The student will utilize the latest update of AutoCAD on a typical microcomputer drafting system to produce survey and site plans.

2 credits

SURV 311 Survey Computations 2 - Deals with curves in engineering surveying and covers the following topics: rectangular and polar co-ordinates, transformation of co-ordinates, omitted parts in closed traverses; circular, reverse and compound curves, special problems of circular curves. Prerequisite: SURV 112.

3 credits

SURV 313 Field Survey - Includes highway surveying; layout of centre line, circular, spiral and vertical curves; topographic surveys by ground survey methods; preparation of topographic plans; mining surveys; use of gyro theodolite. Horizontal control by triangulation, trilateration and traverse, direction measurement, use of precise instruments; vertical control: trigonometric levelling, precise differential levelling; electronic distance measurement; calibration of instruments; hydrographic surveying; horizontal and vertical shore control; tide measurements; sounding methods; preparation of charts. Prerequisite: SURV 108.

7 credits

SURV 320 Land Use Control - Studies land use and regulation, for those interested in land control. Of particular interest to those involved in municipal engineering and planning departments, surveyors, appraisers, developers, real estate agents and construction departments of utility companies. This course describes how the development and subdivision of land is controlled in B.C. and how regulated use of the basic resource impacts on our jobs, lives and the environment. The approach is primarily technical, with emphasis on the means of control. Specific Provincial statutes, including the Municipal Act and the Land Registry Act and Municipal Regulations, such as zoning and subdivision bylaws, are reviewed. Land values, factors affecting their change, and the part that they play in providing a base for municipal revenue, are considered. Practical aspects of land use control are illustrated by examples of specific subdivision and development schemes.

3 credits

SURV 325 Survey CAD 1 - Topics include sequential files, string manipulation, microcomputer graphics, role of CAD in surveying, BASIC programming for plotters and digitizers, data collector transfers, reduction of field data and coordinate geometry programs. Prerequisite: SURV 225 or Departmental approval.

2 credits

SURV 358 Introduction to Hydrographic Surveying (Theory) - The general principles and requirements of hydrography; obtaining, positioning and reducing soundings; tides and water levels; electromagnetic wave propagation; classifications, calibration and accuracy lobes of electronic positioning systems; propagation of sound in water; acoustic positioning; echo sounders and side scan sonar; nautical charts, their types and uses.

3 credits

SURV 362 Geodetic Surveying 1 - Properties of the ellipse and ellipsoid of revolution; calculation of radii of curvature; spherical excess; Legendre's theorem, method of addends. Field test; triangle closures, side equations, sine consistency checks; reduction to sea level. Convergence of meridians, computation of geodetic position, forward and inverse. Trigonometric leveling; reciprocal, non-reciprocal, refraction, intervisibility problems. Prerequisite: MATH 204 recommended.

3 credits

SURV 363 Adjustment of Survey Measurements - Definitions and classification of errors, measures of precision, propagation law of standard errors, weights and propagation of weights, principle of least squares (in matrix notation); adjustment by variation of parameter; conditional observations, combined adjustments; adjustments of triangulation, trilateration nets, and traversing. Prerequisite: SURV 311. A course in linear algebra and BASIC for microcomputers is desirable.

3 credits

SURV 410 Survey Computations 3 - Covers vertical and transition curves in engineering surveying and computations for local control surveys. Other topics include concept of geometric space (simple and conformal plane), UTM coordinates, triangulation and trilateration, reduction of field observations (eccentric measurements, mean-sea-level reduction), field consistency checks, intersection, resection (Snellius and D'Alamber solutions), inaccessible base, traversing in control survey, adjustments by semi-rigorous methods and least squares. Prerequisite: SURV 311.

3 credits

SURV 411 Survey Computations 4 - Covers numerical methods in surveying computations; Newton's method and the solution of non-linear equations; partitioning of land with curved boundaries; systems of heights; computations with differential levelling; orthometric correction; consistency checks and simple adjustments; trigonometric levelling; barometric levelling; three dimensional surveying systems; spatial traverses; deformation measurements and statistical assessments; computation of areas and volumes. Prerequisite: SURV 410.

3 credits

SURV 426 Astronomy 1 and 2 - An introduction to astronomy as used by surveyors. Of particular interest to persons intending to write the Professional Land Surveyor examinations. Through the use of the BCIT planetarium facilities, students gain a good grounding in star identification. The course includes an introduction to practical astronomy, the celestial sphere, the astronomical triangle; universal time, mean solar time, sidereal time and star almanacs; instruments used in solar and stellar observations; star identification; observations for latitude, time and longitude, azimuth and position. Prerequisite: MATH 204 recommended.

7 credits

SURV 463 Mathematical Cartography - Concepts and properties of maps; classifications of maps; theory of distortions; conformality, equivalency; Tissot's indicatrix, conical projections; cylindrical projections, perspective projections; polyconic projection of British Columbia; UTM projection; stereographic projection of New Brunswick.

3.5 credits

SURV 465 Survey CAD 2 - Continuation of SURV 325. Prerequisite: SURV 225, 325.

3 credits

SURVEY AND MAPPING: PHOTOGRAMMETRY

PHOT 102 Photo Interpretation and Remote Sensing - Engineers, planners, foresters, geographers, hydrologists, geologists and agriculturists, learn the application and interpretation of aerial photographs and other remote sensor acquired data, as applied to their respective fields. Students develop a working ability in image interpretation from photographic (camera) imagery, near-infrared imagery, thermal infrared imagery and radar imagery. Course covers the application of photographic systems in remote sensing, imaging, non-imaging sensors; the technical elements of image interpretation, imagery interpretation equipment; mapping from remote sensor acquired data, terrain and mineral assessment and evaluation, forest land inventory and assessment, water resources evaluation, soils evaluation and assessment; urban environment inventory and analysis, analysis and application of aerial photos and other remote sensing data to engineering (route location, regional and site analysis).

7 credits

PHOT 217 Photogrammetry 1 - Introduces students to the mechanics of photogrammetry through a combination of theory and practical work. Topics include introduction to photogrammetry; photo interpretation; mapping from photographs; cameras; flight planning for vertical photography; mosaics, principle of stereovision; determination of height from aerial photos; radial line plotting; oblique photogrammetry, plotting instruments, stereoscopes, photographic laboratory procedures, analytical photogrammetry; tilted photogrammetry; determination of ground coordinates from measurements on photos; supplementing ground survey control; card punching for computer; running a program for co-ordinates; adjusting and trouble-shooting program elements and an introduction to aerial triangulation.

7 credits

TECHNICAL COMMUNICATION

TCOM 114 Technical Writing for Electronics - An introduction to basic technical writing skills. Students develop competencies in planning, organizing and presenting information using graphics, writing technical descriptions, instructions, and routine technical correspondence. Students also prepare a resume and application for Co-op. Prerequisite: B.C. English 12 "C" standing.

3.5 credits

TCOM 214 Technical Writing for Electronics - A continuation of TCOM 114, this course develops competencies in writing short reports and system documentation, and delivering technical briefings. Prerequisite: TCOM 114.

3.5 credits

TRANSPORTATION SYSTEMS (HIGHWAYS)

TSYH 101 Introduction to Technical Communication Part 1 - This course lays the groundwork for learning how to assemble material in order to communicate effectively in writing. It is presented in two parts so students can master good writing techniques before applying them specifically to letters, memos, etc. **2 credits**

TSYH 102 Introduction to Technical Communication Part 2 - Applies the techniques learned in TSYH 101 to specific forms of written communication. **2 credits**

TSYH 103 Reporting Technical Information - A mandatory course for students in the Diploma Program. It covers all aspects of report writing: organizing information, presentation, drawing conclusions, packaging. Students will be required to submit assignments for assessment and constructive criticism. **2 credits**

TSYH 104 Writing Analytical Reports - A mandatory course for students in the Diploma Program. It covers all aspects of analytical report writing: organizing information, presentation, drawing of conclusions, packaging. Students will be required to submit assignments for assessment and constructive criticism. **2 credits**

TSYH 120 Technical Mathematics Part 1 - The first of two courses in technical mathematics which is mandatory for those in the Diploma Program. The course builds on high school mathematics material so students are able to relate basic algebra, trigonometry, geometry and vectors to their technical field. Through working examples, students develop the ability, confidence and versatility to deal with physical situations involving mathematical solutions. **3 credits**

TSYH 123 Technical Mathematics Part 2 - The second of two courses in technical mathematics, as described in TSYH 120. **3 credits**

TSYH 126 Statistics Part 1 - The first of three courses designed to familiarize students with the underlying principles, concepts and terminology of descriptive and inferential statistics. Students will learn to intelligently read, interpret and question the validity of statistical data presented in reports, magazines and journals. They will be able to use elementary statistical procedures to collect, summarize, analyze and interpret statistical data after course completion. The course is recommended for those involved in the collection or interpretation of traffic flow data, material test results or project planning. **1 credit**

TSYH 127 Statistics Part 2 - A continuation of TSYH 126. **2 credits**

TSYH 128 Statistics Part 3 - A continuation of TSYH 127. **2 credits**

TSYH 129 Network Analysis - An introduction to the mathematics involved in operations research. Course includes linear programming, transportation, assignment and queueing theory; and their applications in the decision-making process. **3 credits**

TSYH 132 Calculus Part 1 - The first of three courses in calculus dealing with differentiation and integration of algebraic expressions and some trigonometric, logarithmic and exponential functions. Additional topics include conic and calculus problems, and partial differentiation. **2 credits**

TSYH 134 Calculus Part 2 - A continuation of the series in calculus. **2 credits**

TSYH 136 Calculus Part 3 - A continuation of the series in calculus. (Available Summer 1989). **2 credits**

TSYH 140 Hydrology Part 1: Introduction to Hydrology - Provides a working knowledge of the terminology used in hydrology. Methods of determining watershed boundary areas, evaluating watershed characteristics for run-off estimation, precipitation measurement, streamflow measurement, calculation of flows and stream gauging are covered in preparation for TSYH 142 and 143. **2 credits**

TSYH 142 Hydrology Part 2: Flood Flow Determination - Introduces the primary methods of determining flood flows through the analysis of existing and obtainable data, including the Rational Method, streamflows, point flow frequencies and snowmelt. Method selection, probability calculation, determination of return periods, and probable flood flows based on the analysis of existing data are presented for practical use in the design of drainage structures based on estimated flood flow magnitudes. **1 credit**

TSYH 143 Hydrology Part 3: Rational Method Application - An expansion of TSYH 142. A step-by-step application of the Rational Method in peak flow determinations is presented. Students will work on individual projects and follow a systematic approach to determining peak flows using the Rational Method as a basis for culvert and drainage designs. **1 credit**

TSYH 145 Hydraulics Part 1: Fundamentals of Fluids - An introduction to the terminology, physics and applications of hydrostatics and hydraulics. This course covers fluids at rest and in motion. Topics include: the properties of water, fluid pressure, hydrostatic force and buoyancy; fundamental laws of incompressible fluid flow; concepts of continuity, momentum, force, energy, power and work as they relate to hydraulic systems. Some basic concepts of pumps are also introduced. **2 credits**

TSYH 146 Hydraulics Part 2: Flow Under Pressure - A look at the fundamentals of fluid flow as it applies 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. **1 credit**

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. **1 credit**

TSYH 150 Strength of Materials Part 1: Forces on Systems - The first of four courses on "strength of materials". This course covers the basic principles of statics including forces generated by applied and gravitational loads; how to establish the resultant of these forces, break them down into components and calculate the axial resisting forces maintaining equilibrium. **2 credits**

TSYH 151 Strength of Materials Part 2: Stress/Strain - Concentrates on the analysis of stresses in frames, trusses and columns and the relationship between stress and strain, in preparation for further study of connections in steel and timber members. The properties of structural shapes are introduced preparatory to introducing design theory. **3 credits**

TSYH 152 Strength of Materials Part 3: Resistance of Materials - Builds on the foundation laid in TSYH 150 and 151, and completes the basic theory of the behavior of simple members under load. It is intended as a transition for more advanced structural courses, and as preparation for TSYH 153. **2 credits**

TSYH 153 Strength of Materials Part 4: Testing Practices and Analysis - Reinforces the concepts learned in TSYH 152 by illustrating the properties and relationships of stress and strain in laboratory conditions. Laboratory tests will be recorded on video. Students will observe and record results for analysis of data and demonstration of the stress/strain relationships for various materials. **2 credits**

TSYH 160 Graphical Communication Part 1: Basic Drafting - Students will be introduced to the standard layout of engineering drawings. Topics include the relationship between plans, elevations, sections, etc.; conventional lining and lettering techniques; the development of projected views. Special consideration will be given to sketching techniques and, through assignment preparation, the student will acquire basic drafting ability. **2 credits**

TSYH 162 Graphical Communication Part 2: Interpreting Topographical Drawings - Presents the required elements for reading and preparing drawings conveying survey data, drawing layout in plan and profile form, site development, and computations related to topographical data and highway design. **3 credits**

TSYH 165 Graphical Communication Part 3: Interpreting Construction Drawings - A companion course to TSYH 162 dealing with construction drawings for highways, bridges, culverts, retaining structures and other auxiliary works. **3 credits**

TSYH 168 Graphical Communication Part 4: Structural Steel Detailing - A specialized course providing the basis for reading structural steel engineering drawings and identifying members for size, type and location. Includes layout of connections for beams, columns and bracing, in preparation for fabrication drawings. **2 credits**

TSYH 170 Graphical Communication Part 5: Reinforcing Steel Detailing - Provides the basis for reading reinforcing steel engineering drawings and identifying patterns of reinforcing bars in various reinforced concrete structural members. Students prepare schedules and calculate total quantities and weights of bars in slabs, beams, columns and walls, from design drawings. **2 credits**

TSYH 180 Computers Part 1: Introduction to Data Processing - An introductory course in the use of computers as a means of processing data. It covers the hardware and software currently in use and provides the background knowledge necessary to overcome initial fear of computers. **2 credits**

TSYH 190 Guide to Technical Report Writing - A non-credit course to assist students to write technical reports for TSYH 199, a requirement for the Diploma Program. Subjects include format, alternative comparisons, research and references, presentation of economic data, persuasive writing, and the development of conclusions. **non credit**

TSYH 199 Technical Report - Diploma Program students are required to submit a technical report, 3000 to 5000 words long. It is normally the finale 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 analysed and assessed for accuracy and form of presentation by the tutor and the Communications Department. **6 credits**

TSYH 201 Soils Technology Part 1: Basic Properties - Provides an introduction to the terminology, theory and practices related to geology, soil mechanics and basic properties of soils. The course discusses natural processes that take place in the formation of soils and rocks; describes rock identification charts used in industry and covers simple field identification tests. Laboratory tests used to define soil properties that classify soil are identified (in accordance with the Unified Soil Classification System). **2 credits**

TSYH 203 Soils Technology Part 2: Engineering Properties - Describes the soil properties that are used in the design of engineering structures. Areas covered: basic principles and effects of water movement through soils; calculation of combined stresses in soil masses; settlement and consolidation; concepts of shear strength in soils. **3 credits**

TSYH 206 Soils Technology Part 3: Field Investigation - Details reasons and methods for conducting a geotechnical survey. Office procedures are introduced which allow geotechnical information to be obtained before moving into the field. Field aspects of a geotechnical survey, including location methods and simple survey techniques for sizing material deposits, are presented. Information required from a preliminary field reconnaissance and methods used (and relative costs) in a detailed investigation are also covered. Sampling methods and current "in-situ" tests are fully discussed. **3 credits**

TSYH 209 Soils Technology Part 4: Testing Practices - Introduces the advantages/disadvantages of laboratory soil testing and describes the methods required when receiving, recording, handling, storing and testing soil samples. Common laboratory tests are described and explained; sample calculations for test data are given. Access to a local laboratory will be required to demonstrate testing practices. **1 credit**

TSYH 210 Geotechnical Design Part 1: Earth Slope Stability - Introduces the mechanics of slope movement and causes of slope instability including identification of potential slope hazards. Analysis of translational and rotational failures; use of stability charts; design and remedial measures are covered. **3 credits**

TSYH 212 Geotechnical Design Part 2: Rock Slope Stability - Introduces the basic mechanics of rock slope failures and the principles needed to analyze planar failures. Topics include methods of rock slope stabilization, rockfall protection and detection, required calculations and design applications. **3 credits**

TSYH 214 Geotechnical Design Part 3: Foundations - Introduces terminology, theory and concepts associated with foundation analysis and design. Topics include types of foundations, related subsoil conditions, bearing capacities, settlement of shallow foundations, bearing capacity of deep foundations and site soil improvement using stabilization methods. **3 credits**

TSYH 216 Geotechnical Design Part 4: Retaining Structures - Introduces theory and terminology related to the analysis and design of earth retaining structures together with practical design applications. Topics include lateral earth pressure theory, stability requirements of retaining wall designs, tie rods, wall types, selection and design. **3 credits**

TSYH 220 Aggregates Part 1: Basic Properties - An introduction to the sources, types and qualities of aggregates, and the methods used to find them. Applications of aggregates and the codes governing them are discussed. **1 credit**

TSYH 221 Aggregates Part 2: Production and Quality Control - Describes the operations and capabilities of different types of crushing plants: jaw crushers, roll crushers, cone crushers, impact crushers, tandem crushing units. Topics include screening capacities; calculated output; the ability of production systems to meet aggregate requirements; quality control inspection procedures; methods of correcting gradation defects resulting from production/stockpiling; the need for safety in all aspects of production. **2 credits**

TSYH 222 Aggregates Part 3: Testing Practices - Describes the procedures used to obtain representative samples for testing. Testing procedures (including selection and preparation of equipment), performance, record keeping and result analysis for sieve analysis, specific gravity, absorption, abrasion, chemical soundness and petrographic analysis are covered. Access to a laboratory will be required to demonstrate competency in testing procedures. **1 credit**

TSYH 230 Concrete Technology Part 1: Basic Properties - The production of Portland cement concrete is discussed in general terms. The various components used in the manufacture of concrete are detailed including a description of their production, possible defects or impurities, and the correct method of storing materials. **1 credit**

TSYH 231 Concrete Technology Part 2: Mix Design - In accordance with C.S.A. A23.1 Section 14, students will be instructed on the effects of the placing method, use of admixtures and variations of cement type in the design of mixes. A step-by-step design approach will be demonstrated, based on the design criteria and moisture content of the aggregates, and procedures in the preparation of trial batches and the interpretation of their results. (Available Summer 1989). **2 credits**

TSYH 233 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. (Available Summer 1989). **1 credit**

TSYH 234 Concrete Technology Part 4: Testing Practices - Describes the initial testing performed on concrete including slump, air entrainment, unit weight and temperature. Topics include maintenance and calibration of test equipment; procedures for preparing and curing samples; capping and testing compression cylinders; preparing and conducting flexural tests; interpreting test results. Students are advised of the problem areas in concrete preparation and placing that should be inspected, and the appropriate actions to be taken in the event of non conformance with specifications. Access to a local laboratory will be required to demonstrate competency in the testing practices. **1 credit**

TSYH 240 Asphalt Technology Part 1: Basic Properties - The first of three courses to introduce the field of asphalt technology including the basic properties of asphaltic cements, liquid asphalts and aggregates. This is an entry level course but students are advised to complete TSYH 220 as a prerequisite. **1 credit**

TSYH 241 Asphalt Technology Part 2: Mix Design - Commences with the proportioning of asphalt mixes including the analysis and calculations required to determine the physical properties of the mix. Step-by-step procedures are given for mix design including the methodology, test specimens, procedures and interpretation of test data for two mix design methods. Fundamentals of manufacturing hot-asphalt mixes (storage, mixing methods, mixing plants, production, inspection) are covered, including hot-mix recycling and special mix designs. **2 credits**

TSYH 242 Asphalt Technology Part 3: Testing Practices - Presents methods and procedures for conducting tests on asphalt cement and liquid asphalts. Preparing test specimens and recording and analyzing test data in compliance with specifications are discussed. Access to a laboratory will be required to demonstrate competency in the testing practices. **1 credit**

TSYH 301 Surveying Fundamentals Part 1: Basic Instrumentation - A fundamental course in surveying which introduces commonly used survey equipment. After completion, students will be able to identify and describe the equipment, parts and applications in the field. **1 credit**

TSYH 302 Surveying Fundamentals Part 2: Methods and Procedures - A continuation of TSYH 301. This course details the field and office methods used for measuring and recording surveying data. Topics include booking and plotting notes, measuring angles and distances, basic computations for angles, level note reduction, simple circular curves, simple traverse plots, plans, profiles, cross sections and slope staking. **2 credits**

TSYH 303 Surveying Fundamentals Part 3: Basic Computations - A continuation of TSYH 302. This course takes data obtained from field surveys and details the computations involved with planning and design. Topics include elements of coordinate geometry, traversing slope reduction, trigonometric levelling, stadia reduction and coordinate transformation. **2 credits**

TSYH 304 Surveying Fundamentals Part 4: Field Applications - The last of four courses in surveying fundamentals, this course allows students to obtain credit for applying their skill with basic instruments and theory, learned in TSYH 301, 302 and 303, to practical applications. Students will be required to demonstrate, to the satisfaction of an approved evaluator, their ability in chaining procedures, leveling, transit work, use of electronic distance measuring equipment. **1 credit**

TSYH 310 Surveying Site Control - Computations related to horizontal and vertical positioning and an introduction to three specific aspects of datum and control systems are provided in this course. Topics include geodetic horizontal datum and ellipsoidal datum reductions; quality control and concepts of confidence; the use, calculation and coordinate transformation to UTM coordinate systems; methods, calculations and selection of procedures for implementing site survey control. **3 credits**

TSYH 311 Surveying Highways Part 1: Horizontal Alignment - The first of three courses covering the theory and computations involved in highway surveying computations and layout. Topics include horizontal alignment procedures and calculations, simple circular curves, compound and reverse curves and transitional curves. **2 credits**

TSYH 312 Surveying Highways Part 2: Vertical Alignment - The second of three courses covering the theory and computations involved in highway surveying computations and layout. Topics include vertical alignment procedures and calculations, and vertical parabolic curves (symmetrical and asymmetrical). **1 credit**

TSYH 313 Mapping Systems and Route Reconnaissance - An introduction to mapping systems used in British Columbia and the relationship between mapping and preliminary surveys. Aerial photography, ground surveys, mapping coverage and an introduction to the use of computer-aided drafting in surveying and mapping are presented. **1 credit**

TSYH 314 Surveying Highways Part 3: Field Applications - The last of three courses on highway surveying computations and layout, this course allows students to obtain credit for their skill in applying theory learned in TSYH 311 and 312 to practice. Stu-

dents will be required to demonstrate, to the satisfaction of an approved evaluator, their competency in a series of surveying tasks related to vertical and horizontal survey computations and layout. **1 credit**

TSYH 315 Surveying Quantity Measurement - An introduction to the standard methods used in measuring and calculating land area and earthwork quantities. Area and volume formulas; typical highway applications; an introduction to accumulated volume computations; shrinkage and swell factors; and adjustments and elementary Mass-Haul analysis are presented. **1 credit**

TSYH 330 The Legal Surveying System - An introduction to the systems of legal surveying, monumentation requirements and regulations currently in practice in British Columbia. Topics include general survey principles, land registration, monumentation, sources of survey information, systems of survey, Land Act, Land Titles Act, Highways Act, Surveyor-General Regulations, and highway and railway survey requirements. **1 credit**

TSYH 335 Basic Field Astronomy - An introduction to astronomy, the course presents the terms, symbols and calculations to compute the azimuth of a line and latitude of a point based on polar and solar observations. The course manual provides the conceptual and theoretical basis for completing an assignment which requires computations from local observations. **2 credits**

TSYH 401 Highway Construction Part 1: Clearing and Excavation - An introduction to the terminology, theory, equipment and practices used in clearing, grubbing and excavation operations. The course covers the basic reasons for clearing and grubbing; terminology; soil properties and how they affect excavation; properties of rock and rock ripping productivity; capabilities of standard excavation equipment. Emphasis is placed on productivity calculations. Special reference is made to quantity measurements and specifications used in highway construction. **1 credit**

TSYH 402 Highway Construction Part 2: Earthmoving - A general introduction to types of earthmoving equipment and engineering fundamentals of earth hauling machinery. Topics include various earthmoving methods, factors involving equipment selection, and productivity. **1 credit**

TSYH 403 Highway Construction Part 3: Compaction and Stabilization - A course on the methods and equipment used in preparing highways for paving based on soil properties. Inspection and control, proctor and nuclear density, sand and balloon density tests are included. **1 credit**

TSYH 404 Highway Construction Part 4: Culvert and Drainage Installation - Provides an introduction to the terminology, theory and practices of culvert and drainage installation for highway projects. Particular reference is made to industry specifications for subdrainage and storm sewer system installation. **2 credits**

TSYH 405 Highway Construction Part 5: Rock Drilling & Blasting - An introductory course to the terminology and concepts of explosives use for rock removal in highway construction. Topics include properties of rock, explosive types, detonation, safety, and basic blast design. **1 credit**

TSYH 440 Pavement Construction Part 1: Construction Methods - This course introduces the site organization, equipment and methods utilized in the placement of Asphaltic Concrete Pavement, Portland Cement Concrete Pavement, and Asphalt Surface Treatments. A prior knowledge of the basic properties of concrete and asphalt is required. (Available Summer 1989). **2 credits**

TSYH 442 Pavement Construction Part 2: Inspection and Quality Control - A continuation of Part 1 with an emphasis on contract administration and inspection in the placement of granular materials, Asphaltic and Portland Cement Concrete Surface and Asphalt Surface Treatments. (Available Summer 1989). **1 credit**

TSYH 450 Estimating Part 1: Quantity Take-off - Prepares students to take-off quantities from construction drawings in order to prepare bills of quantities from design drawings and specifications, and establish a base for costing. **2 credits**

TSYH 453 Estimating Part 2: Costing - A continuation of TSYH 450. The cost elements of quantities including labor, materials, handling, inventory, overhead, etc., are determined or applied to take-off quantities in preparing bid estimates and summarizing project costing. **2 credits**

TSYH 460 Contracts Part 1: Types of Contracts and Contract Documents - A course covering the types of contracts used in construction: lump sum, unit price, cost plus, turnkey. Topics include contract documentation, instructions to tender, general conditions, special conditions, insurance clauses and specifications from industry. **2 credits**

TSYH 461 Contracts Part 2: Cost Control - This course includes planning, work measurement, record-keeping, progress reports and extras. Recommended methods of field and office control for construction projects are given, with examples from industry. **2 credits**

TSYH 501 Highway Design Part 1: Basic Design Data - An introduction to highway classification and the capacity and level of service concepts as defined in the R.A.T.C. Manual. Topics include elements of horizontal and vertical alignment design; components of road cross sections; impact of a new road or road improvement on the environment. **2 credits**

TSYH 503 Highway Design Part 2: Route Selection - An introduction to the development of a highway design from its conception to horizontal and vertical alignment. Survey and mapping requirements and aerial photography are employed in the selection of preliminary alignment, including the detailed horizontal and vertical design of a highway. The course is project-based and requires a detailed design for a section of highway including the selection of radii; superelevation and visibility standards for a particular design speed or road classification; calculation of data for horizontal curves (circular areas and transitional spirals) and vertical curves; calculation of the attainment and removal of superelevation. **4 credits**

TSYH 507 Highway Design Part 3: Earthworks - This course is based on the student project in TSYH 503. Students will be required to complete earthworks quantity data and produce a partial Mass-Haul diagram. After complete project data is submitted, a computer generated, unadjusted Mass-Haul diagram will be provided. Adjustments will be required for balanced earthworks (swell, shrinkage, waste, borrow, freehaul, overhaul). A cost estimate based on established unit prices and the resulting volumes is prepared by each student. **3 credits**

TSYH 510 Highway Design Part 4: Drainage and Culvert Design - A course on high drainage facility design which requires a working knowledge of the principles of hydrology and hydraulics. Topics include hydraulic and structural design elements of culverts, ditches, storm water systems design, surface run-off control, environmental considerations and material specifications. (Available Summer 1989). **4 credits**

TSYH 520 Pavement Design Part 1: Design Criteria - Highway design requirements for sub-base and base course materials are presented. Design and evaluation techniques will also be studied. Topics include axle loading, repetitions, pressure loading ($P = W/A$), internal angle of friction, allowable sub-grade reaction K , Benkleman Beam. **2 credits**

TSYH 522 Pavement Design Part 2: Specifications - A continuation of TSYH 520 where design criteria are examined in terms of construction practices, job specifications and construction inspection. **1 credit**

TSYH 530 Subdivision Planning/Design Part 1: Land Use Planning - Discusses natural state land use assessment, planning elements, community zoning and site plans, neighborhoods, lot and dwelling types, traffic considerations, road classifications, road patterns and names, single site planning, building envelopes, setbacks, lot layout design, cul-de-sacs, walkways and emergency access routes. Acts and Regulations governing subdivisions, the approval process, engineering servicing criteria and the economic aspects of land use development are reviewed. **2 credits**

TSYH 532 Subdivision Planning/Design Part 2: Urban Street Design - The design of urban roads from limited local residential streets to arterial road standards. Horizontal and vertical alignment applications are detailed; consideration is given to drainage and auxiliary facilities such as parking, sidewalks and bus services. A project will require students to incorporate all design elements in preparation for design drawings of a section of urban arterial road. **3 credits**

TSYH 535 Subdivision Planning/Design Part 3: Storm Sewers - The principles of hydraulics and hydrology are applied in preparation for design drawings of enclosed storm water systems. Topics include division of drainage systems into areas and sub-areas; the establishment of vertical and horizontal storm sewer alignments; computation of run-off; calculation and sizing of mains; the design of laterals and service connections. **2 credits**

TSYH 537 Subdivision Planning/Design Part 4: Water Supply and Sanitary Sewers - The principles of hydraulics are applied to the design of water supply and sanitary sewer systems for urban development. Water supply demand, design criteria, flows, losses, appurtenances and network analysis, are included to enable students to prepare a supply and distribution system design and analysis, complete with pipe sizing and installation details. Sanitary sewer design topics include recommended design flows, pipe flow formulae and design criteria. System alignments, velocity controls, lot service connections and minimum sizing using the standard design computation tables are included, to enable students to prepare a sanitary system collection design. **2 credits**

TSYH 540 Subdivision Planning/Design Part 5: Subdivision Layout - Incorporates the aspects of land use planning and engineering servicing related to residential subdivision layout design. It is project-based and will require the development of lot layout and servicing alternatives for a raw land parcel, including integration with existing development and services. (Available Fall 1989). **2 credits**

TSYH 560 Traffic Technology Part 1: Traffic Characteristics - Presents the operating characteristics of traffic: vehicle dimensions, weight and performance; driver perception; reaction and braking distances; minimum stopping distance; pedestrian and bicycle characteristics. The course includes traffic stream characteristics including spot speed, travel time, A.D.T. and D.H.V., speed/flow relationship, level of service, queuing theory and highway capacity. **1 credit**

TSYH 561 Traffic Technology Part 2: Data Collection and Traffic Control - A continuation of TSYH 560. Includes the collection of data by volume counts; the moving vehicle method; speed measurement; license plate studies; signal location and equipment; signal tuning and phasing; detection loops; computer controlled systems; system management; pedestrian and signal warrants. **1 credit**

TSYH 562 Traffic Technology Part 3: Traffic Characteristics - A continuation of TSYH 561 with emphasis on the design of lane layout, auxiliary lanes, channelization and turning. The types of signals relating to capacity at intersections and the limitation of unsignalized junctions are discussed. **1 credit**

TSYH 563 Traffic Technology Part 4: Parking and Loading - A continuation of TSYH 562 with emphasis on the geometric design of off-street parking, loading facilities, parking garages, bus and truck terminals, on-street parking, the use of parking studies and shopping centre layouts. **1 credit**

TSYH 570 Structural Design Part 1: Loads on Structures - The structural design series are a continuation of TSYH 150, 151, 152 and 153. This course details the external forces applied to structures including environmental forces; live loads from equipment, vehicles and human occupancy; design factors and code requirements. **1 credit**

TSYH 571 Structural Design Part 2: Structural Analysis - The first part of this course continues shear force and bending moment diagram development from TSYH 151 including an introduction to statically indeterminate structures. The second part analyzes statically indeterminate structures by moment distribution, in preparation for computer analysis methods. **4 credits**

TSYH 572 Structural Design Part 3: Basic Timber Design - An introductory course for the design of both timber columns and beams by limit states including timber connections. **3 credits**

TSYH 574 Structural Design Part 4: Basic Reinforced Concrete Design - Applies the theory of concrete technology to the design of reinforced concrete structures such as bridge decks and retaining walls, with emphasis on reinforcement location and adherence to safe design standards. (Under development). **3 credits**

TSYH 576 Structural Design Part 5: Basic Structural Steel Design - Introduces the design theory of structural steel members and welded, bolted and riveted connections. Emphasis will be placed on erection practices and connection details. (Under development). **3 credits**

TSYH 580 Transportation Planning Part 1 - Examines the characteristics of various urban transportation modes and the relationship between the land development process and provision/ demand for urban transportation facilities. Topics include urban transportation modes, capacity calculations, network planning, road capacities, neighborhood planning, bus system planning, rail-based systems and transit network planning. (Under development). **2 credits**

TSYH 582 Transportation Planning Part 2 - A continuation of TSYH 580 with emphasis on traffic and transportation surveys, demand forecasting and transportation modeling techniques used in transportation planning studies. (Under development). **2 credits**

TSYH 720 Engineering Economics Part 1: Fundamentals of Financial Calculations - An introduction to the time value of money and the effects of differing interest rates and periods of payment for both simple and compound interest. Time cash flow diagrams are developed and the theory of annuities presented. **2 credits**

TSYH 721 Engineering Economics Part 2: Introduction to Engineering Economics - Applies the principles learned in TSYH 720 to problems in comparison of alternatives; viability of investment and rate of return; the study of depreciation for the purpose of assessing lease/purchase alternatives and equipment replacement timing. **2 credits**

WOOD PRODUCTS MANUFACTURING

WOOD 110 Wood Products Manufacturing - Persons interested in the manufacture of lumber and plywood will enlarge their knowledge of the equipment and methods used. Correct manufacturing techniques are examined to give an understanding of sawing, drying and planing of lumber, peeling and drying of veneer, and plywood construction. Management principles studied include guidelines for supervisors, control of quality and recovery, equipment and saw maintenance, safe plant environment, cost controls and pollution abatement. Field trips will be arranged to examine a lumber and plywood plant. **7.5 credits**

Academic Support

Dave Chowdhury, D.I.C., B.Sc., M.B.A., Ph.D., Dean
Kent Yakel, B.Sc.(Hons.), M.Sc., Associate Dean
Marv Woolley, Dipl.T., A.Sc.T., Acting Director

Pre-entry Courses
Distance Education
Chemistry
Communication/Technical Communication
Mathematics
Physics

PRE-ENTRY COURSES

For students lacking the necessary entrance requirements for BCIT Technology Programs, or for those needing a current review, non-credit pre-entry courses are offered throughout the year on a part-time basis (day or evening).

Check the latest Part-time Studies Flyer for dates, times, fees, etc., or phone 434-3304 for course information.

Pre-entry Courses

CHEM 001	Meets Chemistry 11 entrance requirement for BCIT programs.
COMM 001, COMM 002	Preparatory courses in basic writing and learning skills needed for BCIT full-time programs.
COMM 003	Meets English 12 entrance requirement for BCIT programs.
COMM 004	Meets English 12 entrance requirement for BCIT programs for students whose first language is not English.
MATH 001, MATH 002	Meets Algebra 12 entrance requirement for BCIT programs.
PHYS 009	Meets Physics 11 entrance requirement for BCIT programs.

DISTANCE EDUCATION

Some part-time mathematics and physics courses are offered as correspondence (distance education) courses. This serves students who may need a course for upgrading, general information or as an equivalency, and who find it inconvenient or impossible to take a regularly scheduled course or, possibly, the course is not offered when it is needed. The advantage of distance education courses is they can be started anytime 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 002	Meets Algebra 12 entrance requirement for BCIT programs.
MATH 122	Equivalent to MATH 102 and ASTT accredited if taken with MATH 124.
MATH 123	Equivalent to MATH 101 and ASTT accredited.
MATH 124	Equivalent to MATH 102 and ASTT accredited if taken with MATH 122.
MATH 221	Equivalent to MATH 203 and ASTT accredited if taken with MATH 222.
MATH 222	Equivalent to MATH 203 and ASTT accredited if taken with MATH 221.
MATH 227	Calculus: Part 3.
PHYS 136	Equivalent to PHYS 131/132 theory only.
PHYS 236	Equivalent to PHYS 231/232 theory only.

Course Descriptions & Credits

CHEMISTRY

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 101 Applied Chemical Principles 1 (72 hours) - Provides the necessary background for chemical calculations and analysis. Included are stoichiometry; atomic structure; bonding; solution preparation; acid-base and oxidation-reduction reactions; titrations. Lab work consists of qualitative and quantitative analysis. Meets the Chemistry 12 entrance requirement for BCIT programs. Prerequisite: CHEM 001 or equivalent. **6 credits**

CHEM 201 Applied Chemical Principles 2 (108 hours) - Theory of gravimetric and volumetric analysis; qualitative analysis of cations and anions; electro-chemistry including cells, electroplating and corrosion. Study of physical chemistry provides theory of solids, liquids and gases leading to fractional distillation and colligative properties. Lab work covers qualitative and quantitative analysis. Throughout CHEM 101/201 attention is given to industrial and everyday applications. Prerequisite: CHEM 101 or equivalent. **9 credits**

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/TECHNICAL COMMUNICATION

If the equivalent to first year full-time Business Communication is required, COMM 160, COMM 175 and COMM 171 should be taken in that order.

If the equivalent to first year full-time Technical Communication is required, COMM 160, COMM 175 and COMM 183 should be taken in that order.

COMM 001 Effective Writing (24 hours) – Prepares students for heavy writing requirements in full-time programs at BCIT. Especially useful for students who need to develop their basic skills in business and technical writing. Concentrates on paragraph development, organization and effective sentences in letter and memo writing. **non credit**

COMM 002 Independent Learning Skills (24 hours) – Learn how to read efficiently, cope with assignments, use computer-managed learning packages, study independently, take exams successfully, manage your time and get the most from new instruction techniques. Includes methods for reading textbooks and learning from objectives. **non credit**

COMM 003 Comprehensive Reading, Writing and Learning Skills (80 hours) – Designed for students whose first language is English. Emphasizes reading, writing and study skills needed for BCIT full-time programs. Covers COMM 001 and COMM 002, including speed reading, library research skills, reading comprehension and short report writing. A grade of 50% or higher in this course meets the "P" English entrance requirement for BCIT. A grade of 65% or higher meets the C+ prerequisite needed for some technologies. Students who have just learned English as their second language should enrol in COMM 004, not COMM 003. **non credit**

COMM 004 Technical English for Second Language Students (80 hours) – If your first language is not English, or you have studied English but need a refresher to meet BCIT's English requirements, this level of English is for you. Course focuses on the reading, writing, listening and speaking skills required for technical communication including reading efficiency, vocabulary expansion, sentence and paragraph development. A grade of 65% or better meets the English 12 entrance requirement for BCIT programs. **non credit**

COMM 160 Introduction to Business and Technical Communication (36 hours) – Practical techniques for planning, organizing, selecting and presenting information in a business or industry environment. Students apply these skills to communication common in most office jobs – routine memos, instructions, procedures, summaries, oral presentations. Practical "case" assignments are used. Ideal course for those with little experience in business or technical communication. **3 credits**

COMM 171 Business Reports (36 hours) – For those in the business environment who must learn how to write problem-solving reports and proposals. The course emphasizes the persuasive skills needed to sell ideas, methods and products. Specific applications include comparison and recommendation reports, proposals, feasibility studies, executive summaries, formal report format, persuasive presentations and effective use of graphics. **3 credits**

COMM 175 Letters and Memos (36 hours) – Learn written communication skills for use in and out of the office. Internal correspondence includes routine requests, replies and short, informal memos. External correspondence includes request, reply, sales and collection letters. Job applications and resumes are also covered. **3 credits**

COMM 183 Technical Reports (36 hours) – For writers from a technical/industrial background who need help in writing reports on solutions to engineering problems. Specific applications include comparison and feasibility reports, technical proposals, journal reviews, executive summaries, graphics and formal report format. Persuasive presentations are included. **3 credits**

COMM 189 Writing Effective Letters (18 hours) – The principles of letter style and organization and how they apply to sales, collection, inquiry, claim adjustment and application letters. Participants are encouraged to work on letters from their workplace. **1.5 credits**

COMM 190 Writing for Results (18 hours) – Learn simple techniques to make your business writing skills clearer, better organized and more effective in getting the job done. Memos, letters, reports and other major forms of written communication are covered. Students are requested to bring samples of their written communications from the workplace to the first class. **1.5 credits**

COMM 192 Short Reports (18 hours) – Selecting and organizing information, using effective formats and layouts, analysing audience needs, reporting factual information and making recommendations. **1.5 credits**

COMM 196 Writing Manuals for the Computer Industry (18 hours) – For writers of user manuals. Planning, researching, organizing, formatting and writing a manual; testing and packaging the finished product; translating technical material for the non-technical reader to understand. **1.5 credits**

COMM 900 English Fundamentals (36 hours) – A refresher course focusing on writing clearer sentences and paragraphs. Includes sentence structure, word choice, common grammatical problems, techniques for listing, paragraph structure and simple presentation strategies. Gain confidence in your ability to focus on ideas, and to use the conventions and mechanics of the language. If English is your second language, COMM 004 is recommended instead. **non credit**

COMM 902 Teamwork in the Office (8 hours) – Learn strategies for promoting cooperative, productive team relationships in a corporate setting. Managers learn how to define roles, rules and rewards, and create an open communication system within and between departments. **non credit**

COMM 903 Proposals: Writing, Selling and Following Through (18 hours) – The language, organization, presentation and packaging of effective sales and technical proposals. Participants are encouraged to write proposals based on their work. Follow-up is included. **non credit**

COMM 908 Making Meetings Work (8 hours) – Make business meetings more productive. Learn how to prepare agendas, structure and control discussions, make decisions and write minutes. **non credit**

COMM 910 Telephone Techniques (6 hours) – Learn how to make a positive first impression with customers, and to handle and record calls efficiently. Through classroom discussions, pre-recorded sample calls and role playing, participants learn effective business telephone techniques. **non credit**

COMM 911 Managing Team Writing (18 hours) – For managers who supervise and edit group writing projects. Learn techniques for plotting a critical path, building a project team, specifying requirements, designing report segments, making revisions and packaging the finished product. A review of the interpersonal skills needed to manage a project is included. **non credit**

COMM 913 Publicity for your Organization (18 hours) – Learn how to formulate a “media event”, write a press release and carry out a plan to attract media attention so your club or organization will receive **free** publicity. Girl Guide leaders, community organization volunteers, neighborhood action groups, or anyone involved with a non-profit organization or fundraising activities will find this course useful. **non credit**

TCOM 114 Technical Writing for Electronics (51 hours) – Learn to organize technical information; illustrate documents; define and describe technical objects; write routine memos, letters and instructions; summarize technical articles. Includes preparation of a resume to be submitted to the Co-operative Education Department. **3.5 credits**

TCOM 214 Technical Writing for Electronics (51 hours) – A continuation of TCOM 114. Students learn the techniques and formatting used for writing systems documentation, and how to deliver technical briefings. Prerequisite: TCOM 114. **3.5 credits**

MATHEMATICS

MATH 001 Technical Mathematics: Introduction (90 hours) – An upgrading/refresher course for students who have not completed high school mathematics, or who completed it more than three years ago, or whose math background is otherwise weak. The course meets the Algebra 12 entrance requirement for BCIT programs. Students intending to enter a technology which requires an Algebra 12 grade of C+ or better must achieve a final mark of 65% or higher in MATH 001. Prerequisite: C or better in Algebra 11, or equivalent. **non credit**

MATH 002 Technical Mathematics: Introduction (Correspondence) – Equivalent to MATH 001, 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. This format is not recommended for those who have difficulty with mathematics or who have been away from school for more than three years (take MATH 001 instead). Prerequisite: C or better in Algebra 11, or equivalent. **non credit**

MATH 101 Technical Mathematics 1: Trigonometry (36 hours) – A course for engineering technology students in the application and theory of trigonometric functions including right angle trigonometry, radian measure, vector and triangle problems, trigonometric identities and graphing, polar coordinates, compound and double angle formulas, trigonometric equations and inverse functions. Prerequisite: C+ or better in Algebra 12, or 65% or higher in MATH 001 (or equivalent). **3 credits**

MATH 102 Technical Mathematics 2: Logarithms and Analytic Geometry (36 hours) – The theory and application of common and natural logarithms, and an introduction to analytic geometry. Emphasis on the plotting, interpretation and uses of logarithmic/semilogarithmic graphs; geometric and practical properties of conic sections; polar/rectangular transformations. Quadratic surfaces are briefly discussed. Prerequisite: C+ or better in Algebra 12, or 65% or higher in MATH 001 (or equivalent). **3 credits**

MATH 114 Mathematics for Electronics: Part A (63 hours) – The first of two parts which includes: common and natural logarithms, logarithmic/semilogarithmic graphs, decibels, exponential growth and decay, systems of linear equations, determinants, application to electrical networks, trigonometric functions, identities, solution of triangles, graphing and addition of sinusoidal functions, complex numbers, rectangular/polar transformations, phasor representation of sinusoidal waveforms, application to electrical technology, the derivative, differentiation rules, applied maxima/minima. MATH 114 and MATH 115 replace MATH 143. Prerequisite: MATH 001 or equivalent. **4 credits**

MATH 115 Mathematics for Electronics: Part B (63 hours) – The second of two parts. See MATH 114 for details. MATH 114 and MATH 115 replace MATH 143. Prerequisite: MATH 114 or equivalent. **4 credits**

MATH 116 Calculus for Electronics: Part A (54 hours) – The first of two parts which includes: implicit differentiation; related rates and approximations of differentials used in electronics technology; anti-differentiation; the indefinite/definite integral including evaluation of areas, average and RMS value of a periodic waveform; differentiation and integration of trigonometric, logarithmic, exponential and damped sinusoidal functions; integration techniques including change of variables, integration by parts and partial fractions; first and second order differential equations with application to electronics technology; Fourier coefficients and line spectrums. MATH 116 and 117 replace MATH 243. Prerequisite: MATH 115, MATH 143 or equivalent. **3.5 credits**

MATH 117 Calculus for Electronics: Part B (54 hours) – The second of two parts. See MATH 116 for details. MATH 116 and 117 replace MATH 243. Prerequisite: MATH 116 or equivalent. **3.5 credits**

MATH 122 Logarithms (Correspondence) – Equivalent to the “logarithms” portion of MATH 102, this course is set up as a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. It covers the theory and applications of common and natural logarithms, plotting logarithmic/semilogarithmic graphs and their interpretation. ASTT accredited if taken with MATH 124. Prerequisite: MATH 001 or equivalent. **1.5 credits**

MATH 123 Trigonometry (Correspondence) – Equivalent to MATH 101, 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. 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: C+ or better in Algebra 12, or 65% or higher in MATH 001 or equivalent. **3 credits**

MATH 124 Analytic Geometry (Correspondence) – Equivalent to the “analytic geometry” portion of MATH 102, except it is a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. Geometric and practical properties of conic sections, including polar coordinates and transformations. ASTT accredited if taken with MATH 122. Prerequisite: MATH 001 or equivalent. **1.5 credits**

MATH 125 BASIC 1: Introduction to Microcomputers IBM PCs (36 hours) – Designed for engineering technology students with no previous BASIC programming or 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 126 BASIC 2: Introduction to Microcomputers IBM PCs (36 hours) – A sequel to MATH 125 presenting further concepts and features of the BASIC language for engineering technology students. Topics include further input/output arrays, machine language statements, additional computer graphics and file operations. Prerequisite: MATH 125 or equivalent. **3 credits**

MATH 203 Technical Mathematics 3: Calculus (72 hours) – An introductory course in calculus and its technical applications involving the differentiation and integration of algebraic, trigonometric, logarithmic and exponential functions. The course emphasizes the application of calculus in solving engineering technology problems. Prerequisite: MATH 102 or equivalent. **6 credits**

MATH 204 Technical Mathematics 4: Calculus (72 hours) – A continuation of MATH 203. Topics include further work on integration, partial differentiation, an overview of Maclaurin, Taylor and Fourier series, and the solution of differential equations with special consideration given to the use of Laplace transforms. Prerequisite: MATH 203. The course will be offered in 89/90 and in 92/93. **6 credits**

MATH 221 Calculus: Part 1 (Correspondence) – Equivalent to the first part of MATH 203, 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. Includes differential calculus with instantaneous rates of change, Delta-process, the derivative, implicit differentiation, curve sketching, differentiation rules for algebraic functions, applied maxima/minima, instantaneous rates of change and the differential. Prerequisite: Math 122/123/124 or equivalents. **3 credits**

MATH 222 Calculus: Part 2 (Correspondence) – Equivalent to the second part of MATH 203, 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. Introduces integral calculus, including the indefinite and definite (with application to areas, volumes and centroids), trapezoidal rule and antidifferentiation. Prerequisite: MATH 221 or equivalent. **3 credits**

MATH 227 Calculus: Part 3 (Correspondence) – This is a distance education (correspondence) course. Students may enrol anytime throughout the year and take up to one year to complete the course. Differentiation and integration of trigonometric, logarithmic and exponential functions; expansion of function (Maclaurin, Taylor and Fourier series); solution of differential equations. Prerequisite: MATH 222 or equivalent. **3 credits**

MATH 320 Matrix Algebra (36 hours) – Topics include matrix operations, solving systems of linear equations, translations and rotations, eigen values and eigen vectors. Students are expected to have had some computer programming experience. Prerequisite: MATH 001 or equivalent. **3 credits**

MATH 343 Transform Calculus for Electronics (34 hours) – Course revised. Description unavailable at this time. For further information, please contact 432-8698. Prerequisite: MATH 117, 243, or equivalent. This course will be offered in 90/91. **3 credits**

PHYSICS

PHYS 009 Pre-entry Physics (93 hours) – This course meets the Physics 11 entrance requirement for BCIT programs. It offers an introduction to physics, the basic principles and common applications. Approximately two-thirds of the course deals with mechanics, the remainder with heat and geometric optics. Problem-solving techniques are emphasized. Prerequisite: You are advised to have completed any necessary mathematics upgrading courses before taking PHYS 009. **non credit**

PHYS 106 Physics for Electronics Technology (84 hours) – A general level course about physical quantities: their properties, relationships and connecting principles. Translational and rotational motion are studied (i.e. force, mechanical energy, power), as well as basic electricity, atomic physics and the band theory of solids and its application to semi-conductor devices. The labs emphasize measurement, data analysis and experimental techniques as they relate to the lecture material. Prerequisite: Algebra, trigonometry and vector analysis. **7 credits**

PHYS 131 Physics 1: Part 1 (36 hours) – Topics include kinematics, statics, linear and rotational dynamics. Problem-solving is emphasized and consistent effort is directed towards relating

physics to various technological applications. Prerequisite: MATH 001 or equivalent. Physics 11 is also recommended. **3 credits**

PHYS 132 Physics 1: Part 2 (36 hours) – Topics include properties of matter, heat and thermodynamics. Problem-solving is emphasized and consistent effort is directed towards relating physics to various technological applications. Prerequisite: PHYS 131 or equivalent. **3 credits**

PHYS 136 Physics 1 (Correspondence) – Equivalent to PHYS 131/132 theory only. Since this is a distance education (correspondence) course, students may enrol anytime 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: Basic mathematics, plane trigonometry and algebra. Must seek approval to register in course. **3 credits**

PHYS 206 Physics for Electronics Technology (72 hours) – Continuation of PHYS 106. Magnetism, induced electromotive force, thermal energy, vibrations and waves with particular reference to sound waves, electromagnetic waves, physical optics and nuclear physics. The labs emphasize measurement, data analysis and experimental techniques as they relate to the lecture concepts. Technological applications are presented throughout the course. Prerequisite: PHYS 106 or equivalent, algebra, trigonometry and some calculus. **4.5 credits**

PHYS 231 Physics 2: Part 1 (36 hours) – Formerly PHYS 133. First part of sound, light and optics, basic electricity and magnetism, basic semi-conductor theory, atomic and nuclear phenomena. Prerequisite: PHYS 132 or equivalent, algebra, trigonometry and some calculus. **3 credits**

PHYS 232 Physics 2: Part 2 (36 hours) – Formerly PHYS 134, this is a continuation of PHYS 231. Prerequisite: PHYS 231 (formerly PHYS 133) or equivalent. **3 credits**

PHYS 236 Physics 2 (Correspondence) – The sequel to PHYS 136. Topics include wave motion; sound and light sources; propagation and reflection of light; refraction and dispersion; interface and diffraction; illumination and color; electrostatics; direct and alternating current; magnetism; atomic and nuclear physics. Prerequisite: PHYS 136 or equivalent and a working knowledge of algebra, trigonometry and calculus. Must seek approval to register in course. **4.5 credits**

PHYS 465 Electro-optics (42 hours) – Both introduction and applications are covered in the areas of radiometry, geometrical and physical optics, solid state properties of matter, sources, lasers, detectors, solar cells, modulators and fiber optics. Prerequisite: Grade 11 Mathematics and Physics. A BCIT Electronics Technology Diploma or equivalent is recommended. **3 credits**

School of Health Sciences

Office of the Dean

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

Health Part-time Studies 114

Kathleen Bach, B.A., Director

Leslie Colquhoun, Supervisor, Program Assistance

Program Assistant, Advanced Nursing Specialties

Program Assistant, Health Technologies

Marjorie White, Program Assistant, Nursing

Marilyn Parliament, Office Assistant, Advanced Nursing

Roy Stewart, Inventory Clerk

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Health Part-time Studies

Programs and individual courses are available through Health Part-time Studies. These include update, advanced and qualifying courses in the health science field and may be taken for professional development, certification, or an advanced diploma.

Delivery Methods

Courses are delivered in a variety of formats.

- Classroom delivery - one night per week, week long or weekends at BCIT Burnaby campus, the Downtown Education Centre or other locations in B.C. by arrangement.
- Guided Learning - home study supplemented by teletutoring, teleconferences, or seminars or labs.
- Clinical - short intensive periods of full-time study and clinical practice; may be clinical preceptorship or supervised practicum.
- Challenge Courses - self directed study on the basis of course outline, objectives, and sample examination questions, for students with on-the-job knowledge and experience.
- Compressed Time Frames - offered cooperatively with hospitals. Some full time clinical and classroom instruction, together with Guided Learning, enables students to complete a specialty program in a shorter time.

Programs

Some courses are grouped in Certificate or Advanced Diploma Programs. Students wishing to take a complete program should consult with a program coordinator to have their program of studies approved.

Health Technologies

Health Care Management

- Level 1 Certificate Program

- Long Term Care

- Level 2 Certificate Program

Occupational Health and Safety Certificate

Medical-Surgical Supply Consultants Certificate

Nursing

Credit Courses for Nursing

Refresher for Graduate Nurses

Obstetrical Nursing (Qualifying)

Psychiatric Nursing (Qualifying)

Advanced Nursing Specialties

Corrections Nursing Certificate

Critical Care Nursing Certificate

Emergency Nursing Certificate

Neonatal Nursing Certificate

Obstetrical Nursing Certificate

Occupational Health Nursing Certificate

Operating Room Nursing Certificate

Pediatric Critical Care

Rehabilitation Nursing Certificate

Advanced Diploma in Health Sciences

HEALTH TECHNOLOGIES

Health Care Management

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

There are several levels of Health Care Management Studies (Level 1, Level 2 and Advanced Studies) leading to certification. These are supplemented by additional professional development courses in the Health Care Management field. The programs are designed to help managers and would-be managers sharpen their management skills and acquire new skills appropriate to their particular needs while broadening their general perspectives on the health care field. Applicants should be employed in health care agencies or be graduates of a health paraprofessional, professional or technological program.

Applicants for the Health Care Certificate Programs must have their proposed program of courses, and any revisions to existing program of courses, approved by the program coordinator. These requests may be made in person or in written form. Contact Health Part-time Studies at the BCIT Burnaby 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 20 in this calendar or contact the Health Care Management Program Coordinator at BCIT, Burnaby. Phone: 432-8666.

Applicants not wishing to complete the entire program may enroll in any of the mandatory or elective courses.

HEALTH CARE MANAGEMENT CERTIFICATE PROGRAM LEVEL 1

This program, offered in cooperation with the British Columbia Health Association (B.C.H.A.), is designed for first level managers. It provides information and practice in the application of management principles to health care and long term care management. It is appropriate for department heads, administrators, head nurses and anyone anticipating a management position. The courses are offered in a variety of time frames outlined in the Health Sciences Posters published three times a year.

Students who have completed HMGT 600 Health Care Supervisory Skills will receive credit towards their elective course work. Preferably, this course will be completed before entering the Level 1 program.

Mandatory Courses		Credit	Hrs
HCSY 610	Health Care Systems	1.5	18
HMGT 601	Health Care Organizational Behavior	3.0	36
HMGT 602	Health Care Principles of Management	3.0	36
HMGT 603	Health Care Operations Management	1.5	18
HMGT 604	Budgeting in Health Care	1.5	18
HMGT 605	Human Resource Management	3.0	36
HMGT 606	Health Labor Relations 1	1.5	18
or			
HMGT 607	Long Term Care Labor Relations...	1.5	18

Recommended Electives

108 hours of elective course work from:

Administrative (General) Management

	Hours
ADMN 211 Management 2	36
ADMN 322 Organizational Behavior 2	36
ADMN 302 Problem-Solving and Decision-Making	36
COMP 101 Data Processing Introduction	36
FMGT 109 Accounting for the Manager	36
HMGT 600 Health Care Supervisory Skills	36
(should be completed before HMGT 601 and 602)	

Education (Training)

ADMN 127 Training Techniques	36
ADMN 202 Course Design	36
ADMN 203 Instruction/Facilitation: Training	36
EDUC 601 Human Learning	18

Financial Management

ADMN 100 Microeconomics	36
ADMN 302 Problem-Solving and Decision-Making	36
COMP 101 Data Processing Introduction	36
FMGT 101 Accounting 1	36
FMGT 201 Accounting 2	36

Personnel

ADMN 204 Personnel Management	36
ADMN 205 Selection Interviewing	36
ADMN 304 Manpower Planning	36
ADMN 305 Salary Administration	36

Systems

COMP 101 Data Processing Introduction	36
COMP 160 Computer Systems Introduction 1	36
or	
OPMT 188 Management Information Systems	36
OPMT 191 Purchasing	36
OPMT 192 Inventory Planning and Control	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.

	Credit	Hrs
COMM 192 Short Reports	1.5	18
MKTG 323 Public Speaking and Oral Communication 1	3.0	36

LONG TERM CARE

Long Term Care Management is an integral part of the Health Care Management Program. Compulsory courses present management principles, then apply these principles to both health care and long term care situations. The course HMGT 607 Long Term Care Labour Relations is compulsory for all those selecting the Long Term Care stream.

Recommended Electives

	Hours
ADMN 211 Management 2	36
ADMN 201 Counselling 1	36

Hours

ADMN 322 Organizational Behavior 2	36
ADMN 302 Problem-Solving and Decision-Making	36
BSMT 100 Maintenance and Control	36
BSMT 101 Safety and Sanitation	36
OHCE 301 Fire Protection 1: Fire Prevention	36
OPMT 191 Purchasing	36
OPMT 192 Inventory Planning and Control	36

HEALTH CARE MANAGEMENT CERTIFICATE PROGRAM LEVEL 2

This program is designed for middle managers in health care agencies and in long term care agencies. The program builds upon the Health Care Management Certificate Program Level 1 by requiring participants to complete an additional 252 hours (21 credits) of course work.

Level 2 program objectives include increasing the breadth and depth of knowledge by studying new subject material as well as advanced subjects, and solving problems using theory and skills gained in previous mandatory courses.

To qualify for the Level 2 Certificate, participants must complete additional mandatory core courses and electives. Electives are chosen in consultation with the program coordinator and are selected from the same elective streams as listed for the Level 1 program.

Mandatory Courses

	Credit	Hrs
HMGT 701 Information Systems in Health Care 1	1.5	18
HMGT 702 Health Care Law	1.5	18
HMGT 703 Financial Administration for Health Care Managers	1.5	18
HMGT 751 Information Systems in Health Care 2	1.5	18
HMGT 752 Health Labor Relations 2	1.5	18
HMGT 753 Application of Theory to Selected Health Problems	1.5	18

Elective Course

HCSY 620 Health Care Systems 2	1.5	18
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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.

	Credit	Hrs
HMGT 923 Food Cost Control	1.0	12

This course may be offered in any community in B.C. Fees will vary depending on the local arrangements and the location. For further information contact Health Part-time Studies at the Burnaby Campus.

CERTIFICATE PROGRAM IN OCCUPATIONAL HEALTH AND SAFETY

Program Head: Lars Larsson, C.R.S.P.

This program is designed for people employed in, or interested in, the safety of persons and property in industry. Credits accrued in this certificate program may be applied to the Diploma program. Persons not wishing to take the entire program may register for individual courses.

Course selections must be approved in writing by the Program Head in Occupational Health and Safety.

Mandatory Courses		Credit
OHCE 101	Accident Prevention 1: Job Safety Analysis	3.0
OHCE 102	Accident Prevention 2: Employee Motivation	3.0
OHCE 103	Accident Prevention 3: Safety Design and Equipment	3.0
OHCE 104	Accident Prevention 4: Industrial Applications	3.0
OHCE 201	Industrial Health and Safety 1: Legislation	3.0
OHCE 202	Industrial Health and Safety 2: Policy Application	3.0
OHCE 203	Industrial Health and Safety 3: Loss Control and Auditing	3.0
OHCE 204	Industrial Health and Safety 4: Chemical Safety	3.0
OHCE 301	Fire Protection 1: Fire Prevention	3.0
OHCE 302	Fire Protection 2: Gases and Flammable Materials	3.0
OHCE 401	Industrial Hygiene 1: Toxicology	3.0
OHCE 402	Industrial Hygiene 2: Noise	3.0
OHCE 403	Industrial Hygiene 3: Radiation Protection	3.0

Suggested Electives

ADMN 124	Supervisory Skills
ADMN 128	Occupational Safety and Health (B.C.S.C.)
ADMN 222	Organizational Behavior 1
ADMN 332	Labor Relations 1
BSMT 101	Safety and Sanitation
COMM 160	Business and Technical Communication
COMM 183	Technical Reports
MECH 140	Drafting Fundamentals
MECH 432	Automatic Sprinkler Systems Design 1
MECH 436	Automatic Sprinkler Systems Design 2
MKTG 323	Public Speaking and Oral Communication 1
OPMT 294	Physical Material Handling: Control and Use of Pesticides

BIOMEDICAL ENGINEERING

Program Head: Dave Chiu, 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 to provide specific skills for immediate job application. Advanced Diploma courses are being prepared in this area.

	Credit
ADNU 670	Patient Care Technology for Nurses 2.0

ENVIRONMENTAL HEALTH

Program Head: Brent Price, C.P.H.I.(C)

Environmental Health Technologists often face new challenges. Part-time Studies courses are designed to assist these professionals to become familiar with key issues in these new areas. The first Advanced Diploma courses are now available in this technology.

	Credit
ADEH 601	Hydrogeology 3.0
ADEH 604	Epidemiology and Biostatistics 3.0

PROSTHETICS AND ORTHOTICS

Program Head: Bill McGuinness, 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.

POCE 900	Computed Assisted Socket Design: CANFIT System
POCE 901	Lower Limb Orthotics
POCE 902	Upper Limb Orthotics
POCE 904	Prosthetics, Orthotics and the Amputee Part 1: The Lower Limb

MEDICAL LABORATORY SCIENCES & MEDICAL IMAGING

MEDICAL LABORATORY

Program Head: Karen Nicolson, B.Sc., A.R.T.(Clin.Micro.)

Medical laboratory offers courses at many levels. The refresher courses prepare students for re-entering the work force, while the advanced ones prepare them for the Advanced Registered Technologist examination and/or the Advanced Diploma in Health Sciences.

	Credit
MLCE 610	Advanced Hematology: (The Red Cell) Part 1 3.0
MLCE 611	Advanced Hematology: Part 2 3.0
MLCE 901	MLT Refresher Course (CC, Hem., IH) 0.0

MEDICAL RADIOGRAPHY

Program Head: Ann McMillen, R.T., Dipl Hlth Care Mgmt., M.Ed.

Medical Radiography offers advanced level courses in a variety of technical subjects. While most of the courses are designed for Advanced Certification, they can be used to update knowledge.

	Credit
BHCE 601	Cross Sectional Anatomy (approved by CAMRT for Advanced Certificate 0.5 credit) 3.0
MRCE 611	Computed Tomography (Advanced Certification Credit 1.0) 3.0
MRCE 612	Technological Advances in X-ray Imaging 3.0
MRCE 614	Understanding Radiation Risks in Medical Imaging 3.0
MRCE 615	Magnetic Resonance Imaging Part 1: Physical Principles and Instrumentation 3.0
MRCE 901	Refresher Program for Medical Radiography Technologists 0.0

BASIC HEALTH SCIENCES

Program Head: Dave Martin, B.Sc (Hons), M.S.R.

Courses are offered in the basic health sciences to help health professionals upgrade and advance their knowledge in the biological and behavioral sciences.

	Credit
BHCE 601 Cross Sectional Anatomy	3.0
BHCE 914 Anatomy and Physiology Review	0.0

NURSING

Nursing courses are offered at the diploma, qualifying refresher and advanced diploma level. Advanced level (post-basic) programs are available in Critical Care Nursing, Operating Room Nursing, Emergency Nursing, Occupational Health Nursing, Neonatal Nursing, Obstetrical Nursing, Pediatric Critical Care, Corrections Nursing, and Rehabilitation Nursing. Clinical application courses may be full-time study practicums or preceptorships.

CREDIT COURSES FOR NURSING

Program Coordinator: Moira Barnetson, R.N., S.C.M., R.F.N.

These are guided learning courses offering tutorial assistance in English, behavioral sciences and biological sciences, to meet the requirements of the BCIT General Nursing curriculum. More information is available in the Part-time Studies poster.

	Credit
CTCR 101 Anatomy and Physiology	3.5
CTCR 102 Writing for Nurses	3.5
CTCR 103 Personal Fitness Management	2.0
CTCR 104 Physiology	3.5
CTCR 105 Human Development 1	3.5
CTCR 106 Human Development 2	1.5
CTCR 107 Sociology	1.5
CTCR 108 Microbiology	1.0
CTCR 109 Immunology	1.0
CTCR 110 Gerontology	3.0

REFRESHER COURSES

Program Coordinator: Moira Barnetson, R.N., S.C.M., R.F.N.

Nurses who have not practiced in recent years who wish to upgrade their knowledge and skills may undertake this intensive refresher program with a supervised practicum.

*NUCE 901 Refresher Course for Graduate Nurses

*These courses require approval by the department before registration. Application forms are available by contacting Health Part-time Studies, BCIT, Burnaby.

QUALIFYING COURSES

Program Coordinator: Moira Barnetson, R.N., S.C.M., R.F.N.

These courses are offered to assist graduate nurses to complete their educational qualifications for eligibility to become registered nurses in British Columbia.

- *NUCE 904 Obstetrical Nursing Qualifying: Theory
- *NUCE 905 Obstetrical Nursing Qualifying: Clinical
- *NUCE 906 Psychiatric Nursing Qualifying: Theory
- *NUCE 907 Psychiatric Nursing Qualifying: Clinical

*These courses require approval by the department before registration. Application forms are available by contacting Health Part-time Studies, BCIT, Burnaby.

ADVANCED NURSING SPECIALTIES

Advanced courses are designed to provide post-diploma qualifications in specialty areas for registered nurses. Some of these courses are available in a guided learning mode, ie. via modules supported with teletutoring and teleconferencing which enable participants to study part-time and complete these courses mainly in their own communities. These courses lead to an Advanced Diploma in Health Science. More detailed information is provided in the Advanced Diploma section and in the Advanced Diploma calendar.

GENERIC COURSES

	Credit
ADNU 601 Physiological Aspects of Patient Care 1	4.0
ADNU 602 Physiological Aspects of Patient Care 2	2.0
ADNU 603 Pathophysiology	5.0
ADNU 604 Pathophysiology for Critical Care Nursing ..	5.0
ADNU 607 Pathophysiology for Emergency Nursing	5.0
ADNU 620 Psychological Aspects of Patient Care 1	3.0
ADNU 621 Psychological Aspects of Patient Care 2	3.0
ADNU 623 Application of Psychological Aspects of Patient Care	4.0
ADNU 624 Psychological Aspects of Rehabilitation Nursing	4.0
ADNU 630 Interpersonal Skills	3.0
ADNU 631 Individual Counselling Skills	3.0
ADNU 632 Group Counselling Skills	3.0
ADNU 640 Physical Status Assessment	3.0
ADNU 641 Mental Status Assessment	3.0
ADNU 650 Ethics in Health Sciences	2.0
ADNU 651 Multicultural Nursing	3.0
ADNU 660 Legal Issues in Nursing	3.0
ADNU 670 Patient Care Technology	2.0

CRITICAL CARE NURSING

Specialty Coordinator: Colleen Varcoe, R.N., B.Sc.N., M.Ed.

	Credit
ADNU 604 Pathophysiology for Critical Care Nursing ..	5.0
ADNS 615 Trauma Management for Nursing	2.0
ADNS 630 Critical Care Nursing: Theory	5.0
ADNS 631 Critical Care Nursing: Theory, UBC/VVI Level 1 Graduate	2.0
ADNS 632 Critical Care Nursing: Clinical Practicum 1	7.0
ADNS 633 Critical Care Nursing: Advanced Theory	5.0
ADNS 634 Critical Care Nursing: Clinical Practicum 2	7.0
ADNS 635 Preceptorship: Trauma Nursing	3.0
ADNS 636 Preceptorship: Cardiovascular Surgical Nursing	5.0
ADNS 637 Preceptorship: Recovery Postanesthetic Nursing	5.0
ADNS 638 Preceptorship: Burns Management	5.0
ADNS 639 Preceptorship: Cardiovascular Medical Nursing	5.0
ADNU 670 Patient Care Technology or	2.0
ADNU 650 Ethics in Health Sciences	2.0

CORRECTIONS NURSING

Specialty Coordinator: Moira Barnetson, R.N., S.C.M., R.F.N.

	Credit
ADNU 640 Physical Assessment	3.0
ADNU 641 Mental Status Assessment	3.0
ADNS 670 Introduction to the Justice System	1.0
ADNS 671 Clinical Assessment in Corrections Nursing	3.0
ADNS 672 Correctional Behavior Patterns and Crisis Management	5.0
ADNS 673 Health Education in a Correctional Setting ..	2.0
ADNS 674 Infection Control in a Correctional Setting ..	2.0
ADNS 675 Clinical Application Course	6.0

EMERGENCY NURSING

Specialty Coordinator: Caroline Howe, R.N.

	Credit
ADNU 607 Pathophysiology for Emergency Nursing....	5.0
ADNS 610 Emergency Care Nursing: Theory 1	5.0
ADNU 670 Patient Care Technology	2.0
ADNS 611 Emergency Care Nursing: Clinical Practicum 1	7.0
ADNS 612 Emergency Care Nursing: Theory 1	3.0
ADNS 615 Trauma Management For Nurses	2.0
ADNS 613 Emergency Care Nursing: Advanced Clinical Practicum	7.0
ADNS 614 Emergency Care Nursing: Preceptorship ...	5.0

NEONATAL NURSING

Specialty Coordinator: Seonag Lennie, R.N., B.S.N.

	Credit
ADNS 680 Introduction to Neonatal Nursing: Theory ...	5.0
ADNS 681 Introduction to Neonatal Nursing: Clinical ...	3.0
ADNU 630 Interpersonal Skills	3.0
ADNS 682 Care of the High-Risk Neonate: Theory	5.0
ADNS 683 Care of the High-Risk Neonate: Clinical	5.0
ADNU 650 Ethics in Health Sciences	2.0
ADNS 684 The Critically Ill Neonate: Theory	3.0
ADNS 685 The Critically Ill Neonate: Clinical	5.0

The following courses are available as continuing education for those who do not wish to proceed to clinical courses.

ADNS 780 Introduction to Neonatal Nursing: Theory ...	5.0
ADNS 782 Care of the High-Risk Neonate: Theory	5.0
ADNS 784 The Critically Ill Neonate: Theory	3.0

OBSTETRICAL NURSING

Specialty Coordinator: Reina Gullicker, R.N., B.S.N.

	Credit
ADNS 644 Low-Risk Obstetrical Nursing	6.0
ADNS 645 Obstetrical Clinical Preceptorship 1	4.0
ADNS 646 Moderate and High-Risk Obstetrical Nursing	6.0
ADNS 647 Obstetrical Clinical Preceptorship 2	8.0
ADNS 648 High-Risk Obstetrical Nursing	6.0
ADNS 649 Obstetrical Clinical Practicum	6.0

The following courses are available as continuing education for those who do not wish to proceed to clinical courses.

ADNS 744 Low-Risk Obstetrical Nursing	6.0
ADNS 746 Moderate and High-Risk Obstetrical Nursing	6.0
ADNS 748 High-Risk Obstetrical Nursing	6.0

OCCUPATIONAL HEALTH NURSING

Specialty Coordinator: Stephanie Wilson, R.N., B.N., C.C.O.H.N.

Phase 1	Credit
ADNS 660 Introduction to Occupational Health Nursing	3.0
HMG 611 Organizational Behavior for Occupational Health Nurses	3.0
ADNS 669 Health Assessment for Occupational Health Nurses	3.0
ADNS 661 Health Assessment: Clinical	4.0
Phase 2	
ADNS 662 Fundamentals of Industrial Hygiene	3.0
ADNS 663 Occupational Toxicology	3.0
ADNS 664 Health Surveillance	3.0
ADNS 665 Health Maintenance: Clinical	4.0

Phase 3	Credit
ADNS 666 Advanced Concepts in Occupational Health Nursing	6.0
ADNS 667 Occupational Health Nursing: Preceptorship	4.0
ADNS 668 Health Promotions in the Workplace	3.0
ADNS 669 Health Assessment for Occupational Health Nurses	3.0

Note: The nurse will require current certification in Industrial First Aid prior to the first clinical course.

OPERATING ROOM NURSING

Specialty Coordinator: Marnie Simon, R.N.

Level One - Introductory	Credit
ADNS 501 Operating Room Nursing: Introduction Principles and Practices	6.5
ADNS 502 Skills Laboratories	1.0
ADNS 503 Operating Room Nursing: Introduction Surgical Procedures	5.5
ADNS 504 Operating Room Nursing: Clinical Course	12.5
ADNS 505 Pediatric Operating Room Nursing: Preceptorship	1.5
ADNS 901 Operating Room Nursing: Refresher	0.0

Level Two - Advanced	Credit
ADNS 520 Orthopedic Operating Room Nursing: Introduction	2.0
ADNS 521 Orthopedic Operating Room Nursing: Introduction Clinical Preceptorship	3.0
ADNS 522 Orthopedic Operating Room Nursing: Advanced	2.0
ADNS 523 Orthopedic Operating Room Nursing: Advanced Clinical Preceptorship	3.0
ADNS 524 Vascular Operating Room Nursing	2.5
ADNS 525 Vascular operating Room Nursing: Clinical Preceptorship	3.0
ADNS 526 Neurosurgical Operating Room Nursing ...	3.5
ADNS 527 Neurosurgical Operating Room Nursing: Clinical Preceptorship	3.0
ADNS 528 Thoracic Operating Room Nursing	2.5
ADNS 529 Thoracic Operating Room Nursing: Clinical Preceptorship	3.0

PEDIATRIC CRITICAL CARE

Specialty Coordinator: Seonag Lennie, R.N., B.S.N.

	Credit
ADNS 650 Pediatric Critical Care Pathophysiology	5.0
ADNS 651 Pediatric Critical Care Nursing Theory	6.0
ADNS 652 Pediatric Critical Care Nursing Practicum 1 (3 wks full-time or 112.5 hrs)	5.0
ADNS 653 Pediatric Critical Care Nursing Advanced Theory	5.0
ADNS 654 Pediatric Critical Care Nursing Practicum 2 (4 weeks full-time or 144 hrs)	7.0
ADNU 633 Family Nursing (to be developed)	3.0
ADNU 650 Ethics in Health Sciences	2.0

REHABILITATION NURSING

Specialty Coordinator: Moira Barnetson, R.N., S.C.M., R.F.N.

Phase 1	Credit
ADNS 690 Rehabilitation Nursing 1	4.0
ADNU 640 Physical Status Assessment	3.0

Phase 2	
ADNU 624 Psychological Aspects of Rehabilitation Nursing	4.0
ADNS 691 Rehabilitation Nursing 2	4.0
ADNU 641 Mental Status Assessment	3.0
ADNS 692 Rehabilitation Nursing 3 (Clinical)	6.0

Phase 3	
ADNS 693 Rehabilitation Nursing 4 (Preceptorship)	8.0
ADNU 632 Group Counselling Skills	3.0

ADVANCED DIPLOMA IN HEALTH SCIENCES

Program Requirements

The Advanced Diploma in Health Science is designed to provide practicing technologists and nurses with the advanced knowledge, skills and attitudes necessary for further professional competence, advanced technological or clinical roles, management roles and individual growth.

The Advanced Diploma has six components. The student will be required to successfully complete a minimum number of credits in each component, plus elective credits to a total of 45 credits. For more detailed information, request a copy of the Advanced Diploma calendar.

	Required Credits	Elective Credits
Health Science Specialty	24	12
Management	3	9
Health Care Systems	3	3
Educational Skills	0	9
Practical Research	3	3
General Knowledge	0	3
Totals Required	33	12

HEALTH CARE SYSTEMS

	Credit
HCSY 610 Health Care Systems 1	1.5
HCSY 620 Health Care Systems 2	1.5

EDUCATIONAL SKILLS

Credit

EDUC 601 Human Learning	2.0
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RESEARCH

RESH 601 Understanding Research in Health Sciences	3.0
RESH 602 Preparing Health Science Research	3.0

MANAGEMENT

HMGT 600 Health Care Supervisory Skills	3.0
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(See Health Care Management section for other listings)

MEDICAL-SURGICAL SUPPLY CONSULTANTS CERTIFICATE PROGRAM

Designed to provide knowledge of specific medical-surgical areas to those involved in the sale and purchase of equipment and supplies. Applicants register in the full program and are expected to complete the four courses within a nine-month period.

	Credit
MSSC 101 Human Anatomy and Physiology	4.5
MSSC 103 Medical-Surgical Procedures	3.5
MSSC 104 General Instrumentation	1.5
MSSC 105 Biomedical Electrical Safety	1.5

Course Descriptions & Credits

ADEH 601 Hydrogeology – Examines the nature and characteristics of ground water. Topics include ground water movement, velocity of movement, direction of flow plus variation in ground water composition through chemical interactions and contamination related to ground water exploitation. **3 credits**

ADEH 604 Epidemiology and Biostatistics – Application of epidemiology principles to assess distribution and causes of diseases in the population, and the use of biostatistical methods to critically evaluate data and study conclusions. **3 credits**

***ADNS 501 Operating Room Nursing - Introduction Theory & Practice** – This first theory course introduces the student to the theory and principles related to the practice of perioperative nursing of the adult and pediatric patient. Three days of classroom review is offered at the completion of the directed independent study. **6.5 credits**

ADNS 502 Operating Room Nursing: Skills Laboratories – Application of the theory and principles of perioperative nursing in the performance of selected basic skills is the focus of this first clinical course. During the first two days and in a laboratory setting, the basic psychomotor skills are demonstrated and practised. Further skills practice and testing is offered in an operating room setting over the following two days. **1 credit**

***ADNS 503 Operating Room Nursing: Introduction Surgical Procedures** – 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 two weeks of the course. An introduction to the surgical techniques and related perioperative nursing practices used for general, gynaecological, plastics and selected urological, orthopedic and E.E.N.T. surgeries for the adult and pediatric patient is also presented. The associated instrumentation, equipment, supplies and drugs required for these selected surgical procedures are also described. Knowledge of this material is tested by a midterm and final examination. Completion of this course with a pass mark of 75% and attainment of the objectives of the clinical course ADNS 504, are the requirements for certification and are considered preparation for entry level positions in the operating room. **5.5 credits**

ADNS 504 Operating Room Nursing: Introduction Surgical Procedures: Clinical – During this ten-week, full-time clinical course, through a combination of supervised clinical experience and laboratories, the student will gain the basic skills of perioperative nursing: experience in scrubbing and circulating for general, gynaecological, urological, plastics and selected E.E.N.T. and orthopedic surgeries will be gained. Limited experience in post-anesthetic recovery room is also provided during the course. For successful completion, all course objectives must be attained. ADNS 503 and ADNS 504 must be successfully completed to qualify for certification and are considered preparation for entry level positions in the operating room. **12.5 credits**

ADNS 505 Pediatric Operating Room Nursing: Preceptorship – This clinical preceptorship of one week offers the introductory level student who has successfully completed ADNS 503 and ADNS 504 an optional clinical experience. One-week, full-time preceptored experience in introductory pediatric perioperative nursing, if available, in a specialized pediatric operating room. **1.5 credits**

ADNS 520 Orthopedic Operating Room Nursing: Introduction – This advanced theory course is presented in modular form for directed independent study. It offers the beginning level or experienced operating room nurse a comprehensive introduction

to the surgical techniques, instrumentation and procedures used in basic orthopedic surgery. This is the only level two course that may be taken directly following completion of level one. The one year of O.R. experience required for the other courses in this level is waived. **2 credits**

ADNS 521 Orthopedic Operating Room Nursing: Introduction: Clinical Preceptorship – This full-time clinical preceptorship of two weeks offers the introductory level or experienced operating room nurse the opportunity to gain experience and skill in selected orthopedic surgeries. The surgical experiences include: internal and external fixation of simple fractures, soft tissue surgeries, minor spinal surgeries, arthroscopies, and the use of basic orthopedic equipment and instrumentation. Limited experience in the post anesthetic recovery room is included in the course. **3 credits**

***ADNS 522 Orthopedic Operating Room Nursing: Advanced** – This advanced theory course offers experienced operating room nurses comprehensive information on the advanced orthopedic surgical procedures and techniques used and the perioperative nursing skills required for this surgical specialty. The specialized techniques include: arthroplasties, intramedullary fixation, external fixation of complicated fractures, advanced techniques in spinal surgery and care of the multiple trauma patient with orthopedic injuries. Techniques used in anesthesia and for recovery room care of the patient undergoing major orthopedic surgery are also included in this course for directed independent study. **2 credits**

***ADNS 523 Orthopedic Operating Room Nursing: Advanced Clinical Preceptorship** – This full-time clinical preceptorship of two weeks offers experienced operating room nurses who have completed or successfully challenged ADNS 522, the opportunity to gain experience and skill in advanced orthopedics. The surgical experience includes: arthroplasties, advanced techniques of internal and external fixation of fractures, major spinal procedures, care of the multiply traumatized patient with orthopedic injuries, and the use of the related instrumentation and techniques. Limited experience in the post-anesthetic recovery room is also included in the course. **3 credits**

ADNS 524 Vascular Operating Room Nursing – This advanced theory course offers experienced operating room nurses comprehensive information on the surgical procedures and related perioperative nursing skills required for vascular surgery. Information on instrumentation, surgical procedures, anesthetic techniques and recovery room considerations for this specialty are included in the modules for directed independent study. **2.5 credits**

ADNS 525 Vascular Operating Room Nursing: Clinical Preceptorship – This full-time clinical preceptorship of two weeks offers the experienced student who has completed ADNS 523 the opportunity to gain experience and skill in the specialty of vascular operating room nursing. Limited experience in the post-anesthetic recovery room is included in the course. **3 credits**

ADNS 526 Neurosurgical Operating Room Nursing – This advanced theory course offers experienced operating room nurses comprehensive information on the surgical procedures and related perioperative nursing skills required for neurosurgery. Information on instrumentation, surgical procedures, anesthetic techniques and recovery room considerations for this specialty are presented in modular form for directed independent study. **3.5 credits**

ADNS 527 Neurosurgical Operating Room Nursing: Clinical Preceptorship – This full-time clinical preceptorship of two weeks offers experienced operating room nurses who have completed ADNS 526 the opportunity to gain experience and skill

*Course under development

in the specialty of neurosurgical operating room nursing. Limited experience in the post-anesthetic recovery room is included in the course. **3 credits**

ADNS 528 Thoracic Operating Room Nursing – This advanced theory course offers experienced operating room nurses comprehensive information on the surgical procedures and related perioperative nursing skills required for thoracic surgery. Information on instrumentation, surgical procedures, anesthetic techniques and recovery room considerations for this specialty are in the modules for directed independent study. **2.5 credits**

ADNS 529 Thoracic Operating Room Nursing: Clinical Preceptorship – This full-time clinical preceptorship of two weeks offers the experienced student who has completed ADNS 525 the opportunity to gain experience and skill in the specialty of thoracic operating room nursing. Limited experience in the post-anesthetic recovery room is included in this course. **3 credits**

ADNS 610 Emergency Care Nursing: Theory – Presents basic theory pertinent to emergency nursing care. Integrates theory of disease processes and injury commonly seen in emergency care settings with appropriate assessment parameters, priorities of care, therapeutic interventions and specific skills, such as dysrhythmia interpretation and ABG analysis. Prerequisite: ADNU 607. **5 credits**

ADNS 611 Emergency Care Nursing: Clinical Practicum – This 4-week clinical course is designed to permit application of ADNS 610 theory. Laboratories and seminars are included to augment learning from theory modules, to facilitate practice of specific skills, (airway management, interviewing, assessment and intravenous therapy) and to allow students opportunity to discuss relevant issues with peers. Clinical experience will be obtained through 3 weeks of clinical practice under the supervision of a clinical instructor in an Emergency Department. A.C.L.S. Certification Course will also be taken during this period. Prerequisite: ADNS 610. ADNU 670 may be taken concurrently. **7 credits**

ADNS 612 Emergency Care Nursing Theory – Presents more advanced and multi-dimensional concepts and therapeutic measures such as triage, burns, ventilator management and hemodynamic pharmacology. Prerequisite: ADNS 611, ADNU 607. ADNS 615 may be taken concurrently. **3 credits**

ADNS 613 Emergency Care Nursing: Advanced Clinical Practicum – Integrates previously learned advanced concepts and therapeutic measures into clinical practice. Emphasizes establishing priorities and efficiently organizing nursing care for patients with varying types and complexities of illness and injury. The nurses will apply and integrate knowledge and skills through 4 weeks of clinical practice under the supervision of a clinical instructor in a Tertiary/Regional Emergency Departments. Laboratories on triage, splinting and wound care will also be included in this clinical component. Prerequisite/corequisite: ADNS 615. **7 credits**

ADNS 614 Emergency Care Nursing: Preceptorship – Focuses on integration and refinement of previously learned theory and skills through a 3-week clinical preceptorship. Emphasis in this course will be on development towards independence as an emergency care nurse. Once the preceptor course objectives have been met, optional learning opportunities, such as, experiences in burn units, C.C.U', I.C.U.'s pediatrics or Emergency Health Services may be arranged. Prerequisite: ADNS 613. **5 credits**

ADNS 615 Trauma Management for Nurses – Focuses on the etiology, pathophysiology, assessment and nursing management

of trauma as seen in emergency care settings. Examines trauma related to each of the body systems (craniocerebral trauma, cardiothoracic trauma, etc.) and culminates in an integrated approach to the assessment and management of multiple trauma. Applications of theory from the modules will occur during a one-day laboratory through demonstrations and simulated practice in case study scenarios. Prerequisite: Experience in either an emergency or critical care setting preferred. **2 credits**

ADNS 630 Critical Care Nursing: Theory – Presents basic theory pertinent to critical care. Integration of the nursing care problems commonly encountered in critical care units (myocardial infarction, respiratory failure, increased intracranial pressure and renal failure) with specific skills such as dysrhythmia interpretation, ABG analysis, ventilator care and hemodynamic monitoring. Prerequisite: ADNU 603 or ADNU 604. **5 credits**

ADNS 631 Critical Care Nursing: Theory – Adapted from ADNS 630 for graduates of the UBC/VCC Level 1 Critical Care Nursing Program. **2 credits**

ADNS 632 Critical Care Nursing: Clinical Practicum 1 – A 4-week clinical course designed to permit application of ADNS 630 theory. Includes skill practice in airway management, hemodynamic monitoring and ventilator management in a lab setting. Also includes three weeks of supervised clinical experience and an A.C.L.S. certification course. Seminars are held to integrate theory related to crisis intervention, communication and family theory. Prerequisite: ADNS 630, B.C.L.S. Level C. ADNU 670 may be taken concurrently. **7 credits**

ADNS 633 Critical Care Nursing: Advanced Theory – Introduces more complex health problems such as sepsis, ARDS, multiple trauma and DIC. Includes advanced therapeutic measures such as ICP monitoring, advanced ventilator care and advanced cardiopulmonary monitoring. Prerequisite: ADNS 630, ADNU 670. ADNS 634 may be taken concurrently. **5 credits**

ADNS 634 Critical Care Nursing: Clinical Practicum 2 – Advanced skills such as ICP monitoring, and cardiac output measurement will be practiced in a laboratory setting with supervised clinical practice in a tertiary care setting. Focuses on integrative assessment at an advanced level, advanced hemodynamic monitoring, advanced ventilatory support, ICP monitoring and neurological assessment and interventions. Prerequisite: ADNS 632. Corequisite: ADNS 633, current ACLS Certification. **7 credits**

ADNS 635 Preceptorship in Trauma Nursing – Building on principles of trauma management presented in ADNS 615, this course focuses on the care of the multiply injured patient beyond the emergency unit. 96 hours of clinical and observational experiences are arranged individually. Prerequisite: ADNS 634. Prerequisite/Corequisite: ADNS 615. **3 credits**

ADNS 636 Preceptorship in Cardiovascular Surgical Nursing – Theory covering cardiac surgery, anesthetic agents, valvular disease, etc. is followed by observational experiences in the operating room and cardiac catheterization lab. 96 hours of clinical experience in a cardiac surgical intensive care unit are arranged. Prerequisite: ADNS 633 and ADNS 634. Current Employer reference required. **5 credits**

ADNS 637 Preceptorship in Postanesthetic Recovery Nursing – Provides an opportunity for the critical care nurse to focus on the study of a subspecialty or area of interest while integrating and refining previous knowledge and skills. This preceptorship

will focus on the recovery room. Includes 20 hours in independent theory study plus 96 hours clinical preceptorship. Prerequisite: ADNS 634. **5 credits**

ADNS 638 Preceptorship in Burns Management – The emergent and acute management of burn patients is covered in the modules on introductory respiratory, fluid, wound and psychosocial concepts. Clinical experiences in a burn unit and in an intensive care setting will be arranged. Prerequisite: ADNS 634. **5 credits**

ADNS 639 Preceptorship in Cardiovascular Medical Nursing – This preceptorship includes theory related to 12 lead ECU interpretation and nursing care related to cardiovascular diagnostic tests, thrombolytic therapy, angioplasty, dual chamber pacemaking. 96 hours of clinical practice will include observation of diagnostic and therapeutic measures and supervised clinical in a tertiary coronary care unit. **5 credits**

ADNS 644 Low Risk Obstetrical Nursing – Covers knowledge required to provide nursing care to women with low-risk pregnancies and their neonates who are in obstetrical units of community hospitals. The focus is on the antepartum, labor and intrapartum, postpartum periods. Includes the use of selected communication skills in interaction with childbearing families of varied cultural backgrounds, and a discussion of legal responsibilities in the obstetrical setting. In order to proceed to ADNS 645 you must obtain at least 75% in this course. **6 credits**

ADNS 645 Obstetrical Clinical Preceptorship 1 – Full-time clinical experience (approximately 3 weeks) with a preceptor in a labor and delivery unit of a community/regional hospital. The nurse will have the opportunity to apply the knowledge and develop the skills required to provide nursing care to women with low-risk pregnancies and their neonates. An introduction to fetal monitoring is included. Dates arranged individually. Prerequisite: ADNS 644 (75% minimum). **4 credits**

ADNS 646 Moderate to High Risk Obstetrical Nursing – Introduces knowledge required to provide nursing care to women with moderate-to-high-risk pregnancies and their neonates. Focuses on antepartum, intrapartum, and postpartum periods. Covers critical decision-making skills and theories related to grieving and loss. Includes recognition of high-risk neonates. In order to proceed to ADNS 647 you must obtain at least 75% in this course. Those planning to proceed into ADNS 647 next term must apply by week 6 of the preceding term. Prerequisite: ADNS 644, 645. **6 credits**

ADNS 647 Obstetrical Clinical Preceptorship 2 – A 6-week, full-time clinical experience with a preceptor on an obstetrical unit of a regional hospital. The nurse will have the opportunity to develop critical decision-making skills and apply theories of families, cultures, grieving and loss. Includes 4 weeks on a labor and delivery unit and 2 weeks on a postpartum unit. Advanced fetal monitoring is included. Prerequisite: ADNS 645, 646. Dates arranged individually. **8 credits**

ADNS 648 High Risk Obstetrical Nursing: Theory – Focuses on the knowledge required to care for women with high-risk pregnancies and/or pre-existing medical conditions. Covers ethical dilemmas related to unanticipated events of child-bearing and includes an introduction to nursing research. In order to proceed to ADNS 649 you must obtain at least 75% in this course. Prerequisite: ADNS 647. **6 credits**

ADNS 649 Obstetrical Clinical Practicum – A 4-week, full-time supervised clinical experience in a tertiary care hospital. The nurse will have the opportunity to apply knowledge and develop skills required to provide nursing care to women with high-risk

pregnancies and medical complications. The experience includes high-risk antepartum, postpartum, intrapartum and neonatal care. Prerequisite: ADNS 648. **6 credits**

ADNS 650 Pediatric Critical Care Pathophysiology – A guided learning course which reviews cellular organization and response to diseases commonly experienced by children in critical care units. Organized by systems covering cardiovascular, endocrine, renal and gastrointestinal physiology and diseases. **4 credits**

***ADNS 651 Pediatric Critical Care Nursing: Theory** – A guided learning course which presents basic theory related to nursing care of critically ill children. Deals with the nursing care problems commonly encountered in a pediatric intensive care unit (respiratory failure, sepsis, neurological problems, renal failure). Also covers content required to implement specific skills such as hemodynamic monitoring, ABG analysis, ventilator support etc. **6 credits**

***ADNS 652 Pediatric Critical Care: Practicum 1** – A full-time clinical experience approximately five weeks, full-time (181.5 hrs). Emphasis will be placed on development of assessment skills and application of principles of care learned in ADNS 651. **8 credits**

***ADNS 653 Pediatric Critical Care Nursing: Advanced Theory** – A guided learning course which builds on theory covered in ADNS 651. Emphasis will be placed on the more complex problems experienced by critically ill children such as shock, trauma, burns, poisoning, D.I.C. Includes advanced therapeutic measures such as I.C.P. monitoring, advanced ventilator care, and advanced cardio pulmonary monitoring. **5 credits**

***ADNS 654 Pediatric Critical Care: Practicum 2** – A full-time clinical experience, approximately two weeks in length (112.5 hrs). This course will build on skills practised in ADNS 652 but will emphasize the care of children experiencing more complex problems. Advanced nursing skills will be practised including advanced hemodynamic monitoring, I.C.P., monitoring, etc. **3 credits**

ADNS 660 Introduction to Occupational Health Nursing – Introduces the student to the historical development and objectives of occupational health. General concepts underlying health and safety in work environments and the role of Occupational Health & Safety team members are discussed. The impact of organizational structure, labor relations and multiculturalism on the role of the occupational health nurse is considered. Pertinent legislation/regulations and the professional and legal responsibilities of the occupational health nurse are emphasized. **3 credits**

ADNS 661 Health Assessment: Clinical – A three-week, full-time session provides laboratory and supervised clinical practice in health assessment skills. A two-day audio metric course will be given at the WCB. A variety of occupational health settings will be visited. Prerequisite: HMG 611, ADNS 660 75%, ADNS 669 75%. **4 credits**

ADNS 662 Fundamentals of Industrial Hygiene – Presents theory related to hazards found in various work settings. Recognition and control measures for physical, chemical, ergonomic and biological stressors are addressed. Prerequisite: ADNS 660 or permission of the Coordinator. **3 credits**

ADNS 663 Occupational Toxicology – Presents the principles of toxicology and epidemiology as they relate to the workplace. Substances such as pesticides, solvents, metals, gases and particulates are discussed. Reproductive and carcinogenic hazards are addressed. Prerequisite: ADNS 662. **3 credits**

* Course under development

ADNS 664 Health Surveillance – Presents the theoretical application of industrial hygiene and occupational toxicology for monitoring employees in specific work environments. Also includes theory related to counselling, primary care and rehabilitation. Prerequisite/Corequisite: ADNS 663. **3 credits**

***ADNS 665 Health Maintenance: Clinical** – A 3-week, full-time experience incorporating lab and practicum. Emphasis is on counselling skills, with some environmental monitoring. Prerequisite: ADNS 663, 664 75%, 668(75%), ADNS 661, and current Industrial First Aid Certificate. **4 credits**

***ADNS 666 Advanced Concepts in Occupational Health Nursing** – Builds on previous courses with theory required to function as the Occupational Health Nurse in charge of a service. Emphasis is on the management of a service. Includes various special emphasis programs. Prerequisite: ADNS 663, 664 (75%), 668 (75%), or permission of the coordinator. **3 credits**

***ADNS 667 Occupational Health Nursing Preceptorship** – Clinical experience under the guidance of a preceptor in an Occupational Health setting. The student works toward independent practice by integrating and refining previous theory and skills. Three weeks full-time study. Prerequisite: ADNS 665, 666 (75%) and current Industrial First Aid Certificate. **4 credits**

***ADNS 668 Health Promotion in the Workplace** – Occupational health nurses have the opportunity to assist employees in reaching their optimum level of wellness. This course addresses the role of the occupational health nurse, the design of workplace health promotion programs and content for selected specific programs. Prerequisite: ADNS 660. **3 credits**

***ADNS 669 Health Assessment for Occupational Health Nurses** – The theoretical basis for assessing the health of individual employees is presented. Theory for special assessment procedures is included. Prerequisite: ADNS 660 or permission of coordinator. **3 credits**

ADNS 670 Introduction to the Justice System - Presents an overview of the Justice System's goals, legislation and security procedures. **1 credit**

ADNS 671 Clinical Assessment in Corrections Nursing – Provides practice in health screening according to guidelines used in the corrections service. Includes laboratory practice and clinical placement. Prerequisite: ADNU 640, 641, ADNS 670 and CPR Certificate. **2 credits**

ADNS 672 Correctional Behavior Patterns and Crisis Management – Presents pathological behavior patterns continuously occurring in correctional settings and discusses current theory and practice for the management of those behaviors. **5 credits**

***ADNS 673 Health Education in a Correctional Setting** – Focuses on teaching and learning skills for individuals who are not motivated to change their behavior using the usual approaches. **2 credits**

***ADNS 674 Infection Control In A Correctional Setting** – Covers the management of infectious diseases in a correctional setting. Includes immunization, common communicable diseases, T.B. control, sexually transmitted diseases and general principles. **2 credits**

***ADNS 675 Clinical Application: Corrections Nursing** – Three weeks supervised practicum in a correctional setting, designed to consolidate and apply theory learned in previous courses in the program. **6 credits**

ADNS 680 Introduction to Neonatal Nursing: Theory – Presents the basic theory required to begin caring for infants in a special care nursery. Emphasis is on maternal influences on the fetus and newborn, a few common neonatal disorders and the basic nursing skills required to begin caring for infants in a Level II nursery. In order to proceed to ADNS 681 you must obtain at least 75% in this course. **5 credits**

ADNS 681 Introduction to Neonatal Nursing: Clinical – Full-time clinical experience (approximately 2 weeks) with an instructor. Students will have some choice as to the location of this clinical experience. Emphasis will be placed on assessment skills and basic care of the ill newborn. Prerequisite: ADNS 680 (minimum 75%). **3 credits**

ADNS 682 Care of the High-Risk Neonate: Theory – Builds on theory covered in ADNS 680. Emphasis is placed on pathophysiology of common neonatal disorders, the nursing care of high-risk newborns, and care of the family with an infant in a special care nursery. In order to proceed to ADNS 683, you must obtain at least 75% in this course. Prerequisite: ADNS 680. **5 credits**

ADNS 683 Care of the High-Risk Neonate: Clinical – A full-time clinical course (approximately 3 weeks) This course will build on clinical skills practiced in ADNS 681 but will emphasize the care of high-risk newborns. Use of a variety of equipment including mechanical ventilators will be included. Prerequisite: ADNS 681 (or approved exemption) and 682 (minimum 75%), ADNU 670. **4 credits**

ADNS 684 The Critically Ill Neonate: Theory – Presents the theory required to care for critically ill newborns in a Level III nursery. Emphasis will be on the care of infants with multisystem failure and the pathophysiology of life-threatening disorders. Prerequisite: ADNS 682. Corequisite: ADNU 650. **3 credits**

ADNS 685 The Critically Ill Neonate: Clinical – A full-time, instructor-supervised clinical course (approx. 3 weeks). Emphasis is on complete nursing care of critically ill newborns. Prerequisite: ADNS 683. Corequisite: ADNS 684. **4 credits**

ADNS 690 Rehabilitation Nursing 1 – Introduction to selected theories and concepts. Major focus is on the physiological aspects of rehabilitation nursing. Includes head injury, stroke, spinal cord, arthritis, multiple sclerosis and amputation. **4 credits**

ADNS 691 Rehabilitation Nursing 2 – This course builds on the concepts studied in ADNU 624 and applies them to the rehabilitation setting. It directs the nurse to learn the knowledge, skills and attitudes necessary to meet the psychosocial needs of individuals with disabilities. Prerequisite: ADNS 690 and ADNU 624. **4 credits**

***ADNS 692 Rehabilitation Nursing 3** – This 4-week course incorporates laboratory and supervised clinical experience to enable the nurse to integrate and apply previous learning while assisting patients in a rehabilitation setting to meet both their physiological and psychosocial needs. Prerequisite: ADNS 690, 691, ADNU 624, 641. **6 credits**

***ADNS 693 Rehabilitation Nursing 4** – This course, which combines guided learning with a 6-week clinical preceptorship, provides the nurse with an opportunity to apply rehabilitation nursing knowledge, skills and attitudes at an advanced level. Prerequisite: ADNS 692. **8 credits**

ADNS 901 Operating Room Nursing Refresher Course – This non-credit course offers students with a minimum of two years experience in the operating room in the last ten years, the opportunity for a refresher in the basic skills and theory pertaining

*Course under development

to entry level perioperative nursing. Modules and a manual to direct study will present the theory and principles and procedural theory of entry level perioperative nursing. Three weeks of full-time clinical instruction and three weeks clinical preceptorship will offer the student the clinical experience to regain the skills required to meet the requirements of entry level operating room nursing practice. **non credit**

ADNU 601 Physiological Aspects of Patient Care Part 1 – Builds on basic physiology and assists students to understand the mechanisms the body uses to adapt to stressors and to predict common problems resulting from alterations in body functions. **4 credits**

ADNU 602 Physiological Aspects of Patient Care Part 2 – A continuation of ADNU 601. A guided learning course. Prerequisite: ADNU 601. **2 credits**

ADNU 603 Pathophysiology – Reviews cellular organization and response to disease. Organized by systems covering cardiovascular, respiratory, neurological, endocrine, renal and gastrointestinal physiology and diseases. **5 credits**

ADNU 604 Pathophysiology for Critical Care Nursing – Reviews cellular organization and response to disease. Organized by systems covering cardiovascular, respiratory, neurological, endocrine, renal and gastrointestinal physiology and diseases. **5 credits**

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. Prerequisite: One to two years acute nursing experience. **5 credits**

ADNU 620 Psychological Aspects of Patient Care 1 – Covers assessment of dysfunctional behaviour using a case study approach. **3 credits**

ADNU 621 Psychological Aspects of Patient Care 2 – A continuation of ADNU 620. Prerequisite: ADNU 620. **3 credits**

ADNU 623 Application of Psychological Aspects of Patient Care – A guided learning course which deals with interventions for the dysfunctional behaviour described in ADNU 620/621. Prerequisite: ADNU 620, 621. **4 credits**

ADNU 624 Psychological Aspects of Rehabilitation Nursing – Study of selected psychological concepts which will assist the nurse in meeting the psychosocial needs of individuals. Emphasis is placed on understanding the development of inappropriate responses, and on identifying stressors and behavior associated with specific behavior patterns. Guided Learning Course. **4 credits**

ADNU 630 Interpersonal Skills – Provides training which will enable the learner to respond with empathy, warmth and respect to patients. The course is based on a systematic human relations training model. **3 credits**

ADNU 631 Individual Counselling Skills – Introduces health care practitioners to the application of interpersonal skills for the interviewing and counselling of individuals. Prerequisite: ADNU 630. **3 credits**

ADNU 632 Group Counselling Skills – Designed to introduce health care practitioners to the application of interpersonal skills to working with groups of clients. Uses a person centered approach as developed by Rogers, Carkhuff and Egan as a theoretical model. Based on the hypothesis that when a psychological climate of safety and acceptance is created in a group, group

members are able to use their own resources constructively. Prerequisite: ADNU 630. **3 credits**

ADNU 640 Physical Status Assessment – For nurses who provide care to adult patients where they are expected to assess the client's physical status in cooperation with a physician. This is a practical "hands on" course and students will need to practice assessment skills with peers or clients. **3 credits**

ADNU 641 Mental Status Assessment – For nurses who provide care to psychiatric clients in various settings. Focuses on skills for assessing the client's mental status. **3 credits**

ADNU 650 Ethics in Health Sciences – Designed to provide 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**

ADNU 651 Multicultural Nursing – Introduces the importance of conceptualizing the inherent worth of different cultural values and lifestyles. Applies this knowledge to a health care setting. **3 credits**

ADNU 660 Legal Issues in Nursing – Addresses legal concerns arising in consent, negligence and nursing records, and presents an overview of Canadian law and legal principles applicable to nursing practice and administration. Appropriate for nurses employed in hospitals and community settings. **3 credits**

ADNU 670 Patient Care Technology – Medical instrumentation for nurses. Covers the most common medical equipment found in critical care areas and the safe and effective use of this equipment. **2 credits**

BHCE 601 Cross Sectional Anatomy – For technologists who require knowledge of cross sectional anatomy of the chest, abdomen and pelvis. Content includes body planes, cavities and their divisions, sectional geometry and three-dimensional anatomy. Anatomic features and relationships of functional and pathological significance will be emphasized. CAMRT AC Credit 0.5. **3 credits**

BHCE 914 Anatomy and Physiology: Review and Update – For health professionals who have had a course in anatomy and physiology, but want to review and update their knowledge. **non credit**

CTCR 101 Anatomy and Physiology – A survey of the basic structure and function of human body systems. An introduction to the basic principles of genetics is also included. This is a guided learning course and is equivalent to BHSC 105 in the BCIT General Nursing program. **5 credits**

CTCR 102 Writing for Nurses – Teaches general writing skills and their specific application to professional writing tasks in the clinical area. This is a guided learning course and is equivalent to HCOM 107 Writing for Nurses in the BCIT General Nursing program. **3.5 credits**

CTCR 103 Personal Fitness Management – A combined theory and practice course designed to emphasize the relationship of physical fitness to lifestyle patterns. Focuses on the student's own activity pattern. A guided learning course equivalent to BHSC 118 in the BCIT General Nursing program. **2 credits**

CTCR 104 Physiology – A study of physiological regulation and control in the normal individual based on the fundamentals established in CTCR 101 Anatomy and Physiology, (same text as CTCR 101). A guided learning course equivalent to BHSC 205 in the BCIT General Nursing program. **3.5 credits**

CTCR 105 Human Development 1 – Provides students with an introduction to the theories, methods, concepts and research findings relevant to normal human development from prenatal, through adolescence, with particular attention to the social and familial context in which development occurs. The importance of individual differences, the effects of heredity and environment, and the ethical issues involved in research and treatment are discussed. The topics of death, dying and loss are also covered. **3.5 credits**

CTCR 106 Human Development 2 – A continuation of CTCR 105. This course focuses on growth and development from young adulthood through aging adult. **1.5 credits**

CTCR 107 Sociology – An introduction to those concepts and methods of sociology which are most pertinent to the nurse's observation and understanding of human behavior in a social context. The internal and external components of the human environment are investigated. Social and epidemiological factors related to health and illness will be reviewed. A guided learning course equivalent to BHSC 239 in the BCIT General Nursing program. **1.5 credits**

CTCR 108 Microbiology – An introduction to basic microbiological concepts including the distinguishing characteristics of microorganisms, methods of controlling infectious disease and host-parasite relationships. A guided learning course equivalent to BHSC 225 in the BCIT General Nursing program. Prerequisite: CTCR 101. **1 credit**

CTCR 109 Immunology – Provides an understanding of the immune response as it is applied to immunity, surveillance, homeostasis, hypersensitivity, autoimmunity and immunohematology. The course progresses from discussions on the components and biological activities of the immune response to the immune response role in protective as well as disease conditions. A guided learning course. Prerequisite: CTCR 101. **1 credit**

EDUC 601 Human Learning – For nurses and technologists where patient education is a component of the clinical program. The course focuses on the processes of learning and strategies to help oneself, patients and peers learn more effectively. A guided learning course. **2 credits**

HCSY 610 Health Care Systems 1 – Examines issues related to the development of health care systems in Canada including the roles of various levels of government, health care finance, manpower planning, impact of new health technology. **1.5 credits**

HCSY 620 Health Care Systems 2 – Continues the examination of Health Care Systems in Canada. Prerequisite: HCSY 610 or equivalent. **1.5 credits**

HICE 501 Medical Terminology 1 – An introduction to the language of medicine. Basic rules of medical terminology, medical abbreviations, medical specialties and operative terms are included. There will be a detailed study of medical prefixes, roots and suffixes, with emphasis on analysis and word building. **3 credits**

HMG 600 Health Care Supervisory Skills – Introduces the basics of supervision: problem-solving and decision-making, selecting and motivating people, performance appraisal, leadership and communication. A guided learning course. **3 credits**

HMG 601 Health Care Organizational Behavior – Examines components influencing individual behavior in organizational settings including attitudes, values and theories of leadership. Text: Robbins, Organizational Behaviour. Also offered in guided learning mode. Pre-reading required. **3 credits**

HMG 602 Health Care Principles of Management – Reviews the roles and functions of management. Identifies and practices skills required for planning, organization and control in health care agencies. Text: Stoner, Management. Also offered at sites throughout the province. Pre-reading required. **3 credits**

HMG 603 Health Care Operations Management – Identifies practical skills necessary for systems analysis, method study and productivity improvement. Also offered as circuit course at other sites. **1.5 credits**

HMG 604 Budgeting in Health Care – Introduces the principles and role of budgeting as part of the financial and health care objectives of the organization. **1.5 credits**

HMG 605 Human Resource Management – Examines total staffing process including job analysis and description, interviewing, training and performance appraisal. Also offered as circuit course at other sites. **3 credits**

HMG 606 Health Labor Relations 1 – Explores the development of labor relations in health care. Emphasizes the interpretation and application of negotiated contracts and reviews grievance and arbitration procedures. Also offered as circuit course at other sites. **1.5 credits**

HMG 607 Long Term Care Labor Relations – For long term care personnel. Examines labor relations in the long term care setting. Emphasizes negotiation, interpretation, application of negotiated contracts, grievances and arbitration. **1.5 credits**

HMG 611 Organizational Behavior for Occupational Health Nurses – Examines components influencing individual behavior in organizational settings including attitudes, values and theories of leadership. Note: Credit will not be given for both HMG 601 and HMG 611. Text: Robbins, Organizational Behaviour, 3rd ed. **3 credits**

HMG 701 Information Systems in Health Care 1 – Reviews manual and computer information systems and their terminology. Examines information systems in health care. Also offered as circuit course at other sites. **1.5 credits**

HMG 702 Health Care Law – Introduces origins and principles of law, legal role of health paraprofessionals and significant legal themes. Pre-reading required. **1.5 credits**

HMG 703 Financial Administration for Health Care Managers – Introduces accounting tools and concepts of health care systems. Examines cost accounting, program accounting and management reporting. **1.5 credits**

HMG 751 Information Systems in Health Care 2 – Continues MIS/HIS project management, needs assessment and specifications, cost benefit analysis, implementation. Prerequisite: HMG 701 or equivalent. **1.5 credits**

HMG 752 Health Labor Relations 2 – In-depth examination of grievance handling. Introduces arbitration process. Prerequisite: HMG 606 or equivalent. **1.5 credits**

HMG 753 Application of Theory to Selected Health Care Problems – Applies theory presented in earlier courses. Concentrates on real life problems encountered in health care systems. Prerequisite: All mandatory courses in Level 1 and Level 2 programs and approval of coordinator. **1.5 credits**

MLCE 610 Advanced Hematology (The Red Cell) Part 1 – A correspondence course to prepare registered technologists for the advanced registered technologist examination. Acquaints students with new and advanced theories of hematology. The Canadian Society of Laboratory Technologists (CSLT) grants 7.4 credits for completion of MLCE 610. **3 credits**

MLCE 611 Advanced Hematology (The Red Cell) Part 2 - A continuation of MLCE 610. Prerequisite: MLCE 610. CSLT grants 7.2 credits for completion of MLCE 611. **3 credits**

MLCE 901 MLT Refresher Course (CC, Hem., IH) – This course, specifically prepared for the Registered Medical Laboratory Technologists who have been away from the work place at least five years, will refresh and update the student in Clinical Chemistry, Hematology and Immunohematology.

The course will be presented in two sections: A nine-week didactic phase consisting of lectures and laboratory sessions at the Institute and a three-week clinical phase with various clinical laboratories in the Lower Mainland and the Fraser Valley providing the student with clinical orientation.

Upon successful completion of this course, the student should be able to function as a Junior Technologist in all three of the medical laboratory areas studied. **non credit**

MRCE 611 Computed Tomography – Introductory course provides a broad theoretical framework for understanding the principles of Computed Tomography (CT). Lays the basic foundations for practical aspects of C.T. scanning. 1.0 AC credit. **3 credits**

MRCE 612 Technological Advances in X-ray Imaging – Reviews the fundamental radiographic and fluoroscopic imaging schemes. Describes changes with each component of the imaging scheme with emphasis on the x-ray tube, scattered radiation grids, geometric tomography, filtration, image intensification and the impact of computer technology on x-ray imaging methods. 1 AC credit. **3 credits**

MRCE 614 Understanding Radiation Risks in Medical Imaging – This course will survey the radiologic literature on patient doses and risks of medical radiation exposure and will place the potential risks in perspective relative to the clinical use of radiation. Through readings and assignments, the course will examine various topics in radiation physics, radiobiology, dose, radiation protection criteria and standards, pregnancy and radiation, risks in medical imaging and risk reduction technology. The course will focus on issues relating to x-ray, ultrasound and magnetic resonance imaging. Finally, the course concludes with a discussion of public health aspects of radiation. **3 credits**

MRCE 615 Magnetic Resonance Imaging - Part 1: Physical Principles and Instrumentation – Examines the physical principles of MRI - basic physics of NMR and the equipment needed to produce magnetic resonance images. Digital imaging concepts related to MRI will be introduced. The bioeffects and hazards of magnetic fields and radio frequency radiation, and guidelines for safe use of MRI will be discussed. **3 credits**

MSSC 101 Human Anatomy and Physiology – A survey of the basic structure and function of human body systems and an introduction to related medical terminology. The course is offered in guided learning format, plus three optional tutorials. **4.5 credits**

MSSC 103 Medical Surgical Procedures – An overview of common operative techniques used to provide patient care within the medical surgical setting to include principles of asepsis and perioperative procedures. Topics will be presented with an emphasis on product knowledge. **3.5 credits**

MSSC 104 General Instrumentation – Identification of medical surgical instruments, quality analysis, and the use of instruments in selected operative procedures. **1.5 credits**

MSSC 105 Biomedical Electronic Safety – The basic concepts of electricity and their applications in typical electrical wiring systems, electrical safety hazards created by biomedical equipment in hospitals, and electrical safety standards required for hospital equipment. Course work will be related to specific biomedical equipment found in a typical hospital. **1.5 credits**

***NUCE 901 Refresher Course for Graduate Nurses** – Designed for graduates of approved schools of nursing. Theory and clinical practice are combined to assist nurses to meet clinical competency objectives in medical/surgical nursing. **non credit**

***NUCE 904 Obstetrical Nursing (Qualifying) 1** – Obstetrical nursing theory required by graduate nurses from outside Canada in preparation for R.N. examinations in B.C. Content is in guided learning format. **non credit**

***NUCE 905 Obstetrical Nursing (Qualifying) 2** – Four weeks clinical practice following completion of NUCE 904. May be a preceptorship arranged by BCIT for graduate nurses currently employed in acute care or supervised clinical practice for unemployed graduates. **non credit**

***NUCE 906 Psychiatric Nursing (Qualifying) 1** – Psychiatric nursing theory required by graduate nurses in preparation for R.N. examinations in B.C. **non credit**

*Approval of application by the Health Part-time Studies coordinator is required before registering in these courses as seats are limited. Fee refunds will not be granted to students cancelling in the 2 weeks prior to class start, unless a substitute can be found.

***NUCE 907 Psychiatric Nursing (Qualifying) 2** – Four weeks supervised clinical practice following completion of NUCE 906. **non credit**

OHCE 101 Accident Prevention 1: Job Safety Analysis – Reviews the history of the safety movement, accident investigation, job safety analysis, inspections and observations. **3 credits**

OHCE 102 Accident Prevention 2: Employee Motivation – How to maintain interest in safety, safety talks, how to deal with problem employees, off-the-job safety, incident recall techniques, and job pride development. **3 credits**

OHCE 103 Accident Prevention 3: Safety Design and Equipment – Examines accident prevention for industrial operations, the engineering and technology involved in the various operations, safety standards for buildings, equipment and operations. **3 credits**

OHCE 104 Accident Prevention 4: Industrial Applications – Includes accident prevention for industrial operations, the engineering and technology involved in the various operations, safety standards for buildings, equipment and operations, personal protective equipment and machine guarding. Prerequisite: OHCE 103. **3 credits**

OHCE 201 Industrial Health and Safety 1: Legislation – Examines legislation relevant to safety and the agencies enforcing this legislation. **3 credits**

OHCE 202 Industrial Health and Safety 2: Policy Application – Examines various types of safety programs, risk management, emergency planning, transportation and storage of hazardous materials. **3 credits**

*Approval of application by the Health Part-time Studies coordinator is required before registering in these courses as seats are limited. Fee refunds will not be granted to students cancelling in the 2 weeks prior to class start, unless a substitute can be found.

*Course under development

OHCE 203 Industrial Health and Safety 3: Loss Control and Auditing – Deals with the total loss control concept. Covers audits and measurement of safety performance. Also looks at office safety and safety in B.C. industries such as the forest industry, transportation, food processing and general manufacturing. Prerequisite: OHCE 101, 102, 103, 104, 201 and 202.

3 credits

OHCE 204 Industrial Health and Safety 4: Chemical Safety – This course is designed for people involved in the use, handling, storage and transportation of dangerous goods and hazardous materials. It covers the transportation of dangerous goods legislation, the "WHMIS" legislation and disaster planning. Students will examine the various legislative requirements as well as practical aspects of handling chemicals and other hazardous materials.

3 credits

OHCE 301 Fire Protection 1: Fire Prevention – Examines heating hazards, electrical hazards, chemistry of fire, flammable liquids, fire detection, portable fire extinguishers and sprinkler systems.

3 credits

OHCE 302 Fire Protection 2: Gases and Flammable Materials – Includes fire causes, statistics, flammable gases, storage, combustible gases, chemical hazards, fumigants, plastics, fire alarms. Note: Mandatory for OH&S certificate. Prerequisite: OHCE 301.

3 credits

OHCE 401 Industrial Hygiene 1: Toxicology – Examines health concerns related to the use of chemicals in the work place. Permissible levels of toxicity and hazard assessment reviewed. Prerequisite: Math 12, Chemistry 11 or permission of instructor.

3 credits

OHCE 402 Industrial Hygiene 2: Noise – Includes acoustics and noise control, use of sound level meters and noise dosimeters. Prerequisite: Math 12, Physics 11 or permission of instructor.

3 credits

OHCE 403 Industrial Hygiene 3: Radiation Protection – Examines radiation and includes detection, evaluation and control of radiation, and extremes of temperature and pressure. Prerequisite: Math 12, Physics 11, Chemistry 11 or permission of instructor.

3 credits

POCE 900 Computed Assisted Socket Design – CANFIT System – The basic competencies needed to fabricate Trans-Tibial sockets with the CANFIT system.

non credit

RESH 601 Understanding Research in Health Sciences – The first of 3 courses which constitute the practical research component of the Advanced Diploma in Health Sciences program. Focusing on practical research skills, this course examines the components of the research process, the terminology commonly used in research reports and criteria for evaluating research. Students will learn how to critically evaluate research performed and reported by others in their field. A guided learning course.

3 credits

RESH 602 Preparing a Health Science Research Proposal – Builds on the knowledge and skills of understanding research in health science. Students will be expected to select an appropriate research question or problem, plan a research project, write a research proposal and evaluate that proposal. Prerequisite: RESH 601.

3 credits

School of Trades Training

Office of the Dean

Len McNeely, R.I.A., M.B.A., Dean

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General Information

Class Times

Classes for part-time trades courses are generally scheduled for three hours, two nights a week, or on Saturdays. Night time courses are scheduled to run on weeknights from 19:00 to 22:00.

ALWAYS CHECK AT TIME OF REGISTRATION FOR CURRENT CLASS SCHEDULES.

Trade Qualification Certificate Examinations

The School of Trades Training Part-time Studies offers refresher courses for tradespersons interested in preparing for their trade qualification certificate examinations.

To become eligible to write a TQ examination, approval from the Ministry of Advanced Education and Job Training is required. It is strongly recommended by the Ministry that the tradesperson contact the area office nearest their residence before registering at BCIT. This will allow for processing the application and issuing approval to the tradesperson in time for him/her to write the examination directly after taking the refresher course.

Canada Manpower Sponsorship

Canada Manpower may sponsor students taking any program longer than 12 weeks. Students should contact their local manpower office for information regarding sponsorship.

Industry Services: Customized Programs, Consulting and Development Services

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

We will work together 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 the resources of BCIT for support in any new venture, contact the specific part-time training area to find out how we can help you.

Trade Programs

AVIATION TRADES

Aircraft Maintenance

Avionics

Aircraft Structures

Bill Foyle, Associate Dean

Course Information: 432-8467

Sharyl Brown, Program Coordinator

Telephone: 278-4831

John Edwards, Program Coordinator

Telephone: 278-4831

Course Descriptions

AVIA 900 Aircraft Electricity (30 hours) – Introduces students to the fundamentals of aircraft electricity. The focus is on the basic concepts of electricity: principles, units of measurement, production of electricity, distribution, industry standards and aircraft applications.

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, how to use them, where to use them and when, are covered. The fundamentals of how electricity works are reviewed when analyzing problems and interpreting wiring diagrams.

AVIA 903 Aircraft Instruments (30 hours) – An introductory course focusing on instrument elements and mechanisms, properties of the atmosphere, pilot-static systems, gyroscopic and remote sensing instruments. Suitable for aircraft maintenance engineers, pilots and novices.

AVIA 905 Air Regulations (30 hours) – An in-depth study of Air Regulations, Navigation Orders and the Engineering and Inspection Manual – required knowledge for aircraft maintenance personnel. Instruction includes correct procedures for certifying aircraft, products and repair, how to interpret regulations for the correct application. Suitable for those planning to write the Ministry of Transport category "A" or "E" Air Regulation Examination.

AVIA 907 Private Pilot Licence Ground School (40 hours) – For those planning to write the Ministry of Transport Private Pilot Examination. The course focuses on ground school training requirements in aviation theory: aerodynamics, aircraft engines and airframes, air regulations and air traffic control, navigation and flight planning, meteorology, radio systems, communications, medical factors.

AVIA 910 Private Pilot Advanced Ground School (30 hours) – Recommended to those individuals who require a primer for an examination, or private pilots. Topics include meteorology, navigation, air regulations and airmanship. Emphasis is on practical applications (tips) for ground preparation and trip planning.

AVIA 912 Aircraft Reciprocating Engines (30 hours) – An introduction to the construction and operating principles of aircraft reciprocating engines. The course covers engine classifications, operating principles, inspection, lubricating systems, engine components, and more.

AVIA 915 Aircraft Maintenance Engineer's "B" Licence Upgrading (30 hours) – Prepares qualified aircraft maintenance engineers (category "A" or "R") for the Ministry of Transport category "B" endorsement examination. Curriculum includes:

wood, welded steel, stressed skin and composite structures; fabric covering; corrosion control; material identification; non-destructive testing; fixed and rotary wing general knowledge.

AVIA 917 Aircraft Sheet Metal Introduction (30 hours) – The fundamentals of aircraft sheet metal as they apply to the repair and assembly of modern-day aircraft. The course covers basic aircraft structures, structural considerations, shop and safety regulations, pattern layout, forming techniques, fasteners and riveting, bend allowances, aircraft blueprint reading, and corrosion control.

AVIA 922 Aviation Storesperson (30 hours) – Persons currently involved with aviation parts and equipment receive advanced instruction about the operations of a stores department and the handling of sophisticated aerospace equipment. Manual and computerized inventory control systems are covered.

AVIA 923 Helicopter Maintenance (30 hours) – An introduction to associated systems found in helicopters. Course includes: history of the helicopter; principles of flight; flight controls; main and tail rotor systems; transmissions and engines; airframe and associated systems. Hands-on training is achieved through the performance of a Daily Inspection, as prescribed by a helicopter manufacturer. Of interest to novices and pilots alike.

AVIA 925 Avionics (30 hours) – An introductory course designed for anyone interested in aircraft electronics. Curriculum includes: basic aircraft radio operating principles; high frequency; emergency locator transmitters and audio panels; compass systems; variable omni range; localizer and glideslope navigational equipment; automatic direction finder; encoding altimeters; transponders; weather radar and gyroscopes.

AVIA 927 Aircraft Composite Repair (28 hours) – An introduction to bonded structures. Wet lay-up and hot bonded repairs for aircraft composite components will be covered. Emphasis is placed on precision proportioning of resins and hardeners and hands-on experience in repairing and fabricating with composite material. Course covers laminated construction techniques and repairing honeycomb structures. *Persons allergic to solvents and resins should not attempt this course.

AVIA 930 Aircraft Drafting and Blueprints (28 hours) – Designed for anyone interested in learning aircraft drafting and blueprint reading. Terminology, standards, views, lettering, scales and techniques are introduced through practical assignments.

AVIA 933 Aviation Trade Math (30 hours) – Math upgrading/refresher for aviation trades. Persons awaiting entry to full-time day programs and the part-time Structures program will find this course beneficial. Trigonometry for sheet metal layout, fuel consumption, aircraft weight and balance, compression ratios and much more are introduced.

AVIA 935 Aircraft Maintenance Introduction (30 hours) – An introductory course in aircraft maintenance fundamentals. Terminology; how an aircraft flies (achieves lift); aircraft construction and materials; aircraft control devices and basic inspection principles are covered. Ideal for aircraft mechanics, potential aircraft maintenance engineers, pilots and owners of aircraft.

AVIA 936 Aircraft Maintenance Management Introduction (30 hours) – Provides individuals with the opportunity to develop managerial, organizational and communication skills required to manage maintenance functions effectively. Topics include; creating an effective maintenance organization; basic management concepts; elements of motivation; planning and scheduling maintenance functions; effective communications; time management; cost control for labor and materials; legal responsibilities; creating a maintenance department training system. The set focuses on fundamental working knowledge and skills, followed by a team approach using the techniques covered in the introduction.

AVIA 938 Aircraft Maintenance Advanced (30 hours) – A continuation of AVIA 935. Topics include flight control, hydraulics, landing gear, wheels and brakes, and other associated aircraft systems. Prerequisite: AVIA 935 or equivalent.

AVIA 939 Aviation Maintenance Management Advanced (30 hours) – A continuation of AVIA 936. This course is divided into two modules. The first covers the fundamentals of training, techniques and in house programs. The second uses the team approach and case studies to apply the techniques covered in AVIA 936. The team approach is used to develop strategies for managerial improvement.

AVIA 940 Gas Turbine Engines (30 hours) – For students interested in learning the principles of the gas turbine engine. In-depth knowledge of the engine: engine development, operating principles, classifications and terminology, is gained through this course. A field trip to Canadian Airlines International's engine overhaul facility is included.

AVIA 942 Ultralight Aircraft Maintenance (30 hours) – Instruction includes the airframe structure, metallurgy of alloys used in the construction of ultralights, nondestructive testing, shop practice and tools, flight control systems and theory of flight.

AVIA 945 Commercial Pilot Licence Ground School (40 hours) – For those planning to write the Ministry of Transport Commercial Pilot Examination. Instruction focuses on ground school training requirements: meteorology, aircraft engines, airframes, air navigation techniques, aerodynamics, theory of flight, electronic navigation, airmanship, air regulations.

AVIA 950 Introduction To Aviation (12 hours) – Find out about the aviation industry. Anyone considering the industry as a career can find out about the cost of training, what training is available, what fields are available and those that are in particular demand. A tour is incorporated in the curriculum.

AVIA 960 Aircraft Painting (30 hours) – Examines the various substrates used on aircraft. Topics include: paint types and applications; job hazards; safety equipment applications; paint stripping; metal preparation and treatment; priming and metal etching; use of spray equipment and spray booth; window cleaning; masking for stripes; accents and color choice.

AVIA 965 Aircraft Manufacturing and Production Processes (30 hours) – Introduces production and manufacturing processes involved in aircraft production and assembly: techniques, technologies and cost and time considerations – from blueprint, to shop floor, to final product. Ideal for persons already engaged in production, sheet metal work, planning or other related fields. Prerequisite: Must have experience in the aviation field, preferably in aircraft sheet metal work or maintenance.

AVIA 970 Aircraft Maintenance for the Pilot/Owner (12 hours) – The course uses the maintenance guidelines set by the Ministry of Transport to provide hands-on training for the pilot/owner. Space may be available (subject to approval) for some owners to work on their own aircraft (contact Sharyl Brown at Sea Island Campus 278-4831).

New Courses

The courses listed below are presently being developed. Most of these courses will be offered in the Fall and Winter terms of 1989 in addition to the existing part-time programs.

Survival First Aid
Dangerous Goods
The History Of Aviation In British Columbia
Helicopter Type Endorsement Courses

Conversion/Upgrade From A Licence to E Licence
Model Rocketry (for kids)
Airworthiness Manual Weekend Seminars
Nondestructive Testing for Aviation
In-House Aviation Training
Aviation Physics for Kids
Computer Familiarization And Applications To Aviation
CAD/CAM For Aviation

Information regarding any of these new courses can be obtained by writing or calling:

BCIT
5301 Airport Road South,
Richmond, B.C. V7B 1B5
(604) 278-4831

BUILDING SERVICE MANAGEMENT TRADES

BSMT 910 Building Service Worker Basic (30 hours) - Persons interested in seeking employment as building service workers or needing to understand the complexities of industrial cleaning will find this course useful. Instruction is given in use of chemicals, the care of floors and carpets, use of maintenance equipment, washroom sanitation, employee relations, repair and maintenance of small equipment. Graduates may seek employment in maintenance departments or janitorial firms.

BSMT 911 Building Service Worker Supervisory (24 hours) - Designed for maintenance managers, maintenance crew supervisors, executive housekeepers in hospitals and institutions, hotels, cleaning contractors and other managerial positions within the building service worker industry. Instruction is theoretical with some hands-on training. Students learn to deal effectively with problems common to entire buildings rather than specific cleaning jobs. Employee relations and morale, as well as advanced cleaning techniques, are explored. Successful graduates of this course may lead a large cleaning crew or choose to become self-employed.

CONSTRUCTION AND METAL TRADES

Carpentry
Construction
Joinery
Piping, Plumbing and Gas
Sheet Metal
Steel Fabrication
Welding

SCHOOL OF TRADES TRAINING INFORMATION LINE
432-8302

Mike Cannell, Associate Dean
Course Information: 432-8467
Larry Cox, Chief Instructor (Welding Trades)
Telephone: 432-8203 Local 5003
Kal Klasen, Program Head
Telephone: 432-8556

CARPENTRY TRADE

CARP 904 Explosive Actuated Tools (18 hours) - Designed for persons requiring training in the safe use of power fasteners. Instruction covers standard procedures for wood, metal and concrete fastening using drills and explosive actuated equipment. Suitable for carpenters, steel fabricators or any construction subtrades who require these procedures to be performed on-site. Students receive an operator's certificate in accordance with W.C.B. requirements.

CARP 905 Blueprint Reading for Construction (35 hours) - Designed for persons working in the construction trades who wish to read blueprints. Some related building trade experience is desirable, although it is not mandatory. Students learn to complete projects and problem-solve in the classroom. All aspects of building specifications, including metric conversion, foundations, millwork and scheduling, are covered. Upon completion, students will understand the structural principles of buildings and be able to read blueprints for architectural construction and related electrical, plumbing and interior finishing. A certificate of completion in "Blueprint Reading for Construction" is issued to graduates of the course.

CARP 906 Custom Cabinet Construction and Installation (36 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. Students must have experience in the use of carpentry hand and power tools, and a working knowledge of framing methods.

CARP 907 Residential Renovations (42 hours) - This course is designed for the Homeowners, Realtors, Carpenters and Contractors who wish to learn professional renovation skills. Focus will be on the initial concept/design process, permit requirements, feasibility, site management, subcontracts, scheduling, building systems and problem solving. Upon successful completion, students will acquire skills that are necessary to over-see a typical residential renovation project and a good understanding of the complete residential renovation process. Students should bring any proposed project designs for in-class assignments.

CARP 909 Carpentry TQ Refresher (56 hours) - For tradespersons preparing for the Provincial Carpentry Trade Qualification Examination, and for those wanting a current review. Instruction is provided in mathematics, foundations, concrete form construction, framing, boarding, sheathing and scaffolds, roof construction, exterior finish, interior wall covering, interior finish, stair building, heavy timber construction, and carpentry in masonry construction. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

CARP 911 Stair Construction (20 hours) - Construction mathematics, building codes, stair layout and assembly are taught for carpenters, renovators and related trades persons. Students build typical straight, split landing and circular stairs in accordance with current municipal building code requirements (1987).

CARP 913 Concrete Formwork Design (24 hours) - For carpenters, contractors and those working in residential, industrial and heavy construction. Instruction is provided in construction of footings, wall formwork, column formwork, concrete stairs, beams, girders, slabs and concrete technology. Suitable for related trades and service persons involved in concrete placing.

CARP 915 Construction Supervision and Project Management (48 hours) – Provides instruction in project planning, scheduling, contract development, tendering, quotations, start-up, records, cost control, supervisory skills and communications. Upon successful completion, students have a theoretical foundation in residential, multi-residential and light industrial project supervision, scheduling, contract administration and cost control. Includes an introduction to computerized project management and scheduling. A certificate of completion in "Construction Supervision and Project Management" is issued to graduates of the course.

CARP 917 Construction Estimating Basic (36 hours) – Designed for tradespersons involved with cost estimating and bidding. Unit pricing, account codes, project scheduling, quantity survey and contract preparation are covered in detail. Students learn how to estimate multi-residential, light commercial and renovation construction using proven principles and practices.

CARP 921 Framing, Roofing and Layout (36 hours) – West Coast framing and layout are covered in this weekend course designed for students with little or no practical experience as carpenters. Students construct residential building components in shop, and on-site. Upon completion, students will have a complete theoretical understanding of traditional framing and be able to perform most assembly skills. The course is suitable for entry level, or as an upgrading opportunity for existing construction framers, laborers or apprentices. A certificate of attendance in "Framing, Roofing and Layout" is issued to graduates of the course.

CARP 927 Interior Finishing Carpentry (32 hours) – Will enable carpenters or those who have worked in the trade for more than three years to complete interior residential finishing to professional standards. Essential skills covered include door hanging, window installation, cabinet installation, material finishing and hardware application. Students learn by working on shop assignments and should know the proper use of carpentry hand and power tools before enrolling in this course.

CARP 935 Residential Building Procedures (30 hours) – Focuses on the planning, estimating and construction of new single or multi-residential units. Designed for owners, realtors, bankers, first-time builders and carpenters. The course reviews all phases of wood frame construction: permit procedures, project scheduling, cost control, municipal inspection requirements, site supervision and preparation. On-site visits to residential building projects with local building inspectors are included. Students are encouraged to utilize a proposed residential building or renovation project for learning purposes.

CARP 937 Builders Level (16 hours) – This course is designed for general construction, carpenters, site foremen and contractors. Students will learn proper leveling procedures applicable to excavation, formwork, pipe grades and design elevations.

CARP 939 Transit For Construction Layout (24 hours) – This course will include review of basic trigonometry for transit layout purposes. Students will receive hands-on training using transit, chaining, note keeping and related on-site procedures. Basic and advanced students will benefit from this intensive course.

CARP 941 Industrial Rigging and Safety (24 hours) – Designed for the heavy construction tradesperson who must work with rigging, overhead cranes, signalling, knot tying, load calculation and on-site safety procedures. Students learn W.C.B. rules and regulations and do hands-on training in a simulated heavy construction site setting at the Burnaby Campus.

CARP 947 Steel Stud Construction (16 hours) – Provides students with the basic skills and knowledge required to use steel studs and components in building construction. Students learn layout, assembly, use of hand tools and West Coast framing methods. Suitable for carpenters or related trades persons who must work with steel studs, especially custom office builders and renovators.

CARP 950 Applied Construction Mathematics for Carpenters (18 hours) – Designed as a refresher for carpenters, estimators, site supervisors or persons having to make mathematical calculations for construction purposes. Course reviews whole numbers, fractions, decimals, algebra, geometry, trigonometry and the transposing of formulas as required for on-site calculation and application.

CARP 954 Vinyl Siding Application (16 hours) – Commercial vinyl siding is examined and demonstrated in a shop setting. Students learn estimating, product selection, use of hand and power tools, layout, application procedures and related production methods. Residential builders, carpenters and renovators, will benefit from this short course in this rapidly growing industry which has great potential for self employment.

CONSTRUCTION TRADE

CNST 934 Drywall Installation and Finishing (32 hours) – An introductory course designed for persons who want to learn proper drywalling methods. Product theory, boarding methods, beading, taping procedures, use of hand tools, sanding and final finishing methods are covered in this combination of classroom theory and practical training. Students learn drywalling methods in a modular mock-up training setting. Suitable for carpenters, renovators and pre-apprentice training.

CNST 955 Traffic Control Training (4 hours) – A comprehensive course covering the skills necessary to meet minimum provincial standards, for persons seeking employment as flagging personnel in highway, construction or film industry projects. Instruction is delivered in a practical setting and includes safety, employee relations, traffic control and on-site responsibilities. Audiovisual aids augment the practical instruction. This course meets the minimum requirements of the Ministry of Transportation and Highways.

JOINERY TRADE

JOIN 901 Woodwork Basic (42 hours) – Includes benchwork and joinery; how to use hand tools, power tools, routers and templates; layout; basic joints used in wood construction; construction methods; assembling with glue; preparations for finishing. Furniture design principles, furniture joinery and professional finishing methods are reviewed. Suitable for entry level training and general interest students.

JOIN 902 Benchwork Upgrade (64 hours) – For those who have completed JOIN 901 or equivalent. Focuses on intermediate-to-advanced benchwork and joinery production skills. Students receive individual attention and work on projects in a self-paced program utilizing hand tools and power equipment. Course fee does not include materials for major projects. Prerequisite: JOIN 901 or equivalent.

PIPING, PLUMBING AND GAS TRADES

PPGS 902 Hydronic Heating: Residential, Commercial, Industrial (42 hours) – Residential, commercial and industrial hydronic boilers, boiler selection and boiler size; heat loss calculation, circulating pumps, mixing valves and controls, expansion tanks, heat meters; rust and frost protection; oxygen permeation for plastic pipes; radiant floor heating systems, baseboard heaters/radiators. Will inform the hot water heating contractor presently working in the field.

PPGS 905 Cross Connection Control (30 hours) – Designed for those who install and maintain backflow prevention devices in domestic, commercial, industrial and public service water supply systems. Upon successful completion, students may challenge both the theoretical and practical certification exams of the B.C. section of the American Water Works Association. The examination is conducted during the last session of the course. Prerequisite: Journeyman plumber, engineer, manufacturer's agent, owner of a device or employee of same. **PPGS 907 Domestic Gas Appliance Servicing (30 hours)** – Designed for persons involved in the repair and maintenance of domestic gas appliances. The course reviews atmospheric gas burners; orifice sizing of domestic gas ranges, dryers and refrigerators, and the regulations governing these appliances. After successful completion, students may challenge the B.C. Gas Safety Branch examination for a Domestic Appliance Service license. This course is theory only. Prerequisite: Students must have a working knowledge of the trade.

PPGS 907 Domestic Gas Appliance Servicing (30 hours) – Designed for persons involved in the repair and maintenance of domestic gas appliances. The course reviews atmospheric gas burners; orifice sizing of domestic gas ranges, dryers and refrigerators, and the regulations governing these appliances. After successful completion, students may challenge the B.C. Gas Safety Branch examination for a Domestic Appliance Service license. This course is theory only. Prerequisite: Students must have a working knowledge of the trade.

PPGS 908 R.V. Propane Appliance Installation and Servicing (60 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for students wishing to write the examination to qualify for the Recreational Vehicle License. Topics include propane gas, laws and regulations, piping materials and methods, sizing, burners and pilots, combustion, flame safety and valves.

PPGS 909 Gas Fitter B License (81 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for students wishing to write the examination to qualify for the Gas Fitter B License. Comprehensive instruction is provided in the history and types of gas; laws; piping materials, methods and sizing; atmospheric and other burners and pilots; combustion; flame safety; venting; regulations; valves; electricity; domestic and commercial appliances. Instruction is both theoretical and practical. Prerequisite: Minimum four years experience in the trade. 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 enroll.

PPGS 910 Gas Fitter A License (132 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for students wishing to write the examination to qualify for the Gas Fitter A License. Comprehensive instruction is provided in pipe and valve sizing; purging and cleaning; pressure regulations and meters; manifolds; flame safety; control systems; all types of burners; appliances; venting; combustion air and ventilation; start-up procedures; standby fuels; direct fired make-up air and regulations; combustion analysis; cathodic protection and input calculations on high-pressure meters. Instruction is both theoretical

cal and practical. Prerequisite: Possession of a valid Gas Fitter B License for two years. 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 enroll.

PPGS 911 Gas Fitter A License: Math and Science (36 hours) – Designed for those needing a review of the mathematics and science requirements necessary for the Gas Fitter A License. The course covers algebra, formulas, electricity and chemistry. Students should complete this course before taking PPGS 910.

PPGS 917 Plumbing: Residential (24 hours) – This general interest course will appeal to homeowners with do-it-yourself aptitude and provides sufficient skills for students to make simple repairs and renovations to their house plumbing. Topics include drainage systems, water systems, fixture selection and installation. The course is primarily hands-on training.

PPGS 918 Gas Venting License (18 hours) – This course is a requirement of the Ministry of Municipal Affairs Gas Safety Branch for those wishing to write the examination for the Gas Venting License. The course reviews the necessary requirements for sizing and installing gas vents.

PPGS 919 Plumbing Trade Qualification 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 trade math and science; piping materials; valves, fittings and supports; rigging; pumps; water supply and distribution; blueprint reading; hot water heating systems; maintenance and repair; finishing; roughing-in; draining, venting and sewage; cross connection control and the B.C. Plumbing Code. Prerequisite: A minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

PPGS 920 1985 BC Plumbing Code Upgrading (24 hours) – Designed for apprentices, journeymen, estimators and those working in the trade. The course focuses on the identification and understanding of major changes introduced in the 1985 B.C. Plumbing Code.

STEEL TRADE

STEL 900 Steel Fabrication TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Steel Fabrication Trade Qualification Examination and those wanting a current review. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

STEL 909 Steel Fabrication (60 hours) – Reviews basic theoretical and practical requirements of steel fabrication. The course focuses on mathematics, pattern development, blueprint reading, welding, and the proper use of industrial machines. It also provides students with the opportunity to follow a typical steel fabrication project from initial design to shop production. After completing this course, students are eligible to apply for credit transfer approval to the Steel Fabrication Entry Level Trades Training Program.

STEL 911 Steel Fabrication Estimating (36 hours) – Offers those with a practical background in steel fabrication a basic understanding of steel fabrication estimating. The course covers all phases, from material take-off to the erection of a project. Students will learn how to develop plans and specifications; complete material take-off; project material costs; understand pricing and labor costs; and maintain costing records. Several estimating projects will be assigned to provide industry experience in steel fabrication estimating. Prerequisite: A working knowledge of steel fabrication, ability to read blueprints and basic math.

STEL 913 Steel Fabrication: Plate and Pipe Development (30 hours) – Designed to upgrade tradespersons' skills for advanced projects and pattern layout. The course covers the various methods of plate and pipe development for steel fabrication, focusing on fabricating and using templates to shear, burn, form and tack plates together (to make an elbow and a square to round). Prerequisite: STEL 909 or equivalent.

STEL 920 Sheet Metal (36 hours) – An introductory sheet metal fabrication course for individuals currently working in sheet metal shops, or for those interested in working in this field. The course includes basic blueprint reading, simple layout, shop calculations, soldering and brazing.

STWD 901 Blueprint Reading for Welding and Steel Fabrication Basic (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.

STWD 902 Blueprint Reading for Welding and Steel Fabrication Advanced (24 hours) – A continuation of STWD 901. The course is designed to further improve tradespersons' skills and employability by dealing with more complicated aspects of layout. Prerequisite: STWD 901 or equivalent.

STWD 923 General Rigging for the Trades (24 hours) – Designed for individuals with limited rigging and signaling experience. Course focuses on identifying limitations of conventional, mobile and tower cranes; directing crane operators under a variety of hoisting conditions; calculating safe workloads for lifting devices; inspecting slings and accessories for wear; tying knots; and evaluating correct rigging, lifting and transportation procedures.

WELDING TRADE

WELD 900 Welder Inter-provincial Red Seal Refresher (30 hours) – A theory course designed to prepare welders for the Inter-provincial Red Seal exam; or for the Level C, Level B and Level A exams of the Welder Registration Program. Prerequisite: Level A or Level B Welder Registration and a minimum of four years welding experience to write the Inter-provincial Red Seal Examination; 24 months welding experience for Level C Welder Registration; 36 months welding experience for Level B; and 48 months welding experience for Level A. To become eligible to write the exams, approval from the Apprenticeship and Employment Training Division (nearest your residence) of the Ministry of Advanced Education and Job Training is required, and recommended before you enroll.

WELD 903 Oxyacetylene Welding: Braze Welding (35 hours) – A basic fuel gas welding course for beginners. The course includes safety, shop practices, procedures and operation of related equipment. After completing this course, students will be eligible to apply for credit transfer approval to P3 Module (gas welding and braze welding) of the Level C Welding Program.

WELD 904 Oxyfuel Cutting: Flame Cutting (24 hours) – A flame cutting course for individuals who are required to use this process in the workplace; also for those wanting to learn basic arc welding. Course includes safety, shop practices, procedures and operation of flame cutting equipment. After completing this course, students will be eligible to apply for credit transfer approval to P2 Module (oxyfuel gas cutting) of the Level C Welding Program.

WELD 915 Shielded Metal Arc Welding Basic (42 hours) – A basic arc welding course for the individual who wishes to learn S.M.A.W. to trade standards. The course deals with the use of stick electrodes to weld multi-positional fillet and groove welds. After completing this course, students will be eligible to apply for credit transfer approval to P4 Module (SMAW) of the Level C Welding Program.

WELD 941 Gas Tungsten Arc Welding Basic (30 hours) – An introductory course covering the shielding gases, electrodes, equipment, procedures and practical applications (in the flat, horizontal and vertical positions) of G.T.A.W. After completing this course, students may transfer into the intermediate level of G.T.A.W. (WELD 942).

WELD 942 Gas Tungsten Arc Welding Intermediate (30 hours) – This level covers welding aluminum and stainless steel in the flat, horizontal and vertical positions and the use of flux and inert gas for back purging. After completing this course, students are eligible to apply for credit transfer approval to P10 Module (GTAW) of the Level B Welding Program. Prerequisite: WELD 941.

WELD 943 Gas Tungsten Arc Welding Advanced (30 hours) – A course for individuals wanting additional training in G.T.A.W. The course includes "freehand" and "walking the cup" methods of welding; pipe welding with mild steel and stainless steel filler wires; and welding in the 2G, 5G and 6G positions while back purging with inert gas. After completing this course, students are eligible to apply for credit transfer approval to P12 Module (GTAW 2) of the Level A Welding Program. Prerequisite: WELD 942.

WELD 950 Plasma Arc Cutting (15 hours) – An introduction to thermal cutting used in industry.

WELD 953 Submerged Arc Welding (18 hours) – Shop-related welding using the Submerged Arc Welding process.

WELD 956 Automated Welding Systems (24 hours) – Includes automatic/semi-automatic Flux Cored Arc Welding and Gas Tungsten Arc Welding, including theory and demonstrations.

WELD 957 Gas Metal Arc Welding (30 hours) – This process is used by most metal fabricators in the province. The course will cover basic weld joints in the flat, horizontal and vertical positions. Successful completion of this course may meet credit transferability to the G.M.A.W. Section of P6 Module, Level C. Instruction is shop sessions.

ELECTRICAL/ELECTRONIC TRADES

Appliance Repair
Computer Trades
Drafting Trades
Electrical Trades
Electronics Trades
Electronics: Guided Learning
Refrigeration: Domestic

Dennis Duffey, Associate Dean

School of Trades Training
432-8302

Jeff Skosnik, Ph.D., Program Head
Telephone: 432-8728

Robertta Pajunen, Program Assistant,
Telephone: 432-8637

Course Information
Telephone: 432-8467

APPLIANCE REPAIR

TAPR 910 Appliance Repair: Electricity (42 Hours) – Covers fundamental concepts of electricity to appliance repair. Topics include OHM's and Kirchoff's Laws and applications, construction and analysis of DC circuits; conductors and insulators; wire sizes, ratings and fusing; types and uses of meters; laws and applications of magnetism; measurement and applications of alternating current; types and applications of inductance and capacitance; RLC circuits; construction and applications of transformers; solenoids and relays; principles and applications of universal motors, shaded pole motors, and slip phase motors; and motor and switch analysis. This course is a prerequisite for all other appliance repair courses. After successfully completing TAPR 910 to 917, students receive a Certificate of Completion in Appliance Repair.

TAPR 911 Appliance Repair: Electronics (30 Hours) – Introduction to semi-conductors; principles, applications and testing of diodes, SCRs and TRIACs; half-wave and full-wave rectification; and voltage doubler circuits. Prerequisite: TAPR 910.

TAPR 912 Appliance Repair: Microwave Ovens (30 Hours) – Introduction to the advantages and characteristics of microwaves; how microwaves cook food and cooking techniques; safety, leak testing and introduction to types of leak detectors; purpose of cavity lights switches and magnetron cooling fans; purpose and construction of wave guides, magnetrons and door assemblies; function and purpose of door interlocks; purpose of thermal protectors and oven cavity thermostats, power and filament transformers, diodes, capacitors, power selectors, relays, wire knit seals, browning elements; ventilation, MOV and TRIACs; explanation of voltage doubler circuits, convection and combination cooking; schematic reading of flow charts; purpose of humidity sensors; cooking with meat probes and humidity sensors (auto cook); types of cavity liners; function of stirrers; introduction and installation of spacesaver microwave ovens. Prerequisite: TAPR 905 or 911.

TAPR 913 Appliance Repair: Electric Dryers (30 Hours) – Principles of automatic dryers; dryer construction, interpretation of timer cycle charts and timer cycle to line diagrams; motor and centrifugal switch construction; types of dryers, heaters and thermostats; purpose of timers, heat selector switches, venting; door switches, push-to-start switches, proper air flow; and systematic troubleshooting from customer complaints. Prerequisite: TAPR 911.

TAPR 914 Appliance Repair: Washers (30 Hours) – Covers the purpose, principles, types and construction of washers and the purpose and principles of timers; local electrical and plumbing codes; principles and operation of drive motors, water pumps, transmissions, agitators, clutches, spin mechanisms, solenoids; LID switches, water valves and inlets, and methods of controlling the amount of water; purpose of water temperature selection switches; construction and serviceability of timers; discussion and analysis of Inglis, GE, Speed Queen, Maytag, and Westinghouse style washers. Prerequisite: TAPR 910.

TAPR 915 Appliance Repair: Dishwashers (30 Hours) – Covers types and construction of dishwashers; types of pumps; optimum conditions for dishwashing; washability problems; principles and operation of door switches; purpose and principles of timers and sani cycles; purpose of heating elements, sani thermostats; purpose and principles of solenoids; principles and construction of motors and relays, and drying fan motors; principles and operation of water valves; identify soap and rinse agent dispensers and time frames; and operation of water level switches. Prerequisite: TAPR 910.

TAPR 916 Appliance Repair: Standard Ranges (30 Hours) – Covers types of ranges and heating elements; electrical and fusing requirements; types, construction and substitution of switches; purpose of selector switches; purpose, types, construction and calibration of manual oven controls; purpose and construction of clock timers and heat-sensing safety switches. Prerequisite: TAPR 910.

TAPR 917 Appliance Repair: Self Clean Ranges (30 Hours) – Covers purpose, construction and operation of relays; switch and thermostat contact charts; re-drawing line diagrams from schematics; purpose, principles and construction of self-cleaning ovens and controls; and the principles of catalytic and/or pyrolytic smoke eliminators. Prerequisite: TAPR 916.

COMPUTER TRADES

TCMP 911 Microcomputer Systems Maintenance 1 (30 hours) – The first of a two-part advanced course for those who have some background in electronics, the ability to use test instruments and to read electronic schematics. TCMP 911 reviews analog/digital electronics, basic microcomputer architecture, troubleshooting methodology for sophisticated systems, and hands-on training in advanced uses of test instruments. Students also practice soldering and de-soldering of electronic components. After successfully completing TCMP 911 and 913, students receive a Certificate of Completion in Microcomputer Systems Maintenance. Prerequisite: TELX 950 or equivalent.

TCMP 912 Introduction to Electronics for Microcomputers (90 hours) – Designed for students who want to take microcomputer systems courses, but who have little or no background in electronics. The course covers DC and AC resistive circuit analysis; capacitor action in DC circuits; fundamentals of AC; use of test equipment, e.g. multimeter and oscilloscope; diode action in DC circuits; rectifiers and power supplies; basic transistors; transistor applications, transistor switch; logic circuit interface; logic function implementation. Prerequisite: Gradé 11 Algebra.

TCMP 913 Microcomputer Systems Maintenance 2 (30 hours) – The knowledge and skill developed in TCMP 911 are applied to the repair of the Apple II computer system series. This course teaches maintenance skills with hands-on instruction in the repair of keyboards, disk drives, controllers and monitors. Software diagnostic programs are demonstrated. After successfully completing TCMP 911 and 913, students will have the necessary repair skills for Apple II and related computers. Prerequisite: TCMP 911 or equivalent.

TCMP 915 Microcomputer Systems Operating Principles and Applications 1 (120 hours) – The first of three courses in this program. Combinational and sequential circuit analysis, design, implementation and troubleshooting are covered, specifically logic circuit minimization using Boolean algebra; truth tables; circuit implementation using programmable arrays; flip-flop types and applications; latch circuits; counters; shift registers; frequency dividers; digital circuit design. After successfully completing TCMP 915, 917 and 919, a Certificate of Completion in Microcomputer Systems Operations and Applications is issued. Prerequisite: TCMP 912 or equivalent.

TCMP 917 Microcomputer Systems Operating Principles and Applications 2 (120 hours) – A continuation of digital circuit analysis, design, implementation and troubleshooting covered in TCMP 915. Specifically, arithmetic circuits, microcomputer memory device types and specifications, memory address decoding, memory subsystem organization, serial data transmission, digital system design. Prerequisite: TCMP 915 or equivalent.

TCMP 919 Microcomputer Systems Operating Principles and Applications 3 (120 hours) – Topics include microcomputer bus structure; micro-computer subsystems; IBM-XT subsystem and circuit analysis; microcomputer troubleshooting and maintenance; MS-DOS operating system use; systems programming in MS-DOS; levels of software; demonstration. Prerequisite: TCMP 917 or equivalent.

TCMP 923 Computers for the Trades 1 (24 hours) – Introduces computer literacy to the tradesman. Includes common DOS commands, sample applications, and an overview of computer hardware and software.

TCMP 925 Computerized Estimating (18 hours) – Designed for electrical contractors and estimators, this course introduces and familiarizes the estimator, without previous computer training, with all fundamentals of a computerized estimating system. Includes: takeoff procedures; data manipulation; interfacing with pricing packages; modification to the estimator's own system; and use of the system for other business functions like wordprocessing, job costing and accounting.

TCMP 935 Microcomputer Interfacing (30 hours) – Students apply knowledge gained in TCMP 919 to designing microcomputer circuits for controlling industrial and commercial systems (building security systems, process control systems, laboratory equipment controllers, etc.). Topics include serial and parallel data transmission; serial and parallel ports; ACIA operation and circuit design; software control of microcomputer ports using BASIC. A Certificate of Attendance in Microcomputer Interfacing is issued to students who successfully complete this course. Prerequisite: TCMP 919 or equivalent.

DRAFTING TRADES

DRFT 901 Drafting: Basic (42 hours) – An introductory course in fundamental architectural, mechanical and civil drafting. Provides a foundation in basic drafting including the use of standard equipment and tools, line work, lettering, applied mathematics, plane geometry, orthographic projection, dimensioning, sections, charts and graphs. Prepares students for careers in drafting or further drafting studies. Students receive an introduction to computer-assisted drafting (CAD), with limited hands-on experience. Projects are self paced.

DRFT 903 Drafting: Advanced (42 hours) – Expands on the basic drafting course and allows students to progress into their drafting specialty: architectural, civil, mechanical or structural, which they pursue in-depth, touching on the others as they interrelate. Part of the required project for this course will be produced on a computer. After successfully completing DRFT 901 and 903, students have an overview of the parameters affecting

building design and construction. A Certificate of Completion in Drafting is issued. Prerequisite: DRFT 901 or equivalent.

DRFT 908 Computer Drafting for the Trades 1 (39 hours) – This course revolves around the use of the Autocad program and a basic introduction to MS DOS. The assumption is that the student has had no computer experience. The objective of the course is to have the student produce a complete drawing, and edit an existing drawing, all with the use of the most up-to-date computer equipment. Prerequisite: DRFT 903 or equivalent.

DRFT 910 Drafting Specialization: Electrical 1 (60 hours) – Graduates of the four levels are qualified for employment in the high-tech, high-demand field of Electrical Drafting. The course includes distribution systems, single-line diagrams, motor lists and data, grounding and bonding, lighting, and the inter-relationship with other plans. Negotiations are presently underway for ASTT Certification. Prerequisite: DRFT 903 or equivalent.

DRFT 911 Drafting Specialization: Electrical 2 (30 hours) – Includes power and branch circuit layout, conduit and runway systems, and cable trays. Prerequisite: DRFT 910.

DRFT 912 Drafting Specialization: Electrical 3 (30 hours) – Includes cable schedules, instrumentation and heat tracing. Prerequisite: DRFT 911.

DRFT 913 Drafting Specialization: Electrical 4 (96 hours) – Includes motor schematics, wiring diagrams, controls, CADD systems, specifications, and the Canadian Electrical Code. Prerequisite: DRFT 912.

DRFT 915 Drafting Specialization: Process Piping 1 (36 hours) – The student will be responsible for producing shop drawings and will be introduced to subjects such as fittings, pipes, valves and welding symbols, including the basics of isometric drawings. Prerequisite: DRFT 901 or equivalent.

DRFT 916 Drafting Specialization: Process Piping 2 (36 hours) – This course is a follow-up course to DRFT 915. It will involve work in process piping, flow diagrams, heat exchangers, instrumentation, compressors and pumps. The student will be responsible for producing working drawings using advanced drafting techniques. Prerequisite: DRFT 915.

ELECTRICAL TRADES

TELC 905 Electrical Code 1 (60 hours) – Gives students a good working knowledge of the current Canadian Electrical Code (except for high voltage). It prepares students to write either the Class C or Class B Certificate examination. Training is designed to ensure that installation work will meet Canadian standards. Coverage includes the Electrical Safety Act, inspection authorities, contractor responsibilities, approval agencies, examination regulations and requirements. Prerequisite: Knowledge of wiring methods and terminology.

TELC 907 Electrical Code 2 (60 hours) – Training covers all sections of the current Electrical Code, with particular emphasis on high voltage requirements, to prepare students for writing the Class A Certificate examination. In addition to material in TELC 905, the course examines circuit conductors (types, construction, shielding); termination (splicing, stress control, hazardous locations); switch gears (OCB, ACB, load break, horn gap, metal clad, metal enclosed); control and protection (HV fuses, fault current, current relays, ground detection); grounding (high pot test, ground mat, testing methods, equipment); maintenance (substation, vault, transformer, switches); pole construction (overhead line regulations, rigging methods, clearance requirements). Prerequisite: Journeyman level experience and knowledge essential, three-phase and high voltage experience recommended.

TELC 912 Electrical Estimating (36 hours) – An ideal course for electricians who want to know how to estimate electrical work. Basic concepts are taught for the small-to-medium job range: estimating labor and materials costs, pricing and quotations; fundamentals of commercial and industrial estimating, including the analysis of request for quotation and bid documents, materials take-off from prints and schematics, labor costing, and preparation of bid documents. Prerequisite: Familiarity with electrical terminology and wiring methods.

TELC 913 Electrical Trade Qualification Refresher 1 (36 hours) – The first of a two-part program for tradespersons preparing for the Electrical Trade Qualification Examination, and for those wanting a current review. General trade knowledge: meggers, hydrometers, magnetic flux, series parallel circuits, transformers, motors, generators, alternators, motor control, are covered. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

TELC 915 Electrical Trade Qualification Refresher 2 (36 hours) – A continuation of TELC 913, this course completes the refresher program for the electrical trade. Topics include measuring and test instruments, industrial electronics and the electrical code. Prerequisite: TELC 913 or equivalent.

TELC 919 High Voltage: Principles and Practices (60 hours) – This course is recognized as providing eligibility to write the Class A Electrical Contractors Examination. Course content includes: basic high voltage theory, high voltage cables and conductors, terminations and splices, switch gears, switches and CBs, ABCs, LOCBs, control and protection, transformers, grounding, testing, pole construction, high voltage safety and CEC Rules. Prerequisite: Journeyman level of experience and knowledge.

TELC 921 Math for Electricians 1 (60 hours) – Prepares students for a career in electrical work. This mathematics upgrade course strengthens students' understanding of basic electrical concepts. Especially recommended to electrical students about to enter their first year of apprenticeship studies in the electrical trade. Coverage includes the fundamental electrical laws and their mathematical expression, algebra refresher, DC electricity and resistive circuit analysis. Prerequisite: Grade 10 Mathematics.

TELC 923 Math for Electricians 2 (60 hours) – Provides students with the mathematical background they need to understand AC electricity. The course is recommended for students about to enter their second year of apprenticeship studies in the electrical trade, and to others who are seeking a thorough understanding of AC principles. Prerequisite: TELC 921 or equivalent.

TELC 925 Math for Electricians 3 (60 hours) – Recommended for students about to enter their third year of apprenticeship studies in the electrical trade, and to others interested in an understanding of three-phase circuits and equipment. Topics include Wye and Delta systems, alternators, transformers, and power factor correction. Prerequisite: TELC 923 or equivalent.

TELC 927 Motor Control 1 (30 hours) – A practical, hands-on course covering the basic principles of conventional motor control for those working in industrial settings. Topics include fractional horsepower, starters, magnetic line voltage starters, pilot devices, circuit layout, interpretation and application of schematics, and wiring diagrams. After successfully completing TELC 927 and 928, a Certificate of Completion in Motor Control is issued. Prerequisite: Familiarity with wiring methods and terminology.

TELC 928 Motor Control 2 (30 hours) – A continuation of TELC 927 where three-phase, multispeed controllers; synchronous motor controls; DC controllers; motor drives and programmable controllers are introduced. Ample hands-on training provides students with a solid grasp of motor control principles and industrial applications. After successfully completing this course, students are equipped to install and service motor control circuits. Prerequisite: TELC 927 or equivalent.

TELC 929 Residential Wiring 1 (36 hours) – Anyone interested in installing residential wiring or altering existing electrical wiring will find this course extremely helpful. Safe wiring practices, simple circuit design, device installation and the electrical code are covered. Prerequisite: Familiarity with wiring methods and terminology.

TELC 930 Residential Wiring 2 (36 hours) – A continuation of TELC 929 which gives students more lab practice and the opportunity to work on complex electrical circuits. Topics include service grounding, hot tubs, water hazards, code and safety requirements, sizing of service conductors and voltage drops. In many cases, successful students attain a sufficient level of practical understanding and skills to be able to completely wire a new house. Prerequisite: TELC 929 or equivalent.

ELECTRONIC TRADES

TELX 950 Introduction to Electronics (36 hours) – Designed for those with little or no understanding of electrical terms and conventions. Course covers resistance, capacitance, inductance, Ohm's Law, Kirchhoff's Laws, simple trigonometry and other subjects basic to the electronics trade. Prerequisite: Grade 10 Mathematics.

TELX 951 Electronics 1: Solid State Devices (36 hours) – The first of a series of industrial electronics courses. This one focuses on diodes, semi-conductor theory, zeners, LEDs, transistors, mosfets, SCRs, triacs, diacs, UJTs and programmable UJTs. A Certificate of Attendance in Microprocessors is issued to students who successfully complete TELX 951, 952, 953, 954 and 955. Prerequisite: TELX 950 or equivalent.

TELX 952 Electronics 2: Digital Techniques 1 (36 hours) – An introduction to binary and BCD number systems and codes, logic gates, truth tables, Boolean algebra, flip flops, counters, shift registers, IC timers and troubleshooting techniques. Students build and test a circuit, then find and correct a fault inserted by the instructor. Prerequisite: TELX 950 or equivalent.

TELX 953 Electronics 3: Digital Techniques 2 (36 hours) – The sequel to TELX 952, this course deals with logic parameters (speed, current drive capabilities, etc.), comparison of types of TTL logic (74S, 74LS, 74ALS, etc.), CMOS, tri-state logic, binary and BCD arithmetic, memory chips and circuits. Prerequisite: TELX 952 or equivalent.

TELX 954 Electronics 4: Microprocessors 1 (36 hours) – Based on the 6800 microprocessor, the course covers microcomputer basics, architecture, addressing modes, branching, computer arithmetic and simple programming in machine language. Prerequisite: TELX 953 or equivalent.

TELX 955 Electronics 5: Microprocessors 2 (36 hours) – A continuation of TELX 954. The course focuses on stack operations, subroutines, input/output (I/O) operations, interrupts and interfacing simple circuits (i.e. displays and switches). A Certificate of Attendance in Microprocessors is issued to students who successfully complete this course and TELX 954/953/952/951. Prerequisite: TELX 954 or equivalent.

TELX 970 Operational Amplifiers (36 hours) – Basic linear amplifier circuits (inverting circuits, non-inverting circuits, summing amplifiers, etc.); non-linear signal processing circuits (comparators, Schmitt triggers, etc.); differentiators and integrators; voltage and current circuits; Norton op-amps and instrumentation amps. Prerequisite: TELX 951 or equivalent.

TELX 981 Programmable Controllers 1 (36 hours) – Provides an introduction to programmable controllers as they are utilized in industry today. The course concentrates on the basic structure of PLC's and how they handle data. An overview of hardware and installation methods is discussed. Programming exercises emphasize hands-on training and are designed to introduce the student to safe programming techniques and techniques commonly used in industry. A Certificate of Completion in Programmable Controllers is issued to students who successfully complete TELX 981, 982 and 983. Prerequisite: Industrial wiring experience and familiarity with motor control schematics.

TELX 982 Programmable Controllers 2 (36 hours) – A continuation of TELX 981 in which PLC theory is explored through hands-on programming exercises that investigate the power of the PLC which may be realized through the use of data manipulation, math, data comparison, and logical comparison instructions. During this course, dedicated software run on personal computers is used and the documentation power of this software is explored. Prerequisite: TELX 981.

TELX 983 Programmable Controllers 3 (36 hours) – Deals with the use of "smart cards", eg. analog, ASCII, etc., and an introduction to data communications as related to PLC's. Various communication protocols are explored and programming techniques are used to make the communication between PLC's safe and effective. All of these courses emphasize safe programming techniques and installation practices. Prerequisite: TELX 982.

TELX 988 Programmable Controllers 1S (35 hours) – Provides an introduction to programmable controllers as they are utilized in industry today. The course concentrates on the basic structure of PLC's and how they handle data. An overview of hardware and installation methods is discussed. Programming exercises emphasize hands-on training and are designed to introduce the student to safe programming techniques and techniques commonly used in industry. A Certificate of Attendance for the Programmable Controllers Seminar is issued to students who successfully complete TELX 988, 989 and 990. Prerequisite: Industrial wiring experience and familiarity with motor control schematics.

TELX 989 Programmable Controllers 2S (35 hours) – This course is a continuation of the theme followed by TELX 988 in that the theory of the PLC is explored through hands-on programming exercises that investigate the power of the PLC which may be realized through the use of data manipulation, math, data comparison, and logical comparison instructions. During this course, dedicated software, run on personal computers, is used and the documentation power of this software is explored. Prerequisite: TELX 988.

TELX 990 Programmable Controllers 3S (35 hours) – Deals with the use of "smart cards", eg. analog, ASCII, etc., and an introduction to data communications as related to PLC's. Various communication protocols are explored and programming techniques are used to make the communication between various PLC's safe and effective. All of these courses emphasize safe programming techniques and installation practices. Various types of equipment are available to the student: Modicon 984X and 98431; Telemecanique; GE; and Allan Bradley 215 and PLC 5. As equipment changes continuously due to the upgrading of facilities, enquiries may be made prior to registration, if training is required on a specific type. Prerequisite: TELX 989.

ELECTRONICS: GUIDED LEARNING

This is a series of ten practical courses on electronic circuitry and its function in current industrial equipment, designed for anyone who services electronic equipment, or who requires a practical course in electronics and microprocessor troubleshooting. Each course is seven weeks long, one night a week. All you need to join the first course is an interest in electronics and some knowledge of basic arithmetic.

These courses emphasize hands-on experience starting with learning the test equipment and simple components, progressing to more complicated components and the microprocessor circuits. By the end of MTCE 905, you will be familiar with microprocessor programming fundamentals and micro-peripheral circuits.

Each course consists of approximately 20 hours of home study and 21 hours supervised lab time, with emphasis on hands-on practice in operation and troubleshooting. With approval, you may be able to skip the beginning courses and start at a more advanced level.

MTCE 901 Electronics 1: Solid State Devices (21 hours) – For those with little or no experience with solid state components. The first lab experiments will show you how to use test equipment and build and test analog circuits.

MTCE 902 Electronics 2: Digital Techniques 1 (21 hours) – An introduction to integrated circuits. Boolean Algebra, number systems and conversion codes are included. Application of Op Amps, Inverters, Logic Gates, and Flip Flops is covered.

MTCE 903 Electronics 3: Digital Techniques 2 (21 hours) – A continuation of MTCE 902. The course covers logic circuit applications and some additional specialized chips. Prerequisite: MTCE 902.

MTCE 904 Electronics 4: Microprocessors 1 (21 hours) – This course will cover the programming of microprocessors. Experiments will allow you to practice machine language programming and debugging. Prerequisite: MTCE 903

MTCE 905 Electronics 5: Microprocessors 2 (21 hours) – The continuation of MTCE 904 which covers the fundamentals of interfacing. You will wire and troubleshoot additional logic circuits to work in conjunction with the MPU. Prerequisite: MTCE 904.

MTCE 906 Electronics 6: Microprocessors Interfacing 1 (21 hours) – Since interfacing is a major part of all microprocessor applications, this course covers several interfacing situations. Topics include: DAC, ADC, Serial Data Communications, ACIA, Memory Types. Prerequisite: MTCE 905.

MTCE 907 Electronics 7: Microprocessors Interfacing 2 (21 hours) – The continuation of MTCE 906. Examines the whole 6800 family of processors. Topics include: Programmable Timer Modules (PTM), 68000 MPU, PIA, PTM, and ACIA interfaces. Prerequisite: MTCE 906.

NOTE: The following two courses may be taken separately from the first seven.

MTCE 913 Programmable Controllers (21 hours) – Introduces the use of the Programmable Logic Controller and its use in industrial control systems. Emphasis will be on programming basic control circuit problems. Note. This course is for people with or without electrical background.

MTCE 928 Operational Amplifiers (21 hours) – Introduces the use of operational amplifiers in industrial control. Covers signal conditioning and wave generation functions.

MTCE 936 Build Test and Run Your Own Computer (21 hours) – Teaches you the basics of a personal computer by assembling a PC and running programs. You will become familiar with the operating system and some utility programs. A complete run through the hardware covers keyboard and five internal PC board waveforms and functions. Prerequisite: MTCE 907

ORIENTATION

An orientation evening is held one week before the start of each session. The instructor will be available at these sessions to answer any inquiries. Registered students attending these sessions are provided with a self-study manual. Students are expected to study the manual in their own time, and work through each experiment in class. An instructor is available to assist, if required.

REFRIGERATION: DOMESTIC

TREF 950 Domestic Refrigeration 1 (60 hours) – Includes knowledge of the local electrical code; history of refrigeration (preservation of food); definition of principles of heat flow units; temperature scales and conversion; heat types and calculations; pressure units, scales and conversions; principles, types and effects of refrigeration; types and properties of refrigerants; temperature and pressure relationships (gas laws); boiling point and saturation; refrigeration and evaporation; principles and types of compressors, condensers, evaporators, heat exchangers, controls; principles of manual defrost refrigeration cycles and chest and upright freezer cycles; and analysis of faulty-sealed systems and electrical circuit failure. Upon successful completion of TREF 950 and 951, a Certificate of Completion in Domestic Refrigeration is issued. Prerequisite: TAPR 910.

TREF 951 Domestic Refrigeration 2 (48 hours) – Includes: principles of cycle defrost refrigeration cycles and frost-free refrigeration cycles; principles and components of electric defrost and hot gas defrost; principles of SXS refrigerators; principles and operation of ice makers and water dispensers. Prerequisite: TAPR 950.

FOOD TRADES

HOSP 903 Cooking TQ Refresher (30 hours) - Provides students with the necessary theory to enable them to write the provincial cooking examination. Students who enrol in this course require working knowledge of cooking and should intend to write the Ministry of Labour's Cooking Trades Qualification exam. Topics include tools and equipment; meats, fish and poultry - refrigeration, freezing, thawing, cutting, trimming, preparation, roasting, baking, grilling, broiling; sauces and stocks; entrées and main dishes; potato and vegetable cooking; farinaceous and cereal dishes; egg dishes; soups; short-order work; delicatessen, appetizers and cold buffets; breads and buns; pies, cakes and desserts.

HOSP 914 Cake Decorating Basic to Advanced (18 hours) - Persons with artistic ability and a knack for creative design will find this course develops a skill which could bring pleasure, a second income or even a career. Teaches the various techniques involved in professional cake decoration. Students learn the art of coating cakes, applying borders, writing and flowers on cakes, color combinations, color tinting, non-icing decorations and surface textures. Upon successful completion of this hands-on course, students will be able to decorate many types of cakes including wedding and other specialty cakes. Employment may be sought with a bakery or graduates may opt for self-employment.

MECHANICAL INDUSTRIES TRAINING

Automotive Mechanic
Floor Covering
Glazing
Heavy Duty Mechanic
Machinist
Mathematics for Mechanical Trades
Millwright
Painting and Decorating
Refrigeration: Commercial
Small Engine Mechanic
Upholstery

School of Trades Training
432-8302

Course Information

Telephone: 432-8467

Rose Kunkel, Program Assistant

Telephone: 432-8205

David Huesken, Program Head

Telephone: 432-8685

Ron Evans, Associate Dean
Mechanical Industries

AUTOMOTIVE MECHANIC TRADE

AUTO 900 Automotive Mechanical Repair TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Automotive Mechanical Repair Trade Qualification Examination, and for those wanting a current review. 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. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll. Textbook student must purchase Auto Mechanics Fundamentals by Stockel.

AUTO 905 Fundamentals of Electronic Testing (18 hours) – This course is designed for the professional technician who has limited experience in electrical and electronic testing. Topics include: Electrical circuits, Ohm's Law, use of analog and D.V.O.M. meters, an overview of automotive computer operation, wiring schematics, use of hand held "scan tools", basic do's and don't's of circuit testing. Will provide the student with the minimum skills required to enter prerequisite courses such as: AUTO 921, AUTO 927, AUTO 929, AUTO 946.

AUTO 907 Automotive Tune-up and Electrical (42 hours) – This highly developed course allows students with limited experience to perform automotive tune-ups and electrical testing. Successful graduates will have a working knowledge of circuit testing, ignition operation and servicing, tune-up procedures, engine components and operation, lubrication and cooling systems, fuel systems, emission controls. Emphasis is placed on hands-on instruction. Prerequisite: Familiarity with automotive parts, tools and shop safety.

AUTO 908 Automotive Electrical/Electronics (42 hours) – An advanced course for experienced automotive mechanics specializing in fuel system service and advanced tune-up techniques. Repair and maintenance of electronic components and emission

control devices in automobiles is explored. Topics include carburetion, electronic carburetion, fuel injection turbocharger operation, engine electrical, ignition systems, charging system theory and testing, introduction to the operation and testing of computer controls. Upon completion of this course students will be specialized in advanced automotive engine diagnosis, troubleshooting and repair. Prerequisite: AUTO 907 or equivalent.

AUTO 909 Electronic Engine Control/Fuel Injection (30 hours) – An advanced course for experienced automotive mechanics specializing in servicing late model, microprocessor-controlled engine and fuel injection systems. Prerequisite: AUTO 908 or equivalent. Textbook: Student must purchase Computerized Engine Control by D.H. King.

AUTO 910 Information Processing (12 hours) – Familiarizes students with the new generation compilation, access and processing. Topics include use of G.M., Ford and Chrysler service manuals, alternate sources of service information, filing and indexing of service information, micro-fiche usage, personal computers as a resource. Prerequisite: AUTO 905, 909 or equivalent.

AUTO 911 G.M. Computer Control Systems (30 hours) – This advanced course covers all facets of General Motors computerized systems. Topics covered are C3i and DIS ignition systems, CCC fuel, engine and emission controls, throttle body and multi-point fuel injection, on-board diagnostics and data retrieval, Quad 4 engine design and electronics. Prerequisite: AUTO 909 or equivalent.

AUTO 914 Ford Computer Control Systems (30 hours) – This advanced course covers all facets of Ford computerized systems. Topics are TFI ignition systems, EEC4 fuel, engine and emission injection, Central and Multi-point fuel injection, on-board diagnostics and data retrieval, Ford "Star" tester and break-out box operation. Prerequisite: AUTO 909 or equivalent.

AUTO 916 Chrysler Computer Control Systems (30 hours) – This advanced course covers all facets of Chrysler computerized systems. Topics are computerized systems, EFI fuel, engine and emission controls, single and multi-point fuel injection, on-board diagnostics and data retrieval. Prerequisite: AUTO 909 or equivalent.

AUTO 918 Import Computer Control Systems (30 hours) – Covers all facets of the major Japanese and European computerized systems needed by students who wish to be qualified to perform advanced diagnosis and repair of imported vehicles. Topics are computerized ignition systems, fuel, engine and emission controls, throttle body and multi-point fuel injection, on-board diagnostics and data retrieval. Prerequisite: AUTO 909 or equivalent.

AUTO 919 Body Electronic Computer Systems (24 hours) – An advanced course for students who want to diagnose and repair body electronic support systems. Topics include electronic displays, power seats with memory, keyless entry systems, photo-diode controlled systems, electronic accessories. Prerequisite: AUTO 905, 909 or equivalent.

AUTO 920 Automotive Air Conditioning (42 hours) – For mechanics who want to increase their job opportunities by acquiring a specialized skill, this course gives a thorough understanding of automotive air conditioning systems, and the training to service and install these systems according to manufacturers' specifications. The course includes theory of operation; system operation and adjustments; performance tests, repairs and diagnosis; compressor service; introduction to automatic temperature and climate controls. Prerequisite: Students should have completed a substantial portion of an apprenticeship or have experience with automotive mechanics. Textbook: Student must purchase Auto Air Conditioning by Mitchell.

AUTO 921 Air Conditioning Electronic Controls (6 hours) – An advanced course designed for professional technicians dealing with an overview of basic A/C controls leading into various electronic climate control systems. Emphasis on diagnosing computer controlled features. Prerequisite: AUTO 905, 909 or equivalent.

AUTO 922 Automotive Brake Servicing (30 hours) – For mechanics who require upgrading in brake servicing. The course provides intensive training in hydraulics, friction, dual-piston master cylinders, hoses, quick take-up master cylinders, wheel cylinders, valves, tubing, fluids, brake drums, brake drum assemblies, disc/rotor, disc brake assemblies, parking brakes, power brake boosters and basic A.B.S. operation. After successfully completing this course, students will be able to perform almost any inspection/repair necessary on disc/drum brake assemblies. Prerequisite: Minimum two years mechanical experience. Textbook: Student must purchase Automotive Brake Systems by Harper & Row.

AUTO 924 Automotive Front End Alignment (42 hours) – For automotive mechanics who require upgrading in suspension and alignment work. The course takes you through basic angles, to the latest front wheel and 4 x 4 alignment techniques. Topics include front and rear suspension service, the operation/repair of conventional and rack and pinion steering. After successfully completing this course, students will be able to diagnose/service suspension and steering systems, and perform front wheel alignments.

AUTO 925 Automotive 4 Wheel Alignment (6 hours) – A one-day intensive course on late model steering and alignment techniques. Topics include 4 wheel steering and 4 wheel alignment using the latest computer alignment equipment. The course is scheduled for Saturdays to permit extended shop time. Prerequisite: AUTO 924 or equivalent.

AUTO 927 Electronic Suspension Controls and Steering (12 hours) – For professional technicians who want to diagnose and repair computerized active suspension and electronic steering systems. Topics include Ford active air suspensions, Ford programmed ride control, computerized 4 wheel steering, electronic rack and pinion steering gears, import active suspension design, electronic ride height control. Prerequisite: AUTO 905, 909 or equivalent.

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. The operation of computer-controlled electronic automatic transmissions is also discussed. Upon successful completion of the course, students will be able to trace paths of power in transmissions, diagnose problems and prescribe repair procedures. Textbook: Student must purchase Automatic Transmissions and Transaxles by Harper & Row.

AUTO 929 Automotive Automatic Transmission Computer Controls (12 hours) – An advanced course needed by students who wish to qualify to diagnose and repair the automatic transmission related electronic systems of domestic and imported cars. Topics include review of A/T fundamentals, lock-up converter controls, electronic shift controls, electronic overdrive. Prerequisite: AUTO 905, 909 or equivalent.

AUTO 946 Automotive A.B.S. Anti-Lock Brakes (12 hours) – An upgrading course designed for professional technicians who want to repair brake related electronic systems. Course covers the operation and diagnosing of Bosch and Teves anti-lock brake systems. Prerequisite: AUTO 905, 909 or equivalent.

AUTO 950 Natural Gas Fuel Systems for Vehicles (NGV) (18 hours) – Installing and servicing NGV conversions. Prepares students to write the Provincial Gas Safety Branch Licensing Exam. Prerequisite: AUTO 957. 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 enroll.

AUTO 951 Alternate Fuel Systems for Vehicles (LPG & NGV) (60 hours) – Designed to prepare persons wishing to write the examination to qualify for the NGV and LPG License offered through the Gas Safety Branch. Successful students may seek employment with LPG and NGV conversion centres, service stations, automobile manufacturers, accessories stores, or be self-employed. Topics include safety, basic test equipment, characteristics of LPG and NGV, engine and ignition requirements, LPG and NGV components, installation, refuelling, tune-ups and troubleshooting. The course is scheduled on Saturdays to permit extended shop time. Prerequisite: Minimum of third-year level apprentice mechanic. 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 enroll.

AUTO 952 Alternate Fuel Systems Update (12 hours) – An advanced course designed for licensed LPG/NGV mechanics who want an upgrade on the latest equipment and developments in the industry. Includes the latest European and domestic mixer and regulators, computer-controlled feedback LPG systems, installation procedures on late model microprocessor fuel injected vehicles, and advanced troubleshooting techniques. Prerequisite: LPG/NGV License.

AUTO 957 Propane Fuel Systems for Vehicles (LPG) (30 hours) – Installing and servicing LPG conversions. Prepares students to write the Provincial Gas Safety Branch Licensing Exam. Prerequisite: 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 enroll.

FLOOR COVERING TRADE

FLOR 920 Carpet Installation Basic (24 hours) – An introduction to carpet laying for those considering employment in the industry, and for those wishing to enter the trade at the pre-apprentice level. Hands-on training in the use of tools and application methods and instruction in fabrics, weaves, product lines and surface preparation, are covered. Students are taught to recognize, identify and explain proper installation procedures. With experience, students may find employment opportunities based on further training.

GLAZING TRADE

GLAZ 901 Blueprint Reading for Glaziers (18 hours) – For glaziers who wish to improve their understanding of glazing trade blueprints. The course includes intensive use of architectural drawings and shop drawings to improve glaziers confidence in blueprint reading.

GLAZ 902 Storefront Fabrication and Installation (30 hours) – For glaziers who wish to improve their storefront fabrication and installation skills. The course covers various types of commercial storefront materials. Students learn to fabricate and install a storefront in the fully equipped glazing shop training area. Power tools are provided, but students are required to supply their own basic hand tools.

GLAZ 903 Glass and Mirror Fabrication and Assembly (30 hours) – Provides basic cutting, edging and drilling, glass and mirror skills for glaziers and others. The course covers various

types of glass and mirror. Students practice cutting in the fully equipped glazing shop training area. Advanced students learn to fabricate and install a mirror wall. All necessary tools are provided.

GLAZ 904 Glazing Pre-employment (240 hours) – Introduces the basics of glazing to individuals about to enter the industrial glazing trade. Basic use of tools, safety, blueprint reading, cutting and installation of various glass products is taught in the fully equipped shop training area.

GLAZ 905 Skylight Fabrication, Assembly and Installation (12 hours) – This Saturday morning course is a general interest class for persons wishing to learn how to install skylights. Various residential and commercial skylight systems will be discussed. Students learn to fabricate and install a commercial skylight in the fully equipped glazing shop training area. Power tools are provided, but students are required to supply their own basic hand tools.

HEAVY DUTY MECHANIC TRADE

HDMX 901 Heavy Equipment Preventive Maintenance for Owners/Operators (36 hours) – Familiarizes heavy equipment owners/operators with preventive maintenance and the service and repair techniques used to achieve this. Instruction is provided for various engines, drive trains, hydraulics, steering, brakes, servicing and troubleshooting. Students will be able to diagnose simple problems, recognize the importance of preventive maintenance and apply maintenance procedures to servicing trucks, loaders, backhoes, etc.

HDMX 902 Mobile Hydraulics (48 hours) – For heavy equipment mechanics/operators wanting to upgrade their knowledge of hydraulics for forklifts, front-end loaders and stationary equipment. Students are taught to understand hydraulics, fluids, reservoirs, pumps, motors, valves, hoses and fittings; cylinder accumulators; coolers and schematics; analyze component failures, troubleshoot and perform maintenance diagnostics and testing. Topics include hydraulic principles, fluids and accessories; piping and fittings; pump operation; principles of actuator and valve operations; mobile circuits and schematics; power steering; hydrostatic drives, leaks and seals. Students will be able to analyze component requirements, diagnose failures and prescribe solutions.

HDMX 905 Heavy Duty Mechanic TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Heavy Duty Mechanic Trade Qualification Examination, and for those wanting a current review. Theoretical 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. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

HDMX 906 Heavy Duty Diesel Engines (48 hours) – Theory consisting of operation, construction and design of diesel engines and their fuel systems, service and maintenance techniques, tune-up procedures and troubleshooting techniques, will be covered in the classroom and shop.

HDMX 910 Heavy Duty Electrical Troubleshooting (48 hours) – For heavy duty truck and equipment owners/operators, persons experienced with hydraulic equipment and apprentices to the heavy duty mechanic trade. The course reviews theory, test procedures and troubleshooting techniques of circuits and components related to trucks, buses and heavy duty equipment. Topics include electrical theory, circuits and math; test instruments; batteries, chargers and starters; DC charging systems

(generators and regulators); alternators; basic and transistorized ignition systems; automatic shut-down systems on diesel engines; miscellaneous electrical circuits on trucks, buses and heavy equipment. Successful students will understand and be able to troubleshoot problems in heavy duty equipment systems.

HDMX 915 Heavy Duty Transmissions and Differentials (48 hours) – A refresher course for experienced heavy duty mechanics, and an information course for apprentices. The course covers clutches, torque converters, transmissions and differentials. Topics include the operation of planetary transmissions; torque converters; hydraulic pumps and controls; bevel gear differentials; valves and hydro-dynamics. Prerequisite: Students should have basic knowledge of various types of transmission and differential components and terminology, and work experience in the heavy duty mechanic trade.

HDMX 920 Air Brakes for Drivers (18 hours) – For drivers who plan to write the Provincial Air Brake Endorsement ticket for driving air brake equipped vehicles. While driver training is not provided, driver demonstrations and tips on driving are an important part of the curriculum. Classroom instruction includes an introduction to air brake theory and basic components of air brake systems: warning devices, valves, tractor/trailer operation, troubleshooting and safety.

HDMX 925 Air Brakes for Mechanics (30 hours) – An ideal refresher course for mechanics who have limited experience servicing air brakes, and for owners/operators of trucks/fleets who wish to know more about this braking system. The course includes principles of air brakes; purpose and function of system components; existing air brake schedules and current dual air systems for truck and tractor/trailer units; maintenance, repair and troubleshooting.

HDMX 930 Commercial Transport Mechanic TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Commercial Transport Mechanic Trade Qualification Examination, and for those wanting a current review. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

HDMX 950 Commercial Vehicle Inspector (30 hours) – This course prepares students to write the Provincial Inspectors License Exam. B.C. Ministry of Transportation and Highways curriculum is used. Prerequisite: Either a B.C. Automotive Mechanic TQ, Heavy Duty Mechanic TQ or Commercial Transport Mechanic TQ.

MACHINIST TRADE

MACH 900 Machinist TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Machinist Trade Qualification Examination, and for those wanting a current review. Theoretical instruction is given on safety; regulations for the use of hand tools; instruments and equipment; blueprint reading; grinders; metal lathes; milling machines; vertical boring and turning machines; horizontal boring, drilling and milling machines; shapers, planers and slotters; power drills and saws. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

MACH 905 Machine Shop Operator 1 (36 hours) – Provides a basic understanding and practical experience of machine shop operation and the safe operation of machine shop equipment. Training is mainly hands-on for the operation of drills, saws and lathes. Students progress according to their capabilities. Shop

projects are self-paced and sequentially arranged. After successfully completing the course, students may advance to MACH 906.

MACH 906 Machine Shop Operator 2 (36 hours) – Provides practical experience in general machine shop operation, and advanced instruction in the safe operation of milling machines and cylindrical and surface grinders. Students progress according to their capabilities. Projects are self-paced and sequentially arranged. After successfully completing this course, students may advance to MACH 907. Prerequisite: MACH 905.

MACH 907 Machine Shop (36 hours) – For students to build up their basic operator skills through intensive, hands-on instruction and shop practice. The course provides an opportunity for new operators to apply the practical skills learned in MACH 905/906 to projects that will improve their confidence and proficiency. Recommended to individuals with limited recent shop experience as a primer for advanced machining programs.

MACH 910 Introduction to Computer Numerical Control (48 hours) – Allows machinists to keep current by learning on the latest state-of-the-art computerized equipment. The course examines the operation of a Computer Numerical Control lathe with reference to machining centres as necessary. Topics include: review of basic geometry and trigonometry; terminology and definitions used with Computer Numerical Control; writing and debugging Computer Numerical Control programs; entering programs into machines and editing; setting tool offsets and use of tool nose radius compensation. Extensive use is made of BCIT's six EMCO training machines and the SL3H MORI SEIKI Lathe.

MACH 911 Computer Numerical Control Milling Operations (42 hours) – For experienced persons performing machining using Computer Numerical Control. The course emphasizes advanced Computer Numerical Control machine shop operations with student computer boards and Computer Numerical Control training equipment. After successfully completing the course, students will have a sound knowledge of the principles of operating machining equipment by computer. Prerequisite: MACH 910 or equivalent.

MACH 912 Computer Numerical Control Machining (42 hours) – A continuation of MACH 911 and MACH 914 on the following machines: OKK McV-410 VERTICAL CNC Machining Centre; MORI SEIKI SL3 CNC Lathe; CADILLAC CNC milling machines. Controllers used are MELDAS MZ, FANUC GT, FANUC 5M. Prerequisite: MACH 910, MACH 911 and MACH 914.

MACH 914 Computer Numerical Control Lathe Operations (42 hours) – A follow-up course to MACH 910. Offers instruction on set-up, programming and operations performed on a Mori Seiki SL3H Lathe with Fanuc control. Prerequisite: MACH 910 or equivalent.

MACH 923 Tool and Die Maker (48 hours) – Introduction to the theory and skills of tool and die making using current production methods. Instruction covers jig making, piercing dies, single/double compound and progressive dies, focusing on industry requirements and stressing practical production. Prerequisite: MACH 907 or equivalent.

MATHEMATICS FOR MECHANICAL TRADES

These courses are specifically for apprentices, pre-apprentices and journeymen in the construction, mechanical and steel trades.

TMAT 935 Industrial Mathematics 1 (30 hours) – Arithmetic operations, fractions, decimals, metric systems, ratio and proportion, percentages, area and volume. Prerequisite: Grade 8 Mathematics.

TMAT 936 Industrial Mathematics 2 (24 hours) – Algebra operations, equations and formulas, exponents, graphs, trigonometry, trade applications. Use of scientific calculators. Prerequisite: TMAT 935 or equivalent.

MILLWRIGHT TRADE

MILL 900 Millwright TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Millwright Trade Qualification Examination, and for those wanting a current review. Theoretical instruction is given in general fitting practices; hydraulics, pneumatics and lubrication; material handling; machine components and machine installation. Prerequisite: Students must obtain the "Millwright Manual of Instruction" prior to the course. To become eligible to write the exam, a minimum five years experience in the trade and approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

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. Prerequisite: Students must obtain Vicker's "Industrial Hydraulics Manual" prior to the course.

MILL 910 Machine and Coupling Alignment (42 hours) – Designed to cover the theory and practice of coupling alignment using state-of-the-art devices including laser optical devices. Specific methods covered are: face and rim alignment, reverse dialing, face-to-face and laser aligning method. Analysis and corrections are performed by calculations, graphical solutions and the use of computers. Prerequisite: A working knowledge of basic machinery and components.

PAINTING AND DECORATING TRADE

PDEC 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.

PDEC 929 Painting and Decorating Basic (32 hours) – Persons with little or no practical experience learn fundamental skills applicable to residential painting. The course covers theory, safety and practical skills development. Students complete practical projects under supervision in a well-equipped shop. They learn to prepare and paint most surfaces found inside and outside the home.

PDEC 930 Painting and Decorating: Initial Entry (240 hours) – Provides basic training for students about to enter the painting field. After successfully completing this course, students have enough basic skills to enter the work force as a painting apprentice, or to work in the retail market supplying paint and related materials and equipment.

PDEC 933 Painting and Decorating TQ Refresher (60 hours) – For tradespersons preparing for the Provincial Painting and Decorating Trade Qualification Examination, and for those wanting a current review. Theoretical instruction is given in basic components of paint and color mixing; basic tools and equipment; interior and exterior surface preparation; procedures for applying coatings by brush and roller; safety regulations; paint failures; natural wood finishing including staining and graining; wall coverings; spray painting and related equipment; corrosion control and industrial coatings; trade mathematics. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

PDEC 943 Complete Auto Spray Painting (40 hours) – For those with a working knowledge of spray painting. The course includes surface preparation, priming, how to auto spray-paint acrylic enamel topcoats. Students work on individual projects in an industrial shop setting using a professional spray booth and modern painting equipment. Prerequisite: Some practical experience in spray painting and a general understanding of painting theory.

PDEC 945 Wall Covering Application (24 hours) – Introduces experienced painters to professional wall covering techniques and procedures. The course reviews surface preparation, material selection, application procedures and production methods for commercial projects. Students practice hanging wall coverings in shop assignments.

PDEC 946 Wall Covering (120 hours) – A full-time course which provides extensive training in the application of modern wall coverings. Students are taught the skills needed to hang materials in a residential or commercial environment.

PDEC 952 Professional Sign Painting (240 hours) – A full-time, two month, intensive course for students wishing to learn sign painting to professional standards. The course includes: letter construction; layouts and patterns; freehand brush lettering; photographic silk screening; surfaces and preparations; applications for awning materials and flexible sign surfaces; airbrush and spray painting; loose leaf and transfer gold; truck lettering; production methods and estimating; bidding procedures. After successfully completing this course, students receive a certificate of completion in "Professional Sign Painting".

PDEC 957 Sign Painting Basic (60 hours) – A hands-on, practical training course to introduce students to professional sign painting techniques: letter construction, sign layout and design, use of colors, product knowledge, silk screening, brush techniques. Students prepare full scale signage and learn modern production methods. A certificate of completion in "Sign Painting" is issued to students who successfully complete PDEC 957 and 959.

PDEC 959 Sign Painting Upgrade (36 hours) – Advanced sign painting methods, air brush, gold leaf lettering, truck lettering and working on flexible surfaces, are covered in this course. Self-paced projects are assigned to students according to individual skill levels. It is ideal for practicing sign painters, graphics designers and those involved with commercial applications who want to learn the latest techniques in professional sign painting. After successfully completing this course and PDEC 957, a certificate of completion in "Sign Painting" is issued. Prerequisite: PDEC 957 or minimum six months working experience in sign painting.

REFRIGERATION: COMMERCIAL

TREF 913 Commercial Air Conditioning 1 (48 hours) – The first of a four-part program in commercial air conditioning. This course enables students to identify the components of a refrigeration system, explain its function, join copper tubing with flares, sedge, and soft solder/hard solder connections. Upon completion of TREF 913, 915, 916 and 921, a certificate of completion in "Commercial Air Conditioning" is issued.

TREF 915 Commercial Air Conditioning 2 (48 hours) – Enables students to identify and explain the components of a domestic gas furnace and its function, basic electrical wiring diagram symbols, and circuit component functions. Prerequisite: TREF 913 or equivalent.

TREF 916 Commercial Air Conditioning 3 (48 hours) – Students will be able to troubleshoot electrical control systems, install and adjust thermostats, remove, replace and start up compressors, clean systems. Prerequisite: TREF 915 or equivalent.

TREF 917 Refrigeration TQ Refresher (66 hours) – The first of a two-part program for tradespersons preparing for the Provincial Refrigeration Trade Qualification Examination, and for those wanting a current review. Topics include refrigeration theory, reciprocating compressors, condensers, evaporators, flow control devices and accessories. Prerequisite: Minimum five years experience in the trade. To become eligible to write the exam, approval from the Ministry of Advanced Education and Job Training area office nearest your residence is required, and recommended before you enroll.

TREF 921 Commercial Air Conditioning: Shop (36 hours) – Students troubleshoot A/C systems for malfunctions and carry out preventive maintenance. The course covers aligning motor and blower pulleys, installing L V controls (TD relays, thermostats, NSB and override controls), lock out relays, identifying and replacing faulty components in A/C units up to five-ton capacity. A certificate of completion in "Commercial Air Conditioning" is issued to students who successfully complete this course and TREF 913/915/916. Prerequisite: TREF 916 or equivalent.

SMALL ENGINE MECHANIC

SENG 900 Small Engine Powered Equipment Maintenance (48 hours) – The maintenance and general repair of engines and allied equipment for lawn mowers, chain saws, generator units and other utilities powered by air cooled two- and four-stroke engines. Hands-on practical shop training is emphasized.

SENG 910 Owner/Operator Motorcycle Maintenance (48 hours) – Provides motorcycle owners and enthusiasts with basic tune-up and preventive maintenance techniques. Theory includes basic engine operation and design, and ignition and carburetion systems. Maintenance and tune-up procedures involve timing and carburetion adjustment, brakes, tires, final drives, lubrication, chassis and electrical system service. Course content is divided equally between theory, demonstration and shop practice. Prerequisite: Students must be familiar with correct hand tool operation and shop safety.

SENG 920 Outboard Motor Maintenance (48 hours) – Provides tune-up and preventive maintenance skills including theory, demonstration and hands-on shop practice. Theory includes basic two-cycle operation, ignition, carburetion and gearcase systems. Prerequisite: Students must be familiar with correct hand tool operation and shop safety.

SENG 921 Marine Stern Drive Maintenance (48 hours) – Provides stern drive owners with basic tune-up and preventive maintenance skills. The course includes theory, demonstration

and hands-on shop practice. Theory includes basic four-cycle engine operation, ignition, carburetion and outdrive systems. Prerequisite: Students must be familiar with correct hand tool operation and shop safety.

UPHOLSTERY TRADE

UPHL 961 Upholstery Furniture Basic (36 hours) – Practical hands-on training and instruction in furniture upholstery will provide students with basic skills and knowledge to complete an individual shop project. Cutting, sewing, webbing, fabric selection and the upholstery of old furniture is taught in a fully equipped shop with individual work areas. This course is suitable for those persons who are considering full-time training at BCIT in custom upholstery and furniture finishing.

UPHL 962 Auto Upholstery Basic (36 hours) – Practical hands-on training and instruction in auto upholstery will provide students with basic skills and knowledge to complete an individual shop project. Cutting, sewing, webbing and fabric selection is taught in a fully equipped shop with individual work areas. This course is suitable for those persons who are considering full-time training at BCIT in auto upholstery.

UPHL 963 Upholstery Boat Top (36 hours) – A practical hands-on course in the design, layout, construction and installation of vinyl boat tops. Boat owners, upholsterers and marine maintenance personnel will have the opportunity to complete an individual project during this Saturday morning class. Shop projects will be coordinated by the instructor after the first session. Boats must be trailered to and from the shop each session.

PROCESS TRADE

Ron Hyde, B.S.A., M.Sc., P.Ag., Associate Dean

PRACTICAL HORTICULTURE

Steve McNamara, Coordinator
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HRTC 900 Professional Floristry Design (60 hours) – A comprehensive course for those interested in the florist industry. Focus is on floristry techniques, through hands-on training, and employer/customer expectations. Includes first-aid practices; fresh, silk and dried floral material arranging; Ikebana, wedding, Xmas and church floral arrangements; mechanics of making corsages, boutonnieres, wreaths, planters, sprays, bouquets, table centrepieces; cost pricing, order-taking, packaging and delivery; customer service and employee role; field trip to wholesale florist business. A Certificate of Completion in "Professional Floristry Design" is issued to students who successfully complete this course. Fee includes all materials.

HRTC 912 Plant Propagation (18 hours) – Nursery workers or those in similar occupations will find the knowledge gained in this specialty course essential to their careers; also of value to home gardening enthusiasts. Students are taught about growing plants and the wide variety of methods for starting new plants. Topics include stem, leaf and root cuttings; divisions and layering; planting procedures for seeds; environmental factors; propagation houses, grafting and budding; bulb planting.

HRTC 914 Christmas Floral Arrangements (16 hours) – Provides students with hands-on training in all types of floral Christmas decorations, including designing floral table and mantle arrangements, wreaths and corsages. Fee includes all materials.

HRTC 915 Professional Lawn Maintenance (24 hours) – For individuals interested in professional lawn maintenance. Site preparation, seeding, sodding; lawn maintenance including mowing, fertilizing, watering and thatching; weed and moss control; insect and disease control.

HRTC 918 Practical Gardening for the Homeowner (30 hours) – A general interest course for home gardening enthusiasts. Includes basic horticulture theory; landscape techniques; pests and diseases; plant association of trees, shrubs and perennials; design for the small garden; lawn establishment and care; pruning techniques; soil management and care; plant propagation; organic gardening techniques; winter flowering shrubs; greenhouses and coldframes; bulbs; difficult and rare plants.

HRTC 919 Pruning Basics (18 hours) – The basic aims and principles of pruning are covered through hands-on training. Students learn how to prune various types of foliage: shrubs, trees, fruit trees, climbing and wall plants, hedges, roses.

HRTC 920 Indoor Plant Maintenance (24 hours) – Learn how to maintain healthy tropical plants in the home, or use the techniques for a professional career in this field. Plant identification, soils, nutrition (fertilizers), pests and diseases, environmental factors, watering principles and public relations are covered.

HRTC 921 Design for the Town Garden 1 (24 hours) – How to design landscape, identify uses of space and material functions. Students learn how to design and maintain yards and gardens successfully. For those focusing on horticulture as a career, the course will help increase job opportunities. Topics include general layout, estimating and cost management, grading and drainage, structural facilities and materials, soil improvement, plant materials, grass maintenance, theory and principles of design, history of landscape design.

HRTC 922 Design for the Town Garden 2 (24 hours) – Emphasizes landscape drafting. Students learn the necessary skills to prepare a landscape plan for a town garden. Topics include use of drafting instruments; basic surveying; preparation of plan views, cross sections and elevations; landscape symbols; lettering techniques; preparation of a plant list. Prerequisite: HRTC 921 or equivalent.

HRTC 931 Plant Identification 1 (24 hours) – The basics of plant identification and nomenclature using a wide range of plant materials. Plants will be given botanical, common and family names as well as important details on each plant's culture, hardiness, landscape placement and propagation. Students become familiar with a wide range of plant material in season. A Certificate of Completion in "Plant Identification" is issued to students who successfully complete HRTC 931, 932 and 933. It is recommended these courses be taken in sequential order.

HRTC 932 Plant Identification 2 (24 hours) – The second of three parts. Focus is on broadleaf evergreens and their systematic identification through the use of plant keys and specimens. Field trips included. A Certificate of Completion for "Plant Identification" is issued to students who successfully complete HRTC 931, 932 and 933. It is recommended these courses be taken in sequential order.

HRTC 933 Plant Identification 3 (24 hours) – The last of three parts, with focus on conifers. Concentrates on plant identification using keys, texts and specimens. Field trips are included for first-hand experience in identifying conifers. A Certificate of Completion in "Plant Identification" is issued to students who successfully complete HRTC 931, 932 and 933. It is recommended these courses be taken in sequential order.

HRTC 941 Landscape Design/Homeowner (21 hours) – The first of three courses for the homeowner planning a new, or renovating an old, residential landscape project. Course includes developing a landscape plan, plant file and the ability to identify common plants used in residential landscaping. Field trips included.

HRTC 942 Landscape Cost Estimating/Homeowner (15 hours) – The second of three courses for the homeowner planning a new, or renovating an old, residential landscape installation. Students develop the ability to estimate material costs, labor time and, if applicable, sub-contractor costs involved in the installation of their do-it-yourself landscape projects. Prerequisite: HRTC 941 or equivalent.

HRTC 943 Landscape Installation Techniques/Homeowner (18 hours) – The third of three courses for the homeowner planning a new, or renovating an old, residential landscape installation. Students develop skills and knowledge to construct the various components of hard and soft landscaping. Topics include grading and drainage; placing topsoil; installing plants, lawns and interlocking pavers; building a timber retaining wall; using rock for landscape applications. Prerequisite: HRTC 942 or equivalent.

HRTC 950 Pruning Workshop (6 hours) – A one-day workshop on how to prune the trees, shrubs and herbaceous plants in your yard.

HRTC 951 Lawn Management Workshop (6 hours) – A one-day workshop on how to maintain a beautiful lawn year-round.

HRTC 952 Vegetable Gardening Workshop (6 hours) – A one-day workshop on how to make the most of your vegetable patch by keeping it in constant production. Includes demonstrations of soil preparation, seeding, etc.

HRTC 953 Landscaping Workshop (6 hours) – A one-day workshop on learning the basics of landscape design.

HRTC 954 Tree Care Workshop (6 hours) – A one-day workshop for the homeowner/amateur gardener on the basic theory and practice of tree care (arboriculture). Includes tree biology; identification; fruit and ornamental tree pruning principles and techniques.

HRTC 955 Balcony/Patio Garden Workshop (6 hours) – A one-day workshop on how to grow an imaginative range of plants for your patio or balcony container garden. Includes the use and selection of hanging baskets and containers.

HRTC 956 Irrigation Workshop (6 hours) – A one-day workshop on how to design and install your own irrigation system.

HRTC 957 Nightscaping Workshop (6 hours) – A one-day workshop on how to maximize the use of your garden at night and create different moods by enhancing its unique features with special effects lighting.

HRTC 958 Ikenbana Workshop (6 hours) – A one-day workshop on the Japanese art of flower arrangement. Fee includes materials.

HRTC 959 Flower Arranging Workshop (6 hours) – A one-day workshop on how to make a table centrepiece and arrangements of fresh flowers to take home, or use as gifts. Fee covers all materials and supplies for three arrangements.

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