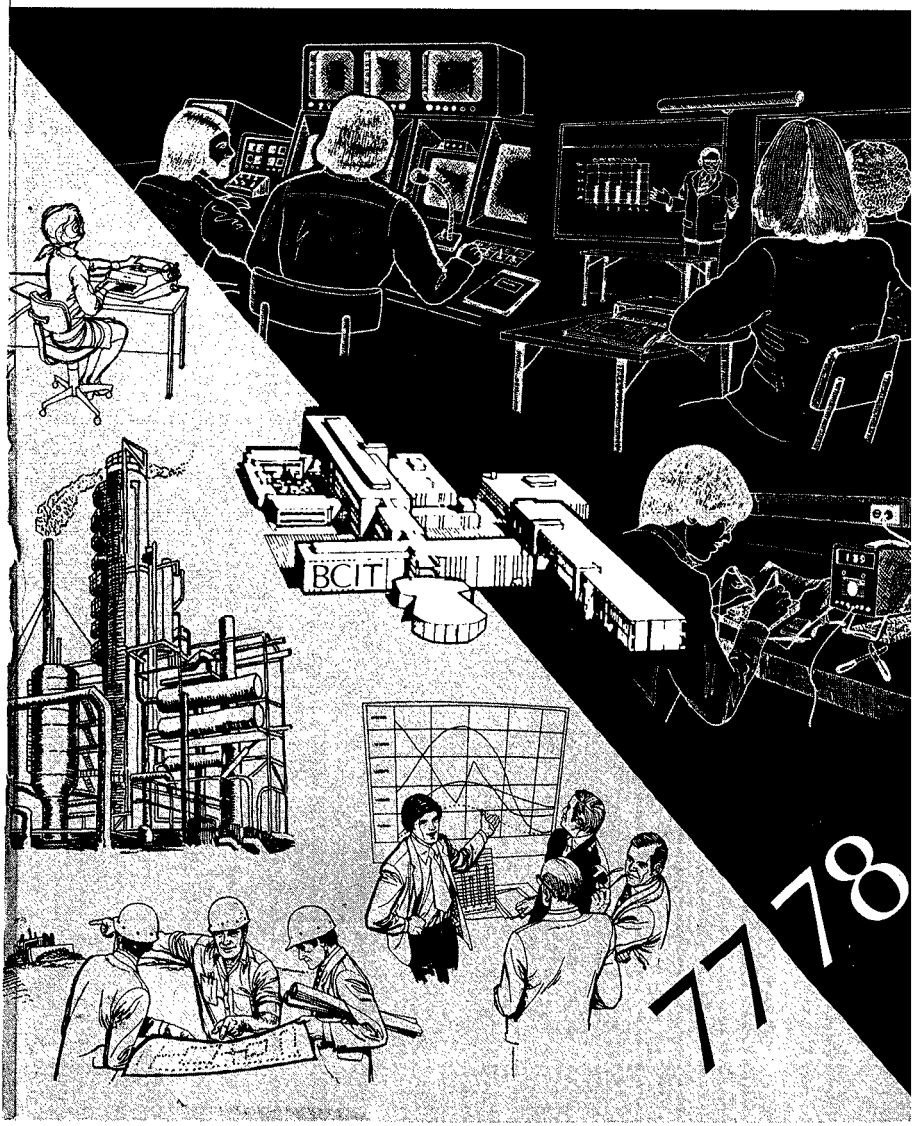
BCIT BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

ADVANCED TECHNOLOGICAL PROGRAMMES FOR PART TIME STUDENTS



USING THE CALENDAR

Read this information to quickly understand how to use this Calendar

1. Do not fail to read the "GENERAL INFORMATION" section at the front of the Calendar. This is your official source of information about the Division of Continuing Education & Industry Services policies.

2. The "Table of Contents", including the "Courses in Programmes" listing are found on pages 3 to 13.

3. Note that the Calendar is divided into three programme sections — Business (Golden Rod), Engineering (Green) and Health (Pink).

4. Courses are offered in four different terms beginning in September, January, April and July.

5. Normally registration is on a first-come first-served basis. You are encouraged to register early by mail or in person. In every instance, fees must accompany the registration form before it will be processed.

6. Forms:

   i) Application form for Certificate of Technology on pages 257-258

   ii) The Division of Continuing Education & Industry Services registration form (back of calendar).

M. Barrett

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

Telephone: (604) 434-5734

Local 204/205 (8:30 a.m. - 5:00 p.m.)

434-5741/2 - (5:00 p.m. - 10:00 p.m.)

Administered by
THE BOARD OF GOVERNORS
of the
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

G. A. THOM, B.COMM., M.B.A., M.ED., *Principal*

D.J. SVETIC, B.A.Sc., P.Eng., Director,
Division of Continuing Education and Industry Services

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CONTINUING NURSING EDUCATION

THE ROLE OF THE DIVISION OF CONTINUING EDUCATION AND INDUSTRY SERVICES IN B.C.I.T

Through the Division of Continuing Education and Industry Services, B.C.I.T. provides technological programmes for part-time students.

The philosophy of continuing education and the need for keeping pace with technological change have brought an ever-increasing awareness of B.C.I.T. services to members of the work force.

People of all ages and educational background are taking advantage of the opportunity to improve their knowledge and skills as part-time students in evening classes, Saturday mornings, regular day classes, weekend workshops and week-long courses. They find that education at the adult level, B.C.I.T. style, is satisfying and rewarding and clearly attuned to the world of work.

Companies may take advantage of B.C.I.T. expertise for "in-house" training programmes or specialty training on B.C.I.T. premises through Industry Services.

Students who are unable to attend the B.C.I.T. campus, particularly those living outside the Lower Mainland, will find correspondence courses available through Directed Study as listed on page 31.

Despite the pressures of growth, we are constantly striving to present a high quality of technical courses under the guidance of capable instructors. New courses are added to keep pace with student needs and technological advances and we welcome advice and guidance from students and the business community.

Students wishing to take advantage of our programme consultation service in planning their career development, are welcome at any time of the year.

We hope you find the certificate programmes and course content in this calendar meet your needs and that we will have the pleasure and satisfaction of serving you.

GENERAL INFORMATION

1. The Academic Year

The academic year, commencing July 1, for the Division of Continuing Education & Industry Services consists of four terms:

(a) The Fall Term — September to December (Term I)
(b) The Winter Term — January to April (Term II)
(c) The Spring Term — April to June (Term III)
(d) The Summer Term — July to August (Term IV)

Courses, however, may begin at any time.

2. Office Hours

All general inquiries about the Division of Continuing Education and Industry Services evening classes should be made to the office between the following hours:

Until September 6 —
Monday to Friday .....8:30 a.m. to 4:30 p.m.
September 6 to June 23
Monday to Thursday .....8:30 a.m. to 10:00 p.m.
Friday .....8:30 a.m. to 4:30 p.m.
Saturday .....8:30 a.m. to 12:30 p.m.

Additional late hours as follows:
Monday and Wednesday, August 15 and 17 to 8:00 p.m.
Tuesday and Thursday, August 23 and 25 to 8:00 p.m.
Monday and Wednesday, August 29 and 31 to 8:00 p.m.
Saturday, August 27, 8:30 a.m. to 12:30 p.m.

For any changes to the additional late hours, please telephone the office of the Division of Continuing Education and Industry Services, 434-5734, local 204 or 205.

3. Programme Consultation

The Division of Continuing Education and Industry Services invites your inquiries for information, assistance and programme consultation relating to programme offerings.

Two full time Programme Consultants are on staff and are anxious to be of assistance to students and prospective students in selecting appropriate courses and planning programmes of study to meet individual needs. Students who wish to meet with a Programme Consultant are encouraged to make an appointment by phoning 434-5734, Local 204/205 during above office hours.

Students who are undecided about a career path and who wish to have a complete testing assessment for career planning, may request a list of the organizations available from a Programme Consultant.

During certain nights in the weeks prior to registration, at the beginning of each term, Technology Advisors are made available to assist students in interpreting course content, course sequence, etc., within the various technologies. Programme Consultants are also available to assist students during these evenings. In-depth programme planning is not possible on these nights, but this individual service can be requested at any time during the year as noted above.

Please watch for details regarding these evenings in the Vancouver papers prior to each term.

WORKSHOP: CAREER SEARCH

A four session workshop will be available for adults who have been in the workforce at least two years, and are wanting career re-direction, but are unsure as to their potential and technical training opportunities. The first two sessions will involve standardized testing (interest inventory, work study and reading skills, mathematics, etc.) and career information. This will be followed by interpretation of the results and individual counselling.

Thursday 6:45 - 8:45 p.m. Limited to 15 applicants
Beginning: October 14 (21/28/Nov. 3) Fee: $50.00 (Including tests
November 10 (17/24/Dec. 1) and materials)
February 2 (9/16/23)

4. Canada Manpower Centre on Campus

In addition to a job information centre on the BCIT Campus, the following services are available to Students:

— A Job Placement service
— Counselling in relation to employment opportunities
— Providing labor market information

The office also contains a library of information on careers and employers for the use of students.

Students who have inquiries about any of the above please feel free to drop in to room D-204 or phone the Manpower office at 434-5734, local 333.

Office hours are 8:00 a.m. - 4:30 p.m., Monday to Friday the year round.

5. Admission

In general, the Division of Continuing Education and Industry Services courses are classified at a level which assumes a student has completed secondary school. In addition there are certain specific pre-requisites or special conditions for some of the courses. They are described with the courses in the calendar.

A mature student may be accepted without general pre-requisites,

provided the student and the instructor consider that the student has a reasonable chance to complete a specific course or programme successfully.

Prospective students are advised to submit applications well in advance of commencement of classes. Wherever possible, all qualified students will be accepted, but where enrollment is limited, priority for admission will be based generally on the date of application. Failure of a student to present himself on the first night of classes or otherwise advise the Division of Continuing Education and Industry Services office, may cause a student to forfeit his seat in a class.

Further, B.C.I.T. reserves the right to establish other special priority criteria for special situations.

6. (a) Registration and Payment of Fees

An individual should register by completing the registration form which is found at the back of the Calendar and mail or bring in to the office of the Division of Continuing Education & Industry Services.

Fees must accompany the registration form. Cheques or money order must be payable to "British Columbia Institute of Technology". Registrations not accompanied by fee payment will not be processed.

Mailing a registration form and the payment of fees does not ensure a seat in a class.

Admission cards will not be mailed to students for applications which are received by mail after August 26. They will be held at the Registration Desk for students to pick-up.

Students may have their company invoiced for their fees where they have written authorization from their company to pay their fees.

Students must register and pay fees for the second term of a course by November 26, 1977.

An official course fee receipt is issued for Income Tax returns by the Bursar's office in February.

(b) Course fees

The new structure will be: (subject to change and ratification)

36 hour course $60
54 hour course $90
72 hour course $120
90 hour course $150

(i.e., $1.67 hour when pricing a special course, or day school partial enrollment.)

7. Late Registrants

Students should watch for registration deadlines (see Calendar of

Events) and should register as early as possible.

Where possible, we will accept late registrations when there is a seat in the class.

8. Cancellations and Restricted Enrolment

The Institute will make every effort to offer all the courses, as listed in the Calendar, to all qualified applicants. Nevertheless, if at any time it should become necessary to do so, the Institute reserves the right to limit enrolment, to select candidates, to cancel courses, to combine classes, or to alter times of instruction without prior notice.

9. Refunds

BEFORE A REFUND WILL BE ISSUED, A STUDENT MUST HAVE COMPLETED AN "APPLICATION FOR REFUND" FORM WHICH IS AVAILABLE FROM THE CASHIER.

Should a course be cancelled, fees in full will be refunded or transferred to another course as requested by the student.

Students who withdraw from a regular evening course are eligible for a refund only if they have submitted an "Application for Refund" form. This completed form must be in the hands of the Bursar's office prior to the third session of the course in question.

Refund procedures vary for week-long courses, seminars, special courses, etc. Students should read the advertising for these special sessions to determine refund practices.

Partial refunds are not issued.

10. (a) Parking

Free parking is available to students in the following areas:

(1) The large general parking area east of the main building adjacent to Wayburne Avenue.

(2) The parking area immediately south of the complex adjacent to Willingdon Avenue.

(3) Students may park on either side of Willingdon Avenue.

(4) The parking area in front of the main BCIT Building (next to Willingdon) and the north parking lot are reserved for staff and female students travelling alone.

Handicapped persons should contact the Division of Continuing Education and Industry Services office.

Control of parking and traffic on campus is exercised by the Department of Public Works. Vehicles improperly parked may, at any time, be removed at the owner's expense, i.e., vehicles parking on yellow curbed roadside, next to hydrants, in locations where the free flow of traffic is obstructed, etc.

No overnight parking on Campus is permitted. The speed limit is 15 m.p.h. on campus roads. Should you be unable to move your vehicle due to mechanical failure you should:

(i) Leave a note of explanation for the security staff (on windshield or dashboard) explaining the difficulty.

(ii) Make arrangements to have the vehicle removed within 24 hours.

(b) Cafeteria

A hot meal service is available in the Food Training Centre between the hours of 4:30 p.m. and 6:30 p.m. (Monday to Thursday) on each evening during the sessions.

When classes are in session, limited food service and light refreshments are available from the "Road Runner" in the main building, 6:00 p.m. to 9:00 p.m. (Monday to Thursday) and 8:30 a.m. to 12:30 p.m. on Saturdays.

Coffee service is also provided at various stations throughout the building when classes are in session.

(c) Library

The library facilities are available to all registered part-time students. Applications for a library card can be made at the front desk of the library.

Library hours from September to May are:

Monday to Thursday .....8:00 a.m. to 11:00 p.m.
Friday ..... 8:00 a.m. to 5:00 p.m.
Saturday ..... 9:00 a.m. to 5:00 p.m.
Sunday .....12:00 noon to 6:00 p.m.

(d) Bookstore

Textbooks and supplies may be purchased at the Bookstore which is located at ground level on the east side of the Library Building.

Bookstore hours are 8:00 a.m. to 4:20 p.m. Monday to Friday. During the months of September, October, January and the first two weeks of April, the Bookstore re-opens from 5:30 p.m. to 8:30 p.m. Monday to Thursday. The Bookstore is also open the first two Saturday mornings on which classes start in Term I, II and III from 8:30 a.m. to 12:30 p.m. Most courses require that a student purchase a textbook which generally costs $10.00 to $15.00 above the course fee, but can range up to $50.00 for some Engineering programmes such as Draughting.

(e) Student Activity Centre

The Student Activity Centre is the centre of leisure time activity for students attending B.C.I.T. Within the building there is a full size gymnasium, weight room, change rooms and equipment centre,

cafeteria, health service office, beauty salon, Campus store, student government offices and committee rooms.

The Activity Centre features the social life of the campus. A beergarden is operated daily from 4:30 p.m. to 9:30 p.m. and is open to all students of legal age.

More information can be obtained from the Student Association general office in the SAC building or at local 601.

11. Examinations

(a) Policy on examinations – as a general rule there will be assessments made of students enrolled in classes at BCIT. Assessments will normally be based on mid-term examinations and a final examination, plus projects or other oral and written work. No rigid form of evaluation is prescribed except to say that it should provide some measure of the student's comprehension and application of the body of knowledge learned. It should also distinguish between superior and passing students.

Students are required to take the examinations for each course at a time set by the Institute.

In order to be allowed to write examinations, a student must have:

(1) attended a minimum of 50% of the classes and
(2) satisfactorily completed work assignments during the session.

Students unable to write examinations due to special circumstances should contact the Director, Division of Continuing Education and Industry Services.

(b) Statement of marks — It is the policy of the Division of Continuing Education and Industry Services to issue a statement of marks to every student who completes a course. To receive a statement of marks all fees must be paid in full.

(c) Audit — A student may, with permission, audit courses. An audit student is not formally evaluated and does not write examinations. However, the student is expected to take an active part in the classroom discussions and laboratory exercises, and maintain satisfactory attendance.

An auditing student will not receive credit for the course, but will receive a Statement of Marks with "Audit" indicated. Audit students pay the prescribed course fee.

Students who wish to change their registration status to "audit" should consult with the instructor.

Those students who audit a course may later request credit standing. This will require an evaluation procedure as stipulated by the instructor.

Audit status in a pre-requisite course only qualifies a student for

continuation on an audit basis. Nevertheless, the above special examination can be made available to those wishing to attempt to transfer to a credit basis.

(d) External examinations – (1) We will attempt to co-operate with any part-time student who cannot write our examinations because of absence from the city, by allowing that student to write the examination at a set time in another centre under an invigilator acceptable to us. (2) It is understood that the student would be responsible to make all arrangements to obtain a place for his examination and to obtain the services of an invigilator and, further, to pay all costs, if any, that are involved.

(e) Grading

First Class — 80% or over
Second Class — 65% to 79 %
Pass — 50% to 64%
Failure — less than 50%

12. Transcripts

A fee of $1 will be charged per transcript requested by a student.

13. Continuing Education & Industry Services Students Attending Day Classes

Due to the various forms of the compressed work week, our regular evening courses may not suit every individual's schedule. It is possible to register in one or more full time day courses by contacting the Division of Continuing Education and Industry Services office and obtaining a Request for Part-time Day Study Form.

One condition of attending day classes is that there is room for the student, particularly in the laboratory sessions.

When permission to take the particular course(s) in question is granted, the student must then complete a Registration for Continuing Education and Industry Services form and pay the Division's rates for the course, based on the number of classroom and laboratory hours.

14. Course Credit

The basic measure of course credit is a UNIT, which normally consists of three classroom hours per week for 12 weeks, a total of 36 hours.

A student who attends three hours per evening twice a week for 12 weeks would receive two units of credit if he is successful.

15. Challenge Credit

What it is – Challenge credit is a means whereby students may acquire credit recognition for knowledge and skills gained through self-study and/or work experience.

By challenging a course the student claims he already has the knowledge and abilities to be learned from the course. Because of the learning format of some courses, not all courses are considered challengeable.

Where approval has been granted to challenge a course, a formal evaluation procedure will take place. The student's abilities in the subject area challenged will be assessed by an evaluator through a written and/or oral examination, research paper of other meahs as the evaluator sees fit.

Challenge credit is not considered as work completed at BCIT but when a course is successfully challenged the number of units required for a certificate will be reduced. If a student is successful a "C" (for credit) will be indicated on his transcript. If he is unsuccessful, nothing will be indicated.

Who May Challenge – A student may challenge a course in a Certificate Programme in which he is enrolled. Prior to challenge a student must have successfully completed at least one course at BCIT.

Only five (5) units of challenge credit will be allowed on each Certificate Programme.

Fee to Challenge Course – Once approval has been granted to challenge a course the student will be required to pay a fee before the evaluation takes place.

How to Challenge – A student may apply to challenge a course by writing to:

Programme Consultant
Division of Continuing Education and Industry Services
British Columbia Institute of Technology
3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2

16. Transfer Credit

Transfer credit is a means whereby students may acquire credit recognition for academic work completed at another recognized post-secondary institution.

The course work for which transfer credit is being requested must be related to the student's programme of studies here at BCIT.

(a) Transfer from day classes – A student transferring to evening classes from day classes will generally be granted credit for all courses successfully completed on withdrawal from day school. Student who fail one or more subjects in day programmes are encouraged to consider the Division of Continuing Education and Industry Services as an alternative.

Any day student who has credits may become eligible for a Certificate on successful completion of at least one unit of work in the

Division of Continuing Education and Industry services after withdrawal from day classes.

(b) Transfer credit from other recognized post-secondary institutions – Students who have completed courses included in the programme of studies may submit documentation (see section 17) and generally credit will be granted toward a certificate for related course work at a similar standing and level. However, to be eligible for a certificate, a student normally must complete with BCIT 50 per cent of the course work required for that certificate.

(c) Direct entry into advanced certificate programmes – A student with advanced standing equivalent to a certificate level may be admitted into an advanced programme even though the basic certificate at BCIT has not been completed. Where a student does not have the preceding certificate equivalency, the deficiency may need to be made up.

(d) Conflict with accrediting societies – The Division of Continuing Education and Industry Services will not give credit where there is a danger of being in conflict with accrediting societies such as the Society of Engineering Technologists. Where a student has considerable credit and where the amount of credit is not easily determined, the Director may recommend that the student be accredited by such a society and that he will accept the ruling of that society.

17. Application Procedure for Transfer Credit

Students must apply in writing to the Programme Consultant, Division of Continuing Education and Industry Services, BCIT and enclose:

(a) copy of an official transcript
(b) an official description of course completed, including the number of hours involved for each course (excerpts from the appropriate calendars, etc., would be acceptable)
(c) a statement as to which BCIT certificate programme the student wishes credit to be granted
(d) a list of courses completed at BCIT

18(a). Division of Continuing Education and Industry Services Certificates and Diplomas

(1) The Engineering Technician Certificate or Business Certificate (15 units)

A BCIT Engineering Technician Certificate or Business Certificate will be awarded on completion of a programme of 15 units.

Outlines of these certificate programmes in the various technologies are given throughout the calendar. For instance, on page . . ., a 15 unit programme is outlined which will lead to a Business Certificate in Finance. However, as is noted at the top of the page, this is not a rigid

programme and changes will be made to meet the students' particular needs.

(2) The Senior Engineering Technician Certificate or Senior Business Certificate (30 units)

A Senior Engineering Technician Certificate or Senior Business Certificate will be awarded upon completion of an additional 15 units of study beyond the certificate programme outlined in (a).

In viewing the calendar, it may be seen that there are no programme outlines for the senior certificate. Students are, therefore, advised to seek assistance in planning their programme.

(3) The National Diploma of Technology

A student with extensive related work experience and a good academic record may make application to a Special Review Board consisting of the Director, Division of Continuing Education and Industry Services, the Director of the Division and the Department Head or Heads concerned. At least 15 units of further approved course work in addition to the senior certificate would then be required for graduation.

(b). Diploma Programmes for Graduates

A student who has graduated from BCIT with a National Diploma of Technology or has a University degree or a college diploma or some similar or equivalent recognition may receive a National Diploma when he has completed *at least* 24 units of study on a *pre-approved* programme.

19(a). Special Certificates and Other Certificates

Students with a BCIT National Diploma, or those who have a University Degree or College Diploma or equivalent or similar recognition, may receive a Special Certificate when they have completed 15.0 units of study on a pre-approved programme. This certificate recognizes that an individual has completed 15.0 units (540 hours) of study in a given technology in addition to his previous educational qualification. The Special Certificate does not indicate a level along the route of our regular certificate programmes (see section 18a).

A student with a Special Certificate may apply the credits obtained toward a National Diploma of Technology.

Students with a Special Certificate who wish to pursue a programme of studies toward a National Diploma should apply in advance to have such a programme set up.

19(b). Other Certificates

Other Certificates may be created from time to time to meet special

situations which may or may not be related in a number of units to the above Certificates.

Certificates will not be issued upon the completion of a single course, but only upon completion of a full programme of studies.

20. Approved Programmes of Study

Throughout the calendar suggested programmes of study are outlined in the various technologies which lead to a 15 unit Business or an Engineering Technician Certificate.

Those students who wish to change any of these programmes to better meet their own requirements should have their programmes *approved in advance*.

In general it can be seen in the calendar that there are no programme outlines for higher level certificates. Therefore students who have already earned a Business or Engineering Certificate and wish to obtain a higher level certificate should also have a programme *outlined and approved in advance*.

All students who wish to set up an Approved Programme of studies leading to a Certificate or a Diploma should contact a Programme Consultant.

21. Policy on Application for Certificates

The responsibility of applying for a certificate lies with the student. An application for a certificate should be completed only when the student has completed the requirements for the certificate. The application form is located on pages 257-258 of this Calendar.

22. Policy on Combined Programmes for Vocational School Graduates

A student who has Grade XII and has completed a full year of study in a British Columbia vocational school or an equivalent school may be admitted into a Combined Special-Certificate Programme.

Students may also consider using this training as technical requirements for certificates in Industrial Management or Technical Marketing, as described in our Calendar.

23. Old Certificate Programmes

Students who completed at least one course prior to July 1, 1973, may elect to receive a 12 unit certificate as described in previous calendars. These may be connected to new 15 unit certificates by completing the remaining units required and by handing in the old certificate.

THE 12, 24 and 36 UNIT CERTIFICATES WILL NOT BE ISSUED AFTER JUNE 30, 1978.

24. Financial Assistance for Part-time Students

(a) Special Assistance Programme, Department of Education, Student Services Branch.

This program is to provide financial assistance to individuals who do not qualify under the regular British Columbia Student Assistance program. It will also service those enrolled on a full-time basis in courses less than 26 weeks in duration.

The maximum assistance available will be $250 per educational year and will be in the form of a grant. ($125 per term/semester).

Applicants should complete the general application and the special assistance programme questionnaire. Applications are available at the office of the Division of Continuing Education and Industry Services or Department of Education, Student Services Branch, Victoria, B.C.

Grants will be awarded to those individuals who demonstrate a financial need and who meet the B.C. Student Assistance criteria.

Normally only credit courses leading to a certificate, diploma, or first degree are eligible.

In keeping with the non-fulltime student criteria, this programme is not designed to provide funds to cover normal maintenance but rather to service expenses which are a direct result of the applicant taking a course of studies. The most obvious are the tuition and book charges; although, in cases where an extra transportation expense is demonstrated, it may also be included.

(b) The Harry H. Stevens Memorial Fund

The Kiwanis Club of Vancouver has established an assistance fund at B.C.I.T. as a memorial to the late Honorable Harry H. Stevens.

Interested businesses, individuals or organizations are encouraged to contribute to this worth-while fund.

An initial contribution of $1,000 to start this fund was made by B.H. Campbell.

To be eligible, applicants must demonstrate financial need, must be a part-time student at B.C.I.T. who is upgrading existing skills or retraining for his/her betterment and must be a B.C. resident for at least one year prior to application for assistance. Special cases who do not meet all these criteria will also be considered.

Application forms are available from either the Counselling Office or through the Division of Continuing Education and Industry Services.

GLOSSARY

Academic Session – four terms (which amount to one calendar year) called Term I (September - December); Term II (January - April); Term III (April - June); Term IV (July - August).

Division of Continuing Education and Industry Services – one of the Divisions at B.C.I.T. This Division provides technological programmes for part-time students.

Division of Continuing Education and Industry Services Calendar – an annual publication containing official information about the Division of Continuing Education and Industry Services including regulations.

Certificate – a document awarded by B.C.I.T. upon successful completion of the requirements of a Programme.

Challenge Credit – a method to acquire credit recognition for knowledge and skills gained through self study and/or work experience.

Course – an organized unit of study extending over a term (e.g., Management in Industry I).

Directed Study – correspondence courses and specialized instruction for students who are unable to attend the B.C.I.T. campus.

Elective Course – a course acceptable within the Programme, but chosen at the discretion of the student.

Part-Time Day Studies – a student who registers through the Division of Continuing Education and Industry Services to take one or more full-time day scheduled courses.

Pre-requisite – is the requirement of a pass standing or equivalent work experience in the designated course prior to registration.

Programme – (a) Programme (with capital P),a structure of courses leading to a Certificate (e.g., Business Certificate in Administrative Management)

(b) Programme (with a lower case p) a selection of courses chosen by a student in a particular Term.

(c) Approved Programme — a special structure of courses designed to meet a student's individual requirements and pre-approved by the Division of Continuing Education and Industry Services.

Registration – the official enrollment of students in the Institute for a particular term and Programme including the payment of fees.

Statement of Marks – released by the Division of Continuing Education and Industry Services to each student at the conclusion of a course. It notes the course, the grade or standing assigned and the student's attendance as a percentage.

Technology – The application of proven theory to Engineering, Business or Health.

Transcript – an official document prepared by B.C.I.T. recording a student's courses and grades.

Transfer Credit – a method to acquire credit recognition for academic work completed at another recognized post-secondary institution.

Unit – a unit of academic measurement. The unit is assigned to 36 hours of classroom time.

CALENDAR OF EVENTS

Fall 1977 (Term I)

September 6, 7, 8	Programme Consultation and Registration
September 8	Deadline for registration for Term I Classes
September 12-15, 17	Commencement of classes
October 10	Thanksgiving
November 11	Remembrance Day
November 26	Deadline for registration and payment for second term of two term courses
November 29-December 1	Last night for Tuesday, Wednesday, Thursday & Saturday 12 week classes
December 5	Last night for Monday 12 week classes

Winter 1978 (Term II)

January 3, 4	Programme Consultation and Registration
January 4	Deadline for registration for Term II Classes
January 3-5, 7	Recommencement of 24 and 30 week classes
January 9-12, 14	Commencement of new classes
March 20-23, 25	Last night for 24 week classes
March 24	Good Friday
March 27	Easter Monday
March 28-30, April 1	Last night for 12 week Tuesday, Wednesday, Thursday & Saturday classes
April 3	Last night for Monday 12 week classes

Spring 1978 (Term III)

April 3-6, 8	Commencement of Term III

May 2-4, 6 ..... Last night for Tuesday, Wednesday, Thursday & Saturday 30 week classes

May 8 ..... Last night for Monday 30 week classes

May 9-11, 13 ..... Last night for Tuesday, Wednesday, Thursday & Saturday 18 week classes

May 15 ..... Last night for Monday 18 week classes

May 22 ..... Victoria Day

June 19-23 ..... Last night of classes

June 26 ..... Last night for Monday classes

Summer 1978 (Term IV)

July 1 ..... Commencement of Term IV (courses, seminars, workshops, etc., to be announced)

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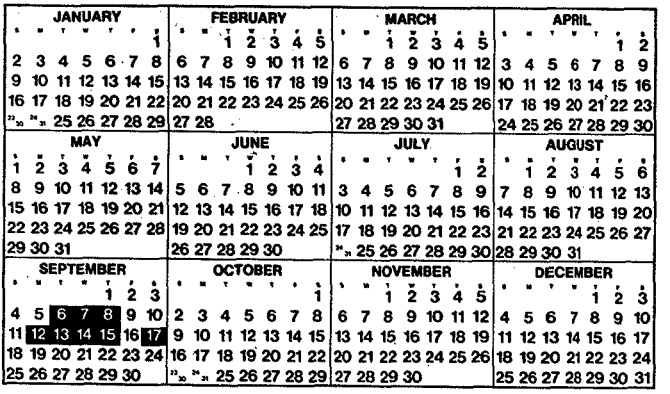

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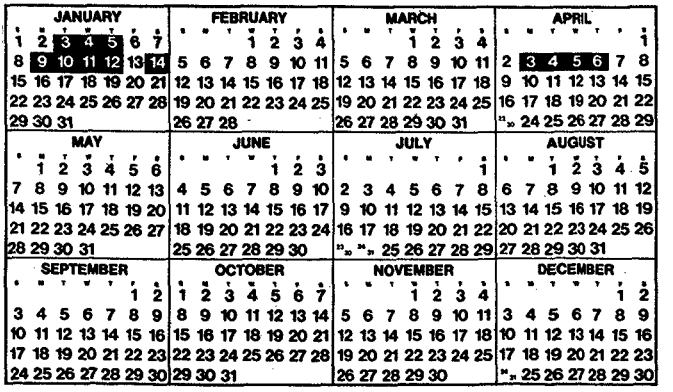

INDUSTRY SERVICES

Industry Services is a provincial training resource for "industry"

—"Industry" describes the whole spectrum of the work force including Government agencies, private and public corporations, volunteer and professional organizations and individuals.

The purpose is to provide a variety of courses and programmes throughout B.C. in a number of ways. Considerable emphasis is placed on joint participation in determining training needs and in establishing curriculum to meet those needs.

Industry Services provides:

—Consultation for identification of training needs.
—Evaluation of training methods.
—Development of:
  —courses, programmes and mini-schools
  —correspondence courses
  —specialized instructional aids
—Management of training programmes
—Special expertise in such areas as:
  —supervision and management
  —technical skills upgrading
  —office management
  —communications
  —human relations
  —selection interviewing
  —problem solving and decision making
  —project control
  —industrial electronics
  —corrosion control
  —electrical power distribution
  —industrial ventilation
  —avalanche control
  —recreation management

We are extremely flexible both in the approach to development of individual and group development and in location. Services will be provided on the B.C.I.T. campus, on the employers' premises, or wherever is most appropriate.

ANYWHERE THERE IS A TRAINING NEED,
THERE IS INDUSTRY SERVICES.

DIRECTED STUDY CENTRE

The Directed Study Centre provides correspondence courses and specialized instruction for students who are unable to attend the BCIT campus. Registrations are accepted at any time and the rate of progress is determined by each student.

Currently Available

Accounting for Office Managers I
Accounting II
Advanced Haematology for R.T.'s
Air Photo Interpretation
Applied Calculus
Basic Technical Mathematics
Commercial Law
Company Law
Company Meetings
Company Secretarial Practice
Decision Making
Food and Beverage Cost Control
Front Office Procedures
Law of Local Government I
Law of Local Government II
Local Government Accounting
Management Accounting
Municipal Government Meetings
Municipal Secretarial Practice
Physics I
Preparatory Mathematics
Principles of Administration
Principles of Economics
Principles of Law
Statistics (for Business)
Taxation

May Be Available By Fall 1977

Communications I
Communications II
Drainage I
Geology and Soils I
Maintenance Management I
Survey II
Surveying Computations I
Technical Mathematics I
Technical Mathematics II

For further information and registration forms, please write to:

Directed Study Centre
British Columbia Institute of Technology
3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2
or Telephone 434-5734 Local 648

ADMINISTRATION

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D. M. MACPHERSON, C.A. ..... *Executive Director of Administration and Bursar*
J. D. MICHAELS, B.A. (HONS.), B.SC., M.B.A. ..... *Executive Director of Personnel, Information and Student Services*
D. K. BANNERMAN, B.A.SC., S.M., P.ENG. *Director, Engineering Division*
E. M. IANNACONE, B.COMM., M.B.A. ..... *Director, Business Management Division*
S. T. RICHARDS ..... *Director, Health Division*
B. GILLESPIE, B.SC., M.SC. ..... *Director, Core Division*
J. T. FIELD, B.COMM. ..... *Registrar*

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J. A. WILLCOX, B.A.SC., P.ENG. ..... *Head, Engineering Programmes*
A. W. MORROW, B.A., B.ED, M.ED. ..... *Programme Consultant*
R. C. MCGREGOR, A.M.S.L.A.E.T., T.ENG. ..... *Associate Programme Consultant*
G. H. FARRELL, DIPL.T., R.I.A., M.B.A. ..... *Technology Co-Ordinator, Financial Management*
R. MCGOWAN ..... *Technology Co-ordinator Computer Programming*

Industry Services Administration Staff

D. A. HUME, B.ED.
B. D. YEOELL, C.ENG., M.I.C.E.
D. H. MACLAURIN, B.SC.F., R.P.F.
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R. C. MORRIS, B.A., D.H.A.
W. D. ROBERTSON, B.ED.

Information Resource Centre and Media Support Services

J. E. CARVER, C.D., B.A.B.L.S. ..... *Director*
F. J. KNOR, TECH, DIP., B.ED., B.L.S. ..... *Audio Visual Co-ordinator*

BUSINESS MANAGEMENT DIVISION

BUSINESS MANAGEMENT

Throughout the Business Management section of this Calendar prospective students will find descriptions of a broad range of courses.

There are also a number of programmes leading to certification in the various technologies for those who will benefit from such recognition in the business community. Course presentations lean heavily to class participation.

Our programme consultants will be pleased to assist you in selecting appropriate courses for a programme to meet your individual needs.

REGISTER EARLY TO AVOID DISAPPOINTMENT!

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Business Certificate in Administrative Management

The following is a suggested programme for the basic Certificate(15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0	Accounting for the Manager (16.904)	1.0
Management Psychology I (10.221)	1.0	Management Psychology II (10.321) *or* Organizational Behaviour (10.906)	1.0		
YEAR II					
Personnel Management (10.910)	1.0	Discussion Leadership (10.907)	1.0	Elective	1.0
Labour Relations I (10.325)	1.0	Labour Relations II (10.425)	1.0		
YEAR III					
Economics I (10.135)	1.0	Economics II (10.235)	1.5	Elective	1.0
Business Law I (10.360)	1.0	Business Law II (10.460)	1.0		

See page 41 for the list of electives and substitute courses.

NOTE: Course No. 10.904, Supervisory Skills, should be taken before Management in Industry I and II if the student is close to entering supervision or is a relatively new supervisor.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Business Certificate in Personnel Management

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Management Psychology I (10.221)	1.0	Organizational Behaviour (10.906) *or* Management Psychology II (10.321)	1.0	Elective	1.0
Personnel Management (10.910)	1.0	Selection Interviewing (10.913)	1.0		
YEAR II					
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0	Elective	1.0
Training Techniques (10.950)	1.0	Accident Prevention (10.918)	1.0		
YEAR III					
Aptitude Testing (10.915)	1.0	Discussion Leadership (10.907)	1.0	Elective	1.0
Labour Relations I (10.325)	1.0	Labour Relations II (10.425)	1.0		

See page 41 for the list of electives and substitute courses.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Business Certificate in Training Management

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Training Techniques (10.950)	1.0	Discussion Leadership (10.907)	1.0	Manpower Planning (10.914)	1.0
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
*Systematic Industrial Training (10.951)	1.0	Training Course Design (10.952)	1.5		
Oral Communications and Public Speaking I (20.502)	1.0	Oral Communications and Public Speaking II (20.602)	1.5		
YEAR III					
Evaluation and Validation of Training (10.953)	1.0	Management of Industrial Training (10.954)	1.5	Elective	1.0
Management Psychology I (10.221)	1.0	Organizational Behaviour (10.906)	1.0		

*NOTE: Students with appropriate experience in the training field may start the programme with the courses listed in Year II and substitute electives to obtain the required 15 units of credit for the Business Certificate in Training Management.

See page 41 for the list of electives and substitute courses.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Business Certificate for Administrative Assistant/ Executive Secretary

This Certificate Programme is now considered to overlap with the Business Certificate in Administrative Management and is no longer necessary.

Students from secretarial positions who feel that their best route to more advanced responsibilities is through the Administrative Assistant/ Executive Secretary role may take 10.530/630 Administrative Assistant/Executive Secretary as electives or substitutes in the programme for the Business Certificate in Administrative Management.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Business Certificate in Public Administration

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Government and Business (10.240)	1.0	Public Financial Administration (16.350)	1.0	Elective	1.0
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
Elective	1.0	Discussion Leadership (10.907)	1.0	Elective	1.0
Management Psychology I (10.221)	1.0	Organizational Behaviour (10.906)	1.0		
YEAR III					
*Govt. and Politics in Canada (10.340)	1.0	Govt. and Politics in Canada (10.440)	1.0	Elective	1.0
Business Writing I (31.504)	1.0	Business Writing II (31.604)	1.0		

See page 41 for the list of electives and substitute courses.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Canadian Institute of Management Certificate Programme in Management and Administration

Admission requirements for this programme are on page 249.

September (Term I)	Units	*January (Term II)*	Units
YEAR I			
Organization as Systems-CIM (10.970)	1.0	Managerial Accounting-CIM (10.971)	1.0
YEAR II			
Quantitative Information for Decisions-CIM (10.972)	1.0	Organizational and Human Behaviour-CIM (10.973)	1.0
YEAR III			
Marketing CIM (10.974)	1.0	Operations Management CIM (10.975)	1.0
YEAR IV			
Applied Management-Finance CIM (10.976)	1.0	Applied Management-Policy and Administration CIM (10.977)	1.0

Canadian Institute of Management course credits may be used for B.C.I.T. Certificate Programmes.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Business Certificate in Municipal Administration

A recent study of Municipal Administration clearly indicates that there will be many opportunities during the next few years for people entering municipal service and for present staff to advance in Administrative and Financial areas.

To assist and encourage people with potential to prepare themselves for these opportunities and increasing responsibilities, a full programme of training and development leading to qualification for a B.C. Certificate in Municipal Administration will be finalized during the next year. This will include an option especially designed for those in municipal financial administration.

The following subjects will be included in the training programme:

Principles of Administration	Administrative Relationships
Principles of Economics	Municipal Government Meetings
Principles of Law	Municipal Secretarial Practice
Principles of Finance	Local Government Finance
Managerial Decisions	Municipal Law
Personnel Management	Managerial Economics

B.C.I.T. courses which have been approved for this programme to date are:

Management in Industry I and II
Economics I and II
Accounting I and II
Accounting IL and IIS

(Note: Equivalent approved courses are also available at some of the Regional Colleges)

As additional courses are approved and the full certificate programme finalized, the details will be announced. Further information may be obtained by contacting the B.C.I.T. Division of Continuing Education and Industry Services, 434-5734 locals 204/205.

The basic subjects for this programme — Principles of Administration, Principles of Accounting, Principles of Economics and Principles of Law — are available by correspondence for anyone unable to attend classes. Correspondence students may register and complete the courses at any time during the year. For further information about correspondence courses and registration, please write or call:

Directed Study Centre
Division of Continuing Education & Industry Services
B.C. Institute of Technology
3700 Willingdon Avenue
Burnaby, B.C.
Telephone: 434-5734, local 648/204/205

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

Electives & Substitutions

It is our sincere desire to assist students to plan and complete a certificate programme that is most useful to the particular individual. Therefore, considerable flexibility is permitted in the selection of electives and in substitutions providing that the changes are appropriately related to the particular certificate programme.

Such selections should be approved in advance in writing by a Programme Consultant to ensure that they are appropriate and will be accepted as an elective or substitute.

1. Any course listed in the Administrative Management Technology (Prefix 10. . . .) when approved as above.

or

2. Such courses as:

		Units
14.901	Data Processing — Introduction	1.0
14.922	Computers in Business	1.0
16:915/916	Business Finance I and II	2.5
16.904	Accounting for the Manager	1.0
20.180/280	Marketing I and II	2.5
20.502/602	Oral Communications and Public Speaking I and II	2.5
22.951	Systems Analysis	1.0
22.535/635	Statistics for Business and Industry	2.0
22.936	Business Mathematics of Finance	1.0
22.941/942	Work Study I and II	2.5
22.902	Inventory Planning and Control (Basic Inventory Planning)	1.0
22.903	Operations Planning	1.5

and

Many other courses listed in the Business Management Technologies selected by the student and **approved in writing by a Programme Consultant.**

Note: While we do our best to serve the student who "drops in" for counselling, you will find that you get more personalized attention if you make an appointment.

COURSES IN ADMINISTRATIVE MANAGEMENT

The Administrative Management Technology offers a wide variety of excellent training for people wishing to develop and improve their knowledge and skills in administration and business management.

A sound introduction to the functions of management is provided by the basic course — Management in Industry. This course is supported by a greater depth of training in numerous areas as described in the following pages. If the information is not sufficient and you wish some guidance please call on our Programme Consultants.

10.131 Management in Industry I

10.232 Management in Industry II

Purpose – This 24-week course over two terms is designed for supervisors, managers, and persons anticipating such responsibility. It provides a practical and theoretical introduction to the principal functions of modern management. The material covered is particularly useful for persons with no formal training in management as it provides a base for advancing to more specific training in the various areas touched upon in these sessions.

Objectives – From this course the student will obtain a good understanding of how an organization functions to accomplish its goals. It will also provide an insight for planning a certificate programme which will be of maximum assistance to the student in reaching his career goals.

Outline – Through lectures, films, and case discussions, with special emphasis on participation, the classes will examine theory and improve the student's knowledge of the management functions of planning, organizing, directing, and controlling. Topics include the related areas of communication and management information systems; setting objectives; planning for profit, sales, and personnel; organization theory and structure; leadership styles; decision-making and other facets of managerial responsibility. In the two terms (24 weeks) only an overview of these subjects can be obtained as a base for in-depth examination in subsequent courses.

Note: Students who are newly appointed supervisors or anticipate a supervisory appointment in the near future should take Supervisory Skills (10:904) before Management in Industry.

PART I

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m. *or*	Sept. 13
Wednesday: 6:45-9:45 p.m. *or*	Sept. 14
Thursday: 6:45-9:45 p.m. *or*	Sept. 15
Saturday: 9:00 a.m. to 12:00 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0

Part I will be offered for late registrants Monday and Wednesday evenings, 6:45-9:45 p.m. for 6 weeks beginning October 24 and February 20, 1978.

Part I will be repeated Monday, Tuesday, Wednesday, Thursday or Saturday beginning January 9, 10, 11, 12 or 14 in 1978.

Part I will be repeated in Term III Wednesday, April 5 for 12 weeks or Monday and Wednesday evenings for 6 weeks beginning April 3, 1978.

Please indicate a preference of time you wish to attend.

Part II (Students entering Part II should have completed Part I)

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

Part II will be repeated in Term II Monday, Tuesday, Wednesday, Thursday or Saturdays beginning January 9, 10, 11, 12 or 14, 1978.

Part II will be repeated in Term III Monday or Tuesday or Wednesday evenings beginning April 3, 4 or 5, 1978 for 12 weeks or Monday and Wednesday evenings for 6 weeks beginning April 3 or May 15, 1978.

10.135 Economics I

10.235 Economics II

Purpose – This course is designed to improve managerial skills by providing a basic understanding of how the market place functions. It supplies background for other BCIT courses and is accepted by various associations such as the Institute of Chartered Accountants for students in such programmes.

Objective – On completion of the 30 weeks the student has increased his understanding of the anatomy and physiology of the economy and the interaction of individual components in the interdependent economy.

Outline – In Part I through lectures, laboratory exercises, and case studies the student is introduced to the subject and the language of Economics.

From this basic understanding, Part II becomes more of a seminar-type course, including such topics as urban economic problems and the money market, and ranges from understanding consumer behaviour to complex international economics.

PART I

Tuesday: 6:45-9:45 p.m. *or* *Wednesday:* 6:45-9:45 p.m.	*Begins:* Sept. 13 or Sept. 14
Term I (12 weeks)	*Unit:* 1.0

PART II

Tuesday: 6:45-9:45 p.m. *Wednesday:* 6:45-9:45 p.m.	*Begins:* Jan. 10 or Jan. 11
Term II (18 weeks)	*Units:* 1.5

10.221 Management Psychology I

Purpose – To give the person with no formal courses in psychology a background in basic psychological concepts and the application to management situations. This will include exposure to the operational definitions or terminology common to psychology and other social sciences to allow the student to grasp more readily the information conveyed in reading in all areas of organizational behaviour studies.

Objective – To give students a common background for further courses in management administration and interpersonal and organizational behaviour.

Outline – A combination of lectures, films, case studies, discussion, and group experiences. Concentration is on the individual in the first portion of the course with a focus on determinants of behaviour; heredity, culture, motivation, perception, attitudes, learning, and leadership. The course concludes with a focus on understanding group interactions in an organizational environment.

Succeeding courses are 10.321 Management Psychology II or 10.906 Organizational Behaviour.

Note: Students completing this course should proceed to 10.321 Management Psychol-

ogy II if they wish to develop their skills in dealing with situations on a one to one basis or to 10.906, Organizational Behaviour if their work situation is more related to being part of a group.

Monday: 6:45-9:45 p.m. *or*	*Begins:*	Sept. 12
Tuesday: 6:45-9:45 p.m. *or*		Sept. 13
Wednesday: 6:45-9:45 p.m. *or*		Sept. 14
Thursday: 6:45-9:45 p.m. *or*		Sept. 15
Saturday: 9:00 a.m. to 12:00 noon		Sept. 17
Term I (12 weeks)	*Unit:*	1.0

This course will be offered for late registrants Tuesday and Thursday evenings, 6:45-9:45 p.m. for 6 weeks beginning October 25.

This course will be repeated in Term II Monday, Tuesday, Wednesday, Thursday or Saturday beginning January 9, 10, 11, 12 or 14, 1978.

This course will be offered for late registrants Tuesday and Thursday evenings, 6:45-9:45 p.m. for 6 weeks beginning February 21st.

This course will be repeated in Term III, Tuesday, April 4, 1978 or Tuesday and Thursday evenings for 6 weeks beginning April 4, 1978.

THIS COURSE IS ALSO OFFERED DURING THE DAYTIME 9:00 a.m. to 5:00 p.m., 5 days at B.C.I.T. October 24 to 28, 1977, February 27 to March 3, 1978, April 17 to 21, 1978.

Unit: 1.0

10.321 Management Psychology II

Purpose – This second part of Management Psychology is for persons in counselling situations or with leadership responsibilities who, having completed Part I, will benefit from a deeper appreciation of motivation theory and applications.

Objectives – To build on the base provided in Part I so that students on completion may better understand and cope with human behaviour situations in the world of work.

Outline – Through lectures, case studies, and films the group will probe deeper into the theories which were introduced in Part I as they relate to people management. This includes organization culture, attitudes, and their importance in change leadership styles and conflict in goals and objectives.

Tuesday: 6:45-9:45 p.m.	*Begins:*	Sept. 13
Term I (12 weeks)	*Unit:*	1.0
Term II		
Monday: 6:45-9:45 p.m. *or*	*Begins:*	Jan. 9
Tuesday: 6:45-9:45 p.m. *or*		Jan. 10
Wednesday: 6:45-9:45 p.m. *or*		Jan. 11
Thursday: 6:45-9:45 p.m. *or*		Jan. 12
Saturday: 9:00 a.m.-12:00 noon		Jan. 14
Term III		
Tuesday: 6:45-9:45 p.m. *or*	*Begins:*	April 4
Wednesday: 6:45-9:45 p.m. *or*		April 5
Tuesday & Thursday for 6 weeks		May 16

Prerequisite – Management Psychology I

10.325/425 Labour Relations I and II

Purpose – This 24-week course is designed for people who are involved in or associated with labour relations either as a member of management or a union. People in the personnel

field, shop stewards, supervisors, or managers will find the coverage of the collective bargaining process and day-to-day contract administration extremely useful.

Objective – The student with this 24-week course behind him can expect to approach his responsibilities in matters covered by a collective agreement with more confidence and expertise.

Outline – Through lectures, case discussions, and exchange within the group the course covers related laws, collective bargaining, mediation, arbitration, typical contract clauses, grievance procedure, responsibilities of the supervisor and the shop steward, and current activities in the labour relations field.

PART I

Monday: 6:45-9:45 p.m. *or*	*Begins:*	Sept. 12
Wednesday: 6:45-9:45 p.m. *or*		Sept. 14
Thursday: 6:45-9:45 p.m. *or*		Sept. 15
Saturday: 9:00 a.m.-12:00 noon		Sept. 17
Term I (12 weeks)	*Unit:*	1.0

Part I will be repeated in Term II on Monday or Tuesday evening, January 9 or 10, 1978.

Part I will be repeated in Term III, Monday and Wednesday evenings for 6 weeks beginning April 3, 1978.

PART II

Monday: 6:45-9:45 p.m. *or*	*Begins:*	Jan. 9
Wednesday: 6:45-9:45 p.m. *or*		Jan. 11
Thursday: 6:45-9:45 p.m. *or*		Jan. 12
Saturday: 9:00 a.m. to 12:00 noon		Jan. 15
Term II (12 weeks)	*Unit:*	1.0

Part II will be repeated in Term III Monday, April 3 for 12 weeks, or Monday and Wednesday for 6 weeks beginning April 3 or May 16, 1978.

10.240 Government and Business

Purpose – This basic course will be particularly helpful to persons seeking a career in the Federal, Provincial or Municipal levels of Government or for business people who need to understand the kind, extent and reasons for government involvement in business.

Objectives – To give the student a good understanding of the practical aspects of government interaction with business.

Outline – Through lectures, group discussions and selected readings the class will explore: federal, provincial and municipal government in the regulation and support of business enterprise in Canada; government policy toward monopoly and combines control; legislation and regulations in such areas as banking, broadcasting, transportation, labour, consumer protection, etc.; support programmes of various types for economic development; taxation, licensing, marketing boards, etc.

Wednesday: 6:45-9:45 p.m.	*Begins:*	Sept. 14
Term I (12 weeks)	*Unit:*	1.0

10.331 PRINCIPLES OF PROPERTY MANAGEMENT

Purpose – This course lays the foundation for a sound education in property management. It thoroughly familiarizes the student with the basic theories and techniques of managing investment real estate and is a wise investment for any person interested in Property Management.

Objective – On completion of the course, the student will have an insight into the long range welfare of the investment property and be familiar with the day to day skills necessary to manage residential and commercial properties. Students can obtain credit points for this course toward the designation of Certified Property Manager with the Institute of Real Estate Management as well as credit in the B.C.I.T. Administrative Management Programme.

Outline – The course will discuss all responsibilities of the property manager such as management agreements, merchandising rental space and leasing, controlling the physical investment and maintenance, real estate economics, finance and valuation, neighbourhood analysis, property analysis and apartment management. Students will gain an overall view of the many types of property in which management opportunities abound. A textbook will be used with assigned reading.

Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

10.340/440 GOVERNMENT & POLITICS IN CANADA

Purpose – The course is designed for those who wish to have a better understanding of the process of government in the Canadian milieu, and to give individuals who are already in the public service but who have had no formal training an overall view of the policy process at all four levels of government.

Objective – To relate the course material to the policy process, and thus, with every topic covered, the focus will be "what has this to do with the making of public policy in Canada?"

Outline – The course emphasizes the process of government and politics. It deals with the policy making process, political parties, interest groups and bureaucracy at all four levels of government. A portion of the course is devoted to the Canadian constitution and federalism.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

10.360 Business Law I

Purpose – This course is designed as familiarization for students who will benefit from a general coverage of commercial law or those requiring the fundamentals to proceed to the more advanced studies outlined in 10.460.

Objective – Students who attend this course will acquire a broad understanding of the principles of law.

Outline – The course consists of reading assignments, lectures based on the readings, and case study.

About half of the course will deal with contract law. Other topics covered will be jurisprudence, organization of courts, a brief discussion of tort law, along with a brief study of constitutional law.

Wednesday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 14
Thursday: 6:45-9:45 p.m. *or*	Sept. 15
Saturday: 9:00 a.m. to 12:00 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0

Please indicate a preference of day you wish to attend.

This course will be repeated in Term II commencing Wednesday, January 11, 1978.

10.460 Business Law II

Purpose – This second part of the 24 week course will give students carrying on from 10.360 a considerably greater depth of knowledge of commercial law.

Objectives – Upon completion of this course students will have a better understanding of contracts, mortgages, real property law, and company law; they will be able to deal more effectively with lawyers and be better able to handle many of their own affairs. Finally, completion of this course will enable students to determine specifically what legal problems should be turned over to a lawyer.

Outline – This course consists of reading assignments, lectures based on readings and case study. Topics of study include Canadian mercantile law; the law of contracts and subject involved with guarantee, agency, employment, mechanics' and wage-earners' liens, sale of goods, bailment, corporations, partnerships, bankruptcy, real property, mortgages, landlord and tenant, negotiable instrument, insurance, banks and banking, torts, crimes, marriage, and constitutional law.

Wednesday: 6:45-9:45 p.m. *or*	*Begins:*	Jan. 11
Thursday: 6:45-9:45 p.m. *or*		Jan. 12
Saturday: 9:00 a.m.-12:00 noon		Jan. 14
Term II (12 weeks)	*Unit:*	1.0

Prerequisite – Successful completion of 10.360 Business Law I or permission of the Instructor.

Please indicate a preference of day.

This course will be offered again in Term III commencing Wednesday, April 5, 1978.

10.530/630 Administrative Assistant/Executive Secretary

Purpose – This 24 week course is designed for intelligent persons now performing satisfactorily who wish to prepare themselves for increased responsibilities in a staff position such as administrative assistant, executive assistant, executive secretary or "assistant to". (These titles vary with organizations but the prime purpose is to relieve a busy executive of certain functions and routines so that the executive may have more time for the important decisions and managerial functions.)

People now occupying such a position can also benefit from this course by increasing their knowledge and skills in order to enhance the scope of the work they now perform.

Objective – On successful completion of the course, participants will be prepared to "take on" a broader range of administrative responsibilities in the type of position noted.

Outline – Course content includes such topics as: defining the role of the administrative assistant; communications skills; work organization; motivation; group structure; problem solving; report preparation and analysis; supervisory skills and interviewing. These subjects will be covered by a variety of participatory methods designed to develop the skills of the group in these areas.

Also see 10.930/931 page 55 for the downtown course.

PART I

Monday: 6:45-9:45 p.m. *or*	*Begins:*	Sept. 12
Wednesday: 6:45-9:45 p.m.		Sept. 14
TERM I (12 weeks)	*Unit:*	1.0

Part I repeats in Term II commencing Wednesday, January 11, 1978.

PART II

Monday: 6:45-9:45 p.m.	*Begins:*	Jan. 9
TERM II (12 weeks)	*Unit:*	1.0

Part II repeats in Term III commencing Wednesday, April 5, 1978.

10.901 Salary Administration

Purpose – This 12-week presentation is for people who will benefit from a solid grounding in the fundamentals of salary administration.

Objective – On completion of the course the student should know the whys and hows of salary administration and have an introductory level knowledge and understanding of the techniques in this field.

Outline – Through lectures, discussions, case presentations and examples, this course will cover how to set up a plan, alternative methods of job evaluation, elements of a job description, administering a salary plan, establishing and maintaining salary schedules, the various types of general and specific adjustments for promotions, demotions, etc.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Monday, January 9.

10.902 Small Business Management I

Purpose – This course will assist people planning to embark on a small business venture. This can be either starting a new business or purchasing an existing operation.

Objective – Through developing a new business proposal in class, members of the group should be able to analyse systematically the feasibility of participating in a small business operation.

Outline – The subjects covered by lectures, case studies and general discussions will include prerequisites for success, financing, legal problems, credit, physical facilities, location, and layout planning, etc.

Operational tactics are covered in Part II.

Tuesday: 6:45-9:45 p.m. *or* *Begins:* Sept. 13
Wednesday 6:45-9:45 p.m. Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II Tuesday or Wednesday, January 10 or 11, 1978.

10.903 Small Business Management II

Purpose – This course is designed for the manager or owner of a small business and for students who have completed Part I and wish to be exposed to operating techniques before embarking on a new business venture.

Objective – This segment of the two-part course will assist in planning, organizing, directing, and controlling each of the key functional areas of a small business. It is designed to improve the effectiveness of the student in tackling his day-to-day business problems.

Outline – Subjects covered through lecture, case studies, films, and general discussion will include financial control, record-keeping, budgeting, forecasting, product and inventory control, pricing, sales promotion, staffing, and other functions pertinent to successful business operation.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Unit:* 1.0

10.904 Supervisory Skills

Purpose – New supervisors or aspirants for leadership responsibilities will find this course designed to meet their needs. It is applicable to people in large or small companies,

institutions, Government departments, municipalities, or associations — wherever a supervisory situation exists.

Objectives – To provide knowledge and techniques which will enable the student to increase his confidence and capabilities as a leader. It also will prepare the student for more in-depth training in supervision and management.

Outline – Lectures, films, and case discussions are used to cover the needs of persons taking the first step into supervision. Included are such subjects as getting work done through others, handling grievances, delegation, work planning, and roles and relationships within an organization.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m. *or*	Sept. 13
Wednesday: 6:45-9:45 p.m. *or*	Sept. 14
Saturday: 9:00 a.m. to 12:00 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0

This course will be offered for late registrants Monday and Wednesday evenings, 6:45-9:45 p.m. for 6 weeks beginning October 24, 1977.

This course will be offered in Term II on Monday, Tuesday, Wednesday or Saturday, commencing the week of January 9, 1978.

This course will be offered for late registrants Monday and Wednesday evenings, 6:45-9:45 p.m. for 6 weeks beginning February 20, 1978.

This course will be offered in Term III Wednesday, April 5, 1978, and for late registrants Monday and Wednesday evenings for 6 weeks beginning May 15, 1978.

This course will also be offered during the daytime at B.C.I.T., 9:00 a.m. to 5:00 p.m. for 5 days:

October 3 to 7, 1977	
February 13 to 17, 1978	
April 10-17, 1978	*Unit:* 1.0

10.905 Managerial Styles

Purpose – This course is designed for people with leadership responsibility as supervisors or managers, or for students who have taken other courses and wish a better understanding of the "people aspects" in management.

Objective – Students completing this course should have a better knowledge and appreciation of the theory and practices related to getting work done through others and of organizational design.

Outline – Starting with the roles and relationships of a manager, the course through lectures, case studies, films, and discussion groups provides an overview of the most accepted theories which lead to a good examination of how those theories may be applied in differing situations and the implications for organizational behaviour and development.

Prerequisite – Students should have a working experience in leadership situation and preferably have completed Management in Industry and Management Psychology or Organizational Behaviour.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, January 11.

10.906 Organizational Behaviour

Purpose – This course is ideally suited for students who have completed Management

Psychology I and who are either members or leaders in a work team.

Objective – To provide a better knowledge and appreciation of organizational design and dynamics and to understand theories and practices related to improving the effectiveness of people within a group and of groups working together.

Outline – Through lectures, films, discussion groups and case studies the class will examine social systems at work, developing a behavioural climate participation, managing change, conflict in groups and the development of teamwork through group dynamics.

Prerequisite – Management Psychology I or similar training acceptable to the Programme Consultant or Instructor.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

10.907 Discussion Leadership

Purpose – This course is designed for anyone who gets involved in a discussion leadership situation, whether formal or informal — supervisors, managers, group leaders, association representatives, union leaders, etc. It is aimed principally at the problem-solving situation.

Objective – Persons completing this course will gain confidence and skill in getting the most out of an exchange within a group, a meeting, or a more formal conference.

Outline – Through lectures, demonstrations, and critiqued practice sessions the instructor will lead the group through the kinds of meetings for various situations, planning techniques, introducing the subject, question techniques, controlling the discussion ensuring participation, summarizing fixing responsibility, and ensuring follow-up action.

Many people in leadership situations find this training the most useful they have ever experienced.

Monday 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II on Monday, January 9 and in Term III commencing Monday, April 3, 1978.

10.908 Problem Solving and Decision Making

Purpose – This course is intended for anyone interested in developing skills in problem-solving and decision-making through the use of systematic techniques and processes.

Objective – Persons completing this course will be able to apply a range of techniques to problems and decisions they face that will assist them in achieving a more satifactory resolution.

Outline – Through lectures, demonstrations, critiqued practice sessions, and actual applications, this course will clarify the common elements of problem situations and examine a variety of techniques and processes intended to make the problem-solver more effective. The course is concerned with practical, general-purpose methods rather than sophisticated quantitative ones.

Thursday: 6:45-9:45 p.m.	*Begins:* Jan. 12
Term II (12 weeks)	*Unit:* 1.0

10.910 Personnel Management

Purpose – This 12-week introductory course is designed for those who have recently joined personnel or industrial relations departments or who plan to enter the field. It is also valuable to supervisors and managers who must implement and are held accountable for administering personnel policies.

Objectives – On completion of the course, students can expect to have a good understanding of the role of the personnel function, its relation to management, its responsibility to employees, and what it does.

Outline – Through lectures, case studies, and audio/visual aids, all of the major functions of the personnel department will be examined, with particular emphasis placed on the practical application of personnel policies and procedures within the work environment. It includes such topics as employment wage and salary administration, administration of pension plans and insurances, employee relations, and other functions. These subjects are presented to show the breadth of these functions only and should be followed by supporting courses giving in-depth coverage on how to administer the various subject areas.

Monday 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m. *or*	Sept. 13
Thursday: 6:45-9:45 p.m. *or*	Sept. 15
Saturday: 9:00 a.m. to 12:00 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II Monday, Tuesday or Thursday evenings commencing the week of January 9, 1978 and in Term III Tuesday, April 4, 1978.

Please indicate a preference of night you wish to attend.

10.913 Selection Interviewing

Purpose – This course is presented for people in the Personnel field — supervisors, managers, and anyone who is called upon to interview candidates for employment.

Objective – This highly important skill is seriously under-rated in most organizations. Students completing this course can be expected to make a more meaningful contribution to their organization through avoiding many of the pitfalls of inappropriate selection of new employees.

Outline –The course identifies techniques, styles, stages, uses, pitfalls, and key points in interviewing, with particular emphasis on question techniques and selective listening. The classes will lean heavily to practice sessions using tape recorders and closed circuit television. With this need for individual attention the class is limited to 20 students.

Monday 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m. *or*	Sept. 13
Thursday: 6:45-9:45 p.m.	Sept. 15
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II, Monday, Tuesday, or Thursday, January 9, 10 or 12, 1978.

This course will be repeated in Term III, beginning Tuesday, April 4, 1978.

Prerequisite: Students should have had some previous exposure to the selection process and preferably completed the course on Personnel Management.

Please indicate a preference of night.

10.914 Manpower Planning

Purpose – Members of a personnel department; training section, managers, supervisors,

or people in a planning organization which involves "people resources" are those who will find this presentation very practical.

Objective – To give participants the philosophy and some of the techniques of maximising people potential in an organization.

Outline – Through lectures, group discussions, and case studies the instructor will lead the class to an understanding of the importance of Manpower Planning, methods of evaluating present resources, future projections, sources of supply, identifying training needs, related personnel policies, budgeting and costing, and programme evaluation.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12
Term II (12 weeks) *Unit:* 1.0

10.915 Aptitude Testing

Purpose – For personnel selection and career planning. This basic course is designed to assist persons in personnel departments and administration departments in industry, business, hospitals, and education where selection and development of personnel is of concern. Supervisors, managers, and counsellors will find useful this practical orientation to the proper use of psychology tests. BCIT students who have completed 10.913 Selection Interviewing will find this Aptitude Testing course particularly supportive and appropriate.

Objectives – Satisfactory completion of this course should enable the participants to (1) understand the proper use of aptitude tests, their administration, scoring, and norms, and straightforward interpretation of Level A tests; (2) avoid unintentional abuse of tests and the data derived; (3) appreciate when professional guidance and assistance are needed in a testing programme and how to use supplementary analysis and reports from an industrial psychologist.

Outline – A practicum course which will allow each student to "see, touch, and do" an extensive battery of aptitude tests. Proper methods of administering, scoring, norming, and initial interpretation of basic tests will be taught. Participants will obtain their own private results on a number of standard aptitude and interest tests as well as gain an introduction to achievement tests, personality inventories, and specialized tests. Course is prepared and conducted by a consulting industrial psychologist.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13
Term I (12 weeks) *Unit:* 1.0

(Plus $15.00 Lab Fee for Personnel Test Materials, Computer Scoring, etc.)

10.916 Counselling I

Purpose – To give a broad orientation to the range and ramifications of the counselling process and to develop usable skills for persons involved in interviewing within business, industry, hospitals, social agencies, and education.

Objectives – To understand the different counselling methods, who is competent to use each and when a particular counselling mode is appropriate to a client's needs; to enhance personal interviewing abilities by developing skills of active listening and nondirective counselling.

Outline – Lectures, films, and tapes by recognized international authorities to acquaint class participants with (1) the historical development and present trends in counselling and (2) with the philosophies, processes, and methods of various counselling approaches. Some personal interviewing and listening skills will be practised and a general base will be laid through this course and 10.917 Aptitude Testing for those wishing to enter into a greater depth of interpersonal training via the subsequent course 10.916. Courses are prepared and conducted by a consulting organizational psychologist.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (12 weeks) *Unit:* 1.0

(Plus $15.00 Lab Fee for tape and film rentals, etc.)

10.917 Counselling — Testing II

Purpose – To provide a greater depth of experience and understanding to those students who have completed 10.915 Aptitude Testing and 10.916 Counselling.

Objectives – To develop a sensitive awareness to the process of personality appraisal and personal growth through individual and group counselling methods; to enable each student to complete some complex personality inventories and receive confidential feed-back; to let groups of students learn to develop an accepting and supportive circumstance in which an individual can express personal concerns and learn to share in an atmosphere of trust, openness, and mutual respect.

Outline – Individuals will learn by doing and by discussion of personality tests, interviews, and small group process. Special counselling films and audio tapes will be used to expand on instructor-presented information. Students will be active participants, each presenting at least one short paper to the group. The psychologist will contribute as a resource person and in the function of a facilitator — participant vs. lecturer.

Tuesday: 6:45-9:45 p.m. *Begins:* April 4

Term III (12 weeks) *Unit:* 1.0

(Plus $15.00 lab fee for students' test materials and computer scoring services.)

Prerequisite: 10.916 Counselling I or the permission of the Instructor.

10.918 Accident Prevention

Purpose – This course is for anyone who has responsibilities for accident prevention in an industrial setting. Managers, supervisors, shop stewards, safety committee members, or members of a personnel department will find this presentation very practical.

Objective – On completion of this course the participants should make a meaningful contribution to the reduction of injuries and accident costs in their operation.

Outline – Through lectures, films, and case discussions the course will cover the important aspects of accident prevention, including the *Workers' Compensation Act,* rules and regulations, types of organization structure, the role of the committee, creating a "thinking" state of mind, promotional approaches, effective use of statistics, the pros and cons of reward systems, union management co-operation, and other ways and means of getting this important job done.

This course is conducted by the B.C. Safety Council for B.C.I.T.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

This course will be repeated in Term II, beginning Wednesday, January 11, 1978.

10.919 Labour Relations Research

Purpose – To give an insight into the information used in collective bargaining and arbitration. To familiarize students with survey techniques, statistical practices, case preparation, costing methods, pension plans, and how to present factual information in negotiations and hearings.

The course is designed primarily for people involved in preparing material for labour-management negotiations.

Objectives – A student completing this course will *(a)* be able to prepare factual data for

negotiations and will understand the information presented; *(b)* be able to cost wage, salary, and fringe-benefit proposals; *(c)* be familiar with sources of information; *(d)* have an understanding of research concepts.

Outline – The course emphasizes discussion following lectures and will employ mock bargaining to demonstrate the importance of emotional and political interference in the communication process. Guest speakers from labour and management will be invited to participate in lectures and discussions.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II, beginning Wednesday, January 11, 1978.

Prerequisite: Working experience in labour relations or have completed a course in labour relations.

10.923 Interviewing — Advanced

Purpose – This course is designed to add to the expertise of those who have some experience and/or training in the skills of interviewing.

Objective – To develop the interviewing skills of participants to handle many of the more highly stressed interview situations.

Outline – Through demonstration, role playing, analysis and evaluation aided by extensive use of audio visual and tape recording equipment the group will explore behaviour fundamentals in various situations and acquire practice experience in in-depth selection interviewing, disciplinary situations, problem solving, training interviews, accident investigations and similar situations.

As the group proceeds through this practical experience there will be considerable assistance given in developing communication skills.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks *Unit:* 1.0

This course will be repeated in Term II commencing Tuesday, January 10, 1978.

Prerequisite – Selection Interviewing.

10.924 Management By Objectives

Purpose – This course is designed for supervisors, administrators, managers and specialists who wish to improve their knowledge of the planning process in management.

Objective – On completion of this course, students will have a good knowledge of the philosophy, practices and procedures commonly known as Management by Objectives.

Outline – Through lectures, discussion and group work, the class will cover: the case for planning, relationship to strategic plans, identifying key areas, setting objectives, the management cycle and the styles of management in a climate appropriate to the process of managing by objectives.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

The course will be repeated in Term II Monday, January 9 and in Term III Monday, April 3, 1978.

10.925 Appraising Real Property — SREA — Introduction

Purpose – The course is designed for beginners in the fields of appraiser, real estate

broker, lender, builder, and assessor. It assumes no particular background for the student other than an interest in appraising and ability to learn.

It may also serve as a refresher for experienced appraisers who feel a need to refresh and update their knowledge and skills.

Objective – On completing this introductory course, the student will not be an appraiser, but will have learned how to apply the principles and techniques to actual residential appraisal problems. To become a professional appraiser, the student completing this course must add meaningful practical appraisal experience and further advanced training.

Outline – Through lectures, discussion groups, reading assignments, and practical case problems, the material covered will include such topics as principles of real estate, elements or urban land economics, nature and principles of real estate value, appraising as applied economics analysis, the appraisal framework, area analysis, neighbourhood analysis, site analysis, site valuation, improvements analysis, direct sales comparison approach, gross rent multiplier analysis. Cost approach: reproduction cost of new improvements, estimation of accrued depreciation (diminished utility). Summary of the cost approach: correlation analysis and final value estimate, writing the appraisal report; professional ethics and standards of practice.

Saturday: 9:00 a.m. to 4:00 p.m.	*Begins:* Nov. 19
Term I (9 weeks)	*Units:* 1.5

There will be an orientation session for all students enrolled in this course on Saturday, November 5 at 9:00 a.m.

In addition to the B.C.I.T. course fee, students will also be required to purchase text materials from the Society of Real Estate Appraisers on the first morning of the class. Cost approximately $70.00.

10.930 Administrative Assistant/Executive Secretary I

Purpose – This course is an adaptation of 10.530 specifically designed for a "downtown" setting. Students who find it difficult to attend B.C.I.T. can obtain this training during the day or early evening at a central location such as the Y.W.C.A. downtown. It has proven to be very successful and numerous companies have sponsored employees preparing for more administrative responsibility. For a description of the course see 10.530, page

Monday & Wednesday: 12:30-2:00 p.m.	*Begins:* Sept. 19
Term I (10 weeks)	*Unit:* 1.0

This course will be repeated in Term II, Monday and Wednesday, 12:30-2:00 p.m. commencing January 16, 1978 for 10 weeks.

This course will be held Tuesday evenings from 5:00-7:00 p.m. for 15 weeks commencing September 20, 1977.

Location to be confirmed, but will be central.

10.931 Administrative Assistant/Executive Secretary II

This is a continuation of 10.930 and is an adaptation of 10.630. The course will be scheduled to start in early February to meet the wishes of students completing 10.930 in Term I.

10.940 Special Project

Purpose – This opportunity is offered to give advanced level BCIT Continuing Education students the opportunity to do an independent, in-depth study of an area of interest in the business management field under the guidance of an instructor.

Objective – In this project students will be able to take a real "live" problem or situation that they face in their work and tackle it with the guidance of an "expert" in the field. The specific objectives of the project will be set by the student himself.

Outline – If a student is interested in pursuing this avenue of study, he should approach a Programme Consultant for assistance in putting forth his proposal for the project.

Unit — This course may be taken for one or two units of credit.

Fee — Calculated on basis of the project.

10.950 Training Techniques (formerly Industrial Training)

Purpose – This course is helpful to people with responsibility for training of personnel in business, industry, government, municipalities, and institutions. Members of a personnel department contemplating a training programme and supervisors will be particularly interested.

Objective – On completion of these 12 weeks the student will have a good grounding in current training methodology techniques and aids. Be prepared to proceed with additional courses for a Certificate in Training Management.

Outline – Lectures, demonstrations, and practice sessions will cover such topics as learning theory, determining training needs, writing objectives, designing, training programmes, using outside resources and evaluation. Practice sessions will provide familiarity and skills in the effective use of visual aids.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II, beginning Wednesday, January 11 and in Term III Monday, April 3, 1978.

10.951 Systematic Industrial Training

Purpose – This course is designed to meet the specific needs of Trainers from Industry; from the "on the job" instructor and training co-ordinator to the Training Officer and Training Manager. Students will have the advantage of an involvement with Trainers from differing environments.

Objective – On successful completion of this course, participants will be able to: identify and use a systematic method of training to accurately establish training needs, and originate training objectives in behavioural terms.

Outline – This course will define the seven major steps in the systems approach to training, with particular emphasis on "Training Need" and "Training Objectives".

Participants will gain most benefit for themselves and their organizations by bringing to this course their own specific training problems.

Lectures, demonstrations, practical workshops, individual and team projects will be used on this course.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Completion of the courses listed in Year I of the Training Management Business Certificate Programme or equivalent experience.

10.952 Training Course Design

Purpose – This course is designed to meet the specific needs of Trainers from Industry; from the "on the job" instructor and training co-ordinator to the Training Officer and Training Manager.

Objective – On successful completion of this course, participants will be able to: Design, supervise delivery, cost and evaluate a training course or program from specific training objectives.

Outline – A critical examination of "Training course design" will be carried out, with particular emphasis on the following: Course objectives, initial behaviour, terminal behaviour, course content, course duration, training methods and media, course costs, course evaluation.

Participants will gain most benefit for themselves and their organizations by bringing to this course, their own particular training problems.

Lectures, demonstrations, practical workshops, individual and team projects will be used on this course.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Completion of the courses listed in Year I of the Training Management Business Certificate Programme or equivalent experience.

10.953 Evaluation and Validation of Training

Purpose – This course is designed to meet the specific needs of Trainers from Industry, Commerce and Government; from the "on the job" instructor to Training Officers and Training Managers.

Objective – On successful completion of this course, participants will be able to: identify, define and use evaluation and validation techniques to measure the effectiveness of systematic training.

Outline – A critical examination of techniques for the evaluation and validation of training will be carried out, with particular emphasis on the following: initial criteria, performance criteria, evaluation and validation methods, advantages and disadvantages of each method, training records.

Participants will gain most benefit for themselves and their organizations by bringing to this course, their own particular training problems. Lectures, demonstrations, practical workshops, individual and team projects will be used on this course.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Previous training courses as listed in the Training Management Business Certificate Programme or equivalent experience.

10.954 Management of Industrial Training

Purpose – This course is designed to meet the specific needs of industrial trainers, particularly those responsible for organizational training and training policy, i.e., Training Officers and Training Managers.

Objectives – On successful completion of this course, participants will be able to: 1) provide specialist advice to Senior Management on all training matters, 2) identify organizational benefits from training, 3) accurately identify training needs from organizational objectives, 4) implement, operate and control systematic training schemes within their own organization, 5) identify and use external training resources, 6) maintain a continuous update process in training technology, 7) manage a team of training personnel.

Outline – This course will define and train the role of the Training Manager. Participants will gain maximum benefit for themselves and their organizations if they relate this course

to their work environment by bringing forward specific training problems as a project.

Lectures, demonstrations, practical workshops, individual and team projects will be used on this course.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Unit:* 1.5

Prerequisite – Previous training courses as listed in the Training Management Business Certificate Programme or considerable experience in the training field.

10.955 Management of Time

Purpose – This course is designed for people in administrative positions who wish to improve their performance on the job through more effective use of their time and still have time to enjoy living.

Objective – On completion of the course students will have acquired knowledge and skills in using the basic tools of time management and a framework in which to make better discussions and to effectively manage their responsibilities.

Outline – Through the use of films, lectures, assignments, discussions and direct application to individual work situations, as well as to personal life, a comprehensive analysis of time used and abuse will furnish the student with a working knowledge of managing this resource.

Some of the topics covered will be: time robbers — cause and cure; planning, setting goals and priorities; creative time analysis; deciding what *not* to do; ending procrastination forever; rediscovering lost time; overcoming the "paper work" habit; myths about hard work; a manager's time inventory, etc.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, January 11, 1978.

ADMINISTRATIVE MANAGEMENT TECHNOLOGY

BCIT is pleased to co-operate with the Canadian Institute of Management in presenting the following courses *for C.I.M. Members.*

For further information see the C.I.M. information page and the Certificate programme outline on page

C.I.M. unit credits may be applied to BCIT Certificate Programmes. The fees quoted are BCIT instructional fees and do not include C.I.M. membership.

YEAR I

10.970 Canadian Business Concepts — C.I.M.

This course provides an overview of Canadian business and the various environmental factors, both internal and external which affect the operation of a business. Specific areas such as personnel, production, marketing and finance will be examined in order to expose the student to the total organization and to how the other departments relate to the area in which he is currently involved. Management itself is examined in relationship to what is normally considered to be the functions of Management (planning, organizing, staffing, directing and controlling) as well as to the various leadership styles. Managing in both unionized and non unionized organizations will be discussed.

On completion of this course, students will have become aware of the interactive nature of organizations and will understand the importance of their studying in the areas of economics, law, inter-personal behaviour, marketing, organizational behaviour, management information systems, job design and accounting, as they prepare themselves to carry increased responsibilities as managers.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12
Term I (12 weeks) — *Unit:* 1.0

10.971 Managerial Accounting — C.I.M.

Managerial Accounting exposes the student to accounting theory and logic, cost control and profit planning, and an appreciation of the techniques of financial analysis.

Accounting theory and logic deals with relatively simple financial statements, how to read and understand them. The student is not expected to prepare financial statements.

Accounting for cost control and profit planning explores the management tools provided through the accounting information systems: standard cost accounting, budgetary control, and cost/volume/profit relationships. This section of the course is expected to give the student an appreciation of the benefits to be gained from a sound financial information system.

Emphasis through the Managerial Accounting course is placed on the interpretation, analysis and use of accounting data. The mechanics of bookkeeping and techniques of producing accounting data are not considered to be relevant to the objectives of the C.I.M. course, and are therefore not covered.

Monday: 6:45-9:45 p.m. — *Begins:* Jan. 9
Term II (12 weeks) — *Unit:* 1.0

YEAR II

10.972 Quantitative Information for Decisions — C.I.M.

Quantitative Information for Decisions is concerned with the expression of facts about the organization in quantitative terms. This includes statements in which some data contains uncertainty and on ways that decisions can be made under various circumstances. The emphasis in the course will be a delineation of the managerial decisions to which quantitative methods can make a contribution. This will involve a discussion of models for analysing data that are in common use in industry and government and how they contribute to decision making. The end result is that the student should be able to make intelligent use of specialists.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

10.973 Organizational and Human Behaviour — C.I.M.

Organizational and Human Behaviour will explore the inter-relationship of individual personality and work, the characteristics of organizations and occupation and relationships of the first two factors to the business and economic dimensions of society.

Included as part of the major areas of discussion are the structure of the organization in relation to the goals of the organization, integration of the reward system and the objectives of the organization, the management of communication, and the dynamics of groups.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (12 weeks) *Unit:* 1.0

YEAR III

10.974 Marketing — C.I.M.

This course is designed to introduce the student to the "Systems" idea of the marketing concept as practiced in marketing management. It will assist the student to develop a functional judgment of the role each of the controllable variables plays in the marketing mix. Furthermore, the course coverage is designed to give breadth of understanding and appreciation rather than depth.

Upon completion of this course the student will: understand the nature, purpose and process of marketing, its importance to the Canadian economy, and to the individual firm; learn to identify and solve marketing problems in general terms; learn to evaluate the marketing mix of a firm,

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

10.975 Operations Management

This course is designed to give the student a broad familiarity with the field of operations management and a comprehensive appreciation of some of the problems faced by different types of enterprises (private and public) in the management of their productive systems.

Upon completion of this course, the student will: understand the nature, purpose and processes associated with operations management; its relevance to facilities design, operations planning and control to the individual firm; learn to identify and solve operational problems in general terms; learn to evaluate the systems approach to operations management,

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (12 weeks) *Unit:* 1.0

YEAR IV

10.976 Finance — C.I.M.

This course is designed to enable candidates to: 1) Acquire a "general management" perspective through the application and integration of the material studied in the first three and a half years of the course to the analysis of complex business problems of the type encountered at the "general management" level. 2) Exchange views, attitudes and experiences with other course candidates and through a discussion of actual case histories, to develop individual and group administrative abilities and the capacity to express ideas coherently in both spoken and written form.

Case histories in financial management are selected to illustrate the wide range of problems which develop in the financing of a business. Particular attention is given to techniques such as cash flow, source and application of funds, budgeting, short and long term funding including the many sources of credit and some exposure to financial analysis of new business opportunities. Borrowing is examined from both the borrower and lender point of view. Finally, attention is given to interpretation of financial statements as a prelude to policy formulation cases which integrate financial analysis with a study of all other aspects of a business.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

10.977 Policy and Administration —C.I.M.

This course is designed to enable candidates to: 1) Acquire a "general management" perspective through the application and integration of the material studied in the first three and a half years of the course to the analysis of complex business problems of the type encountered at the "general management" level. 2) Exchange views, attitudes and experiences with other course candidates and through a discussion of actual case histories to develop individual and group administrative abilities and the capacity to express ideas coherently in both spoken and written form.

Case histories in policy formulation are designed to expose the student to a wide range of business problems involving the examination of a company's opportunities, competences, aspirations and responsibilities. The student is then expected to assess the objectives of the company, develop a strategy for achieving them and point the way toward organizing to get the job done. In the beginning to deal with these "over all" problems, he begins to see how the individual parts of the company (accounting, engineering, production,marketing, administrative organization, people, etc.) have to be coordinated and integrated if the company is to achieve profits.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (12 weeks) *Unit:* 1.0

BROADCAST COMMUNICATIONS TECHNOLOGY

Certificate Programme in Broadcast Communications

Students seeking a Certificate in Broadcast Communications should be prepared to complete a minimum of 10 units in Broadcast subjects plus an additional five units from Broadcast or other Business Division courses. At least two courses in each of the Radio, Television, and Broadcast Journalism areas must be included in the 10 units.

STUDENTS COMPLETING 24 UNITS AND WHO MEET THE NORMAL ENTRY REQUIREMENTS MAY ENTER THE SECOND YEAR OF THE DAY SCHOOL PROGRAMME PROVIDING THESE UNITS INCLUDE 2 OF THE THREE ADVANCED COURSES 12.511/611 RADIO, 12.512/612 TELEVISION OR 12.513/613 BROADCAST JOURNALISM, 2 APPROVED COURSES IN BUSINESS ADMINISTRATION AND 2 APPROVED COURSES IN ENGLISH AND 12.510/610 INDUSTRY ORGANIZATION.

All applications for entry to Broadcast Communications courses must be approved by a Programme Consultant or a member of the Broadcast staff. Programme Consultants are available during the day and evenings during the office hours specified on page 15. Consultation with a member of the Broadcast Communications staff is available each Monday evening at 5:00 p.m. in room 129 commencing August 15, 1977 to June 19, 1978, excluding holidays.

Note: Additional advanced courses are in the development stages and should be available for the Fall Term.

12.901 Radio Broadcasting — Introduction

Purpose – This course is for persons currently employed in nonproductive areas of the broadcast industry or persons highly motivated toward this area.

Objective – On completing this course students will have developed minimal entry skills and a basic understanding of the production process.

Outline – The course introduces the student to broadcast radio equipment and its use in practical industry situations.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II, beginning Monday, January 9, 1978, Term III beginning Monday, April 3, 1978.

LIMITED ENROLLMENT — 22 persons.

12.902 Television Broadcasting — Introduction

Purpose – This course is designed for persons in the industry working in nonprogramme areas or those outside the field who will benefit from knowing more of the "how" and "why" of television.

Objective – On completion of this course students will have an elementary knowledge of television production techniques.

Outline – The course material includes an introduction to all commonly used television equipment and includes some practice in its use. A television production is the ultimate goal of this course.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II, beginning Tuesday, January 10 and Term III, beginning Tuesday, April 4.

LIMITED ENROLLMENT — 22 persons.

12.903 Film for Beginners

Purpose – People with an interest in cinematography or with limited experience are invited to participate.

Objective – To provide an introduction to basic camera operation and film editing as practiced in a television sense.

Outline – In discussion and workshops the course material will cover optical and magnetic sounds, animation, processing, trick photography limitations of the television system, etc.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II, beginning Monday, January 9 and Term III, beginning Monday, April 3.

LIMITED ENROLLMENT — 22 persons.

12.904 Film Use in News

Purpose – This presentation is for persons with an interest in or experience in broadcast journalism who wish to develop some skills as a TV cameraman.

Objective – Successful completion of this course should fit the student for entry to this field in the limited area covered.

Outline – The course covers the use of still and 16-mm film for the coverage of television news. It includes the use of cameras and special techniques, editing and experimentation. Students will have an opportunity for "hands on" use of some equipment in addition to practice in editing and cutting.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

LIMITED ENROLLMENT — 22 persons.

12.905 Copywriting — Radio and T.V.

Purpose – This course is ideal for nonproduction or writing employees in the broadcast industry looking for a move to this area or for any person wishing to know "how it's done."

Objective – To improve the student's technique in selling.

Outline – The course will cover the "how's" and "why's" of writing radio commercials with considerable practice and evaluation.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

12.908 Broadcast News Writing

Purpose – To aid those in the news field who wish to develop additional skills, those with a general interest in the field, and employees in the broadcast industry who wish to add news writing to their present skills.

Objectives – Students can expect to improve their oral and visual newswriting skills.

Outline – The course covers the techniques and skills used in writing news for radio and television. Practical demonstrations, assignments, and practice sessions will be used to develop these skills.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

LIMITED ENROLLMENT — 22 persons.

12.912 Radio and Television Announcing

Purpose – To provide students in broadcast with introductory skills and practice in this important function.

Objective – To improve presentation, articulation, and familiarity with basic announcing skillss...

Outline – Students will be exposed to several styles of announcing techniques and will be given sufficient time for practice.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

LIMITED ENROLLMENT — 22 persons.

Prerequisite – A voice audition may be required.

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

12.913 Broadcast Journalism — Introduction

Purpose – This course provides the basics for students planning a career in this important area of the Broadcast Industry.

Objective – On completion of the course students will have sufficient knowledge of the subject to proceed to 12.513/613.

Outline – The course content includes reporting radio news and television news.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

LIMITED ENROLLMENT — 22 persons.

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

12.914 Audio Visual Techniques

Purpose – To familiarize the student with basic concepts in production and utilization of audio-visual media.

Objective – Upon completion of this course, the student will demonstrate a good working knowledge of basic audio-visual production and presentation techniques.

Outline – The course is a "hands on" learning experience. It incorporates the use of hardware (equipment) and the production of software (materials). The emphasis is on

making audio-visual media work for you by learning to use it effectively and comfortably. Resource people working in specific areas will participate in the course curriculum.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15
Term I (12 weeks) — *Unit:* 1.0

This course will be repeated in Term II beginning Thursday, January 12 and Term III beginning Thursday, April 6.

LIMITED ENROLLMENT — 22 persons.

12.510/610 Industry Organization

Purpose – This presentation is for students who are now in the Broadcast field and are seeking advancement, for students in the Certificate Programme or for anyone planning to enter the 2nd year Day School Broadcast Communications Technology.

Objective – To give the students in Broadcast a firm grounding in the complex rules and regulations, and structure of the Broadcast Industry. This course will require one major term paper plus term examinations.

Outline – Beginning with the background historically of Broadcasting in Canada, the student will be given detail in all regulations and laws governing Broadcasting in Canada. In addition, structure of the Radio and Television Industry in Canada will be studied in some depth.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13
Term I (12 weeks) — *Unit:* 1.0
Term II (12 weeks) — *Unit:* 1.0

12.511/611 Radio

Purpose – This intensive course is for students who have completed 12.901 and for those members of the Industry with appropriate experience.

Objective – On completion of the course students will have substantially increased their depth of knowledge and skills in this field.

Outline – The course content builds on to the base established in the introductory course and provides a thorough grounding in radio production and radio broadcasting.

Prerequisite – Successful completion of 12.901 or equivalent experience.

LIMITED ENROLLMENT — 20 persons.

Mondays & Wednesdays: 6:45-10:45 p.m. — *Begins:* Sept. 12
Term I (12 weeks) — *Units:* 2.5
Term II (12 weeks) — *Units:* 3

12.512/612 Television

Purpose – This intensive course is for students who have completed 12.902 and for those members of the Industry with appropriate experience.

Objective – On completion of the course students will have substantially increased their depth of knowledge and skills in this field.

Outline – The course content builds on to the base established in the introductory course and provides a thorough grounding in television production and television broadcasting.

Prerequisite – Successful completion of 12.902 or equivalent experience.

LIMITED ENROLLMENT — 20 persons.

Mondays & Wednesdays: 6:45-10:45 p.m. — *Begins:* Sept. 12
Term I (12 weeks) — *Units:* 2.5
Term II (12 weeks) — *Units:* 3

12.513/613 Broadcast Journalism

Purpose – This intensive course is for students who have completed 12.913 and for those members of the Industry with appropriate experience.

Objective – On completion of the course students will have substantially increased their depth of knowledge in this field.

Outline – This presentation builds on to the base established in the introductory course and provides a thorough grounding in radio and television reporting and news production.

Prerequisite – Successful completion of 12.913 or equivalent experience.

Tuesdays & Thursdays: 6:45-10:45 p.m.	*Begins:* Sept. 13
Term I (12 weeks)	*Units:* 2.5
Term II (12 weeks)	*Units:* 3

12.915 Special Project — Broadcast

Purpose – This approach is offered to give advanced level Broadcast Communications students an opportunity to do an independent study under supervision.

Objective – To provide the necessary research background for students contemplating completing a Broadcast Communications Certificate.

Outline – The subject material will be designed for the individual student. Assignments are to be completed on a regular basis and will normally be scheduled over a 24 week period commencing in September. Faculty will be available for consultation if desired between 6:00 p.m.-9:00 p.m. Monday evenings by arrangement. Course work will be approximately 6 hours per week.

Unit value and fees will be calculated on the basis of the project.

COMPUTER PROGRAMMING TECHNOLOGY

Business Certificate in Computer Programming Technology

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Data Processing—Introduction (14:901)	1.0	Computer Programming—Assembler I (14:902)	1.0	Elective	1.0
Accounting I (16:900)	1.0	Accounting II (16:901)	1.5		
YEAR II					
Computer Programming—Assembler II (14:903)	1.0	Computer Programming—"High Level" language (see list below)	1.0	Elective	1.0
Elective	1.0	Elective	1.0		
YEAR III					
Computer Systems—Introduction (14:505)	1.0	Computer Systems—Introduction (14:605)	1.0		
Computer Programming "High Level" language (see list below)	1.0	Elective	1.5		

The specified courses shown above (i.e., other than electives) are normally required for the basic Certificate. Elective courses may be selected from the list shown on the following page. Two units of "high level" languages are required. These units may be selected, in any combination, from the following list:

14:503	Computer Programming PL/I	1.0
14:603	Computer Programming PL/I	1.0
14:909	Fortran IV — Basic	1.0
14:917	Fortran IV — Advanced	1.0
14:920	Basic — Interactive Programming I	1.0
14.935	Basic — Interactive Programming II	1.0
14:923	Computer Programming — Introductory — COBOL	1.0
14:924	Computer Programming — Advanced COBOL	1.0
14:927	RPG II — Introduction	1.0

At least six units (including Accounting) must be non-computer courses. A total of 15 units are required for the basic Certificate.

Students working on a high level certificate such as the Senior Business Certificate, should choose not more than 50% of their courses from non-computer electives.

Note: Students with a university degree or graduates from B.C.I.T. with a National Diploma of Technology may receive a Special Certificate by taking 15 units of further part-time studies (page 24).

Electives – Courses which may be used as electives or substitutes where appropriate for Certificate Programmes in the Computer Programming Technology.

Selections should be approved in advance in writing by a Programme Consultant to ensure that they are appropriate and will be accepted as an elective or substitute.

1. Any course listed in the Computer Programming Technology (Prefix 14....)
2. Such courses as:

10.131	Management in Industry I	1.0
10.232	Management in Industry II	1.0
10.135/235	Economics I and II	2.5
10.905	Managerial Styles	1.0
16.902/903	Cost Accounting I and II	2.5
16.907/908	Financial Accounting I and II	2.5
20.914	General Marketing	1.0
20.503/603	Oral Communications and Public Speaking I and II	2.5
22.535/635	Statistics for Business and Industry	2.0
22.941	Work Study I	1.0
22.942	Work Study II	1.5
22.951	Systems Analysis	1.0
22.953	Project Planning and Scheduling	1.0
22.963	Mathematics for Management	1.5
31.503/603	Business and Technical Report Writing	2.0
43.507/607	Digital Techniques	2.0
31.504/604	Business Writing	2.0

Other courses in the Business Management Technologies may be selected with approval of the Programme Consultant.

COURSES IN COMPUTER PROGRAMMING TECHNOLOGY

14.901 Data Processing — Introduction

Purpose – To introduce the principles and concepts of business data processing to people with little or no experience in this area. The course may be useful to people who need an understanding of a computer operation in their firm. For people considering the computer field as a career, this course is a prerequisite for most of the systems and programming courses in this technology.

Objective – To provide a general understanding of business data processing, and to provide a foundation of knowledge for more advanced courses.

Outline – A mixture of lectures and laboratory sessions, with "hands on" computer experience. Introduction to the computer: input/output, hardware, uses of computers, background, data representation. Applied systems: files, magnetic tape and disk, master and transaction files, data entry and control, batch processing, on-line data entry. Computer programming: flowcharting, input/output, processing, decisions, arithmetic, branching.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday 6:45-9:45 p.m. *or*	Sept. 13
Wednesday 6:45-9:45 p.m. *or*	Sept. 14
Thursday: 6:45-9:45 p.m. *or*	Sept. 15
Saturday: 9:00-12:00 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II, Monday, Tuesday, Wednesday, Thursday or Saturday commencing January 9, 1978.

This course will be repeated in Term III, Monday, Tuesday, Wednesday, Thursday or Saturday commencing April 3, 1978.

Please indicate a preference of day you wish to attend.

14.902 Computer Programming — Assembler I
(formerly Computer Programming I)

Purpose – To provide an introductory programming course for those persons intending to become computer programmers. Assembler language is used so that the student will become more familiar with the actual programming steps taken by the computer.

Objective – On completion of the course students can expect to be able to *(a)* produce working, fully documented assembler programs for elementary business problems; *(b)* understand the operation in a small business computer environment.

Outline – By means of a combination of lectures and workshop practice, students will write, test, and debug a series of assembler programs that illustrate the problems encountered in the business data processing field. Topics include computer storage devices; assembler instruction set; decimal, binary and hexadecimal number systems; character and packed data; decimal arithmetic operations. Other topics are decision-making; problem analysis; flowcharting; coding and testing; debugging; programming standards; documentation, control, and validation of data; data totals; multi-level totals.

Tuesday: 6:45-9:45 p.m.	*Begins:* Sept. 13
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – Second class standing in Data Processing-Introduction or equivalent data processing experience and permission of the instructor.

This course will be repeated in Term II commencing Tuesday, January 10 and in Term III commencing Tuesday, April 4, 1978.

14.903 Computer Programming — Assembler II

(formerly 14.501 Computer Programming II)

Purpose – To provide a continuation of the introductory course 14.902 Computer Programming — Assembler I and more detailed practical knowledge of IBM 360 and 370 assembler language and computer architecture.

Objectives – On completion of the course a student can expect to *(a)* be knowledgeable of the architecture and principles of operation of the IBM 360 and 370 computers; *(b)* be able to use assembler language in common business programming situations.

Outline – Lectures and problem sessions. Topics include: assembler instruction formats, binary instructions, registers, base/displacement addressing, tables and table look-up techniques, subroutines and program structure, and IOCS: file definition and imperative macros.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Computer Programming — Assembler I.

This course will be repeated in Term II commencing Monday, January 9 and in Term III commencing Monday, April 3, 1978.

14.904 Computer Programming — Assembler III

(formerly 14.502 Computer Programming III)

Purpose – To provide an advanced knowledge of assembler language and ability to write extensive programs in assembler language. Persons already employed in programming will find this course helpful in broadening their understanding of programming concepts and IBM operating systems.

Objectives – On completion of the course a student can expect to *(a)* understand input/output control and operating system interfaces, *(b)* be able to use the assembler macro language, *(c)* use magnetic tape and disk storage devices.

Outline – A mixture of lectures and laboratory exercises provide practical experience. Topics include: operating system interfaces, tape and disk storage, macro writing, subprograms, Logical IOCS operations.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (18 weeks) *Units:* 1.5

Prerequisite – Computer Programming — Assembler II.

14.503/603 Computer Programming PL/I

Purpose – To allow students who have had some previous programming experience to learn the PL/I "high level" language using typical business programming techniques.

Objectives – On completion of this course the student can expect to be able to code, test, and debug PL/I programs of a relatively complex nature.

Outline – The three-hour period consists of a mixture of lecture and lab sessions. Topics include data declaration, record and stream I/O, PL/I arithmetic, structures, arrays, built-in functions, procedure and Begin blocks, phases, tapes and disk processing.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

Term II (12 weeks) *Unit:* 1.0

This course may be offered one more evening depending on demand.

14.505/605 Computer Systems — Introduction

(formerly Computer Systems Techniques)

Purpose – To allow persons to develop their analysis skills and learn basic computer systems design techniques. The techniques include common business applications as processed on small to medium-size computers, with an emphasis on systems fundamentals rather than technical problems.

Objectives – On completion of the course a student can expect to be able to gather and organize systems data, prepare systems flowcharts, and other documentation.

Outline – Lectures and discussion are used to introduce the topics, followed by practical exercises executed individually or in small teams. The exercises use basic applications such as billing, payroll, and inventory control. Topics include document and accounting controls, methods of data coding, file organization and decision tables.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

Prerequisite – 14.901, Data Processing — Introduction or permission of the instructor.

14.515/615 Computer Systems Development

(formerly Systems Development)

Purpose – To provide a working knowledge of the practice of systems analysis, and to develop the job skills and techniques required to design and implement information processing systems.

Objectives – On completion of the course the student will be able to contribute actively to systems development projects. Students will be exposed to documentation methods and system techniques.

Outline – By means of a combination of lectures, discussions, and extended case study practice, students are guided through the various phases of system development, including feasibility studies, fact finding and analysis, design alternatives, developing and implementing the system. Other topics include forms design, hardware considerations, standards, documentation, controls, scheduling and communications techniques.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

Prerequisite – 14.505/605 Computer Systems — Introduction or an advanced programming course, or permission of the instructor.

14.906 Computer Operating Systems Principles

Purpose – To provide a basic understanding of computer operating systems and how they work.

Objectives – To facilitate understanding of the functions handled by computer operating systems ranging from small processors through large multi-programming systems.

Outline – Topics include: basic concepts of software, hardware and data management; concepts of multi-programming and time sharing; programming/systems communication; basic functions of any operating system; systems efficiency, processing using more than one computer.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – Computer Programming — Assembler I or 2 years of programming experience, and permission of the instructor.

14.909 FORTRAN IV — Basic

Purpose – To allow persons with little or no knowledge of computer programming to gain an insight into a scientific "high-level" programming language. Persons already familiar with another programming language will find the course helpful in broadening their outlook on computing in general. Basic FORTRAN IV is intended as a preparation for 14.917 Advanced FORTRAN IV.

Objectives – To give persons sufficient knowledge and experience in the use of FORTRAN IV to enable them to *(a)* design, write, test, and debug programs within their own fields of endeavour; *(b)* follow the logic within programs written by others.

Outline – The course consists of a balance between lectures, tutorials, and practical experience of writing programs as assigned. Topics include the syntax and use of a subset of the statements comprising the FORTRAN IV language; the application of these statements to solve simple FORTRAN IV language; the application of these statements to solve simple numeric problems; and preparation and submission of programs to the B.C.I.T. computer.

Wednesday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 14
Thursday: 6:45-9:45 p.m.	Sept. 15
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

14.917 FORTRAN IV — Advanced

Purpose – To give persons already acquainted with FORTRAN a chance to expand their knowledge of more advanced features of the language.

Objective – To give persons more direct experience in writing and testing programs using the more advanced features of FORTRAN IV.

Outline – The course consists of a balance between lectures, tutorials, and practical experience. Students will be encouraged to write programs within their own discipline. Topics include the syntax and use of the common statements comprising the FORTRAN IV language; the application of these statements to solving both numeric and non-numeric problems (including the use of magnetic tape and disk units); submission of programs to the B.C.I.T. computer.

Thursday: 6:45-9:45 p.m.	*Begins:* Jan. 12
Term II (12 weeks)	*Unit:* 1.0

This course will be repeated in Term III commencing Thursday, April 6, 1978.

14.920 BASIC — Interactive Programming I

Purpose – To provide an introductory Programming course for those persons who intend to work using the BASIC Language on an interactive computer terminal system.

Objective – On completion of the course, students can expect to *(a)* produce working programs for elementary business problems, and *(b)* have a reasonable knowledge of the BASIC Language.

Outline – By means of a combination of lectures and "hands-on" experience on the B.C.I.T. Hewlett-Packard computer, students will write, test and debug a series of programs that illustrate the problems encountered in the business data processing field. Topics include logical development of a program, problem analysis; flowcharting, coding and testing; debugging; validation of data; data totals; two levels of totals; print formatting, system commands; sequential disk storage.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – 14.901 Data Processing — Introduction or equivalent data processing experience.

This course will be repeated in Term II commencing Monday, January 9 and in Term III commencing Monday, April 3, 1978.

14.921 Data Communications I

Purpose – This course provides an introduction to the analysis and design of business and data communications systems. With the rapid changes in telecommunications, this course could be valuable to systems programmers and analysts, including individuals directly or indirectly involved in the communications or computer industry.

Objective – Upon completion of the course students will be conversant in the area of data communications and will be capable of assisting in the analysing and designing of data communications systems for business applications.

Outline – The course outlines the basic principles of data communications; the various types of terminal equipment and their characteristics; the line facilities and service offerings as provided by the common carrier companies and the economics of these services and equipment. Computer teleprocessing and timesharing are briefly covered.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term III commencing Tuesday, April 4, 1978.

14.930 Data Communications II

Purpose – This course is a continuation of Data Communications I. This course covers the problem of designing a data communications system and presents the analytic tools necessary in determining the variables (i.e., number of terminals, number of lines, speed of lines, type of terminal, etc.) of such a system.

Objective – The objective of this course is to give the student the necessary quantitative as well as qualitative methods necessary to design a cost effective data communications system.

Outline – The 12 week course systematically presents the analytical tools necessary to develop a data communications system. The terminal through the modems, lines, control units, software, and finally the CPU are analysed. Basics of probability and statistics and queuing theory are presented so that the design methods will be understood. Various d.c. systems are modelled and their parameters studied.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (12 weeks) *Unit:* 1.0

Prerequisite – Data Communications I 14.921 or permission of the instructor.

14.922 Computers in Business

Purpose – A general exposure to computers and data processing intended mainly for those people who already have some background in Data Processing principles but who do not wish to specialize in computer programming.

Objective – Upon completion of the course, the student should be familiar enough with the technology and the principles currently in use in the industry that he can communicate effectively and productively with D.P. specialists.

Outline – Review of Data Processing — Introduction to types of computers, computer I/O media and devices, operating systems, small business and minicomputers, program preparation and execution, security and control, data centre, history and development of hardware and software, installation of computer systems, current computer systems, telecommunications.

Students will undertake laboratory problems designed to illustrate basic principles, concepts in systems design, and fundamentals of computer programming. Students can expect to code and execute one or two programs in a "high level" language.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m.	Sept. 13
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Monday or Tuesday, January 9 or 10 and in Term III commencing Monday or Tuesday, April 3 or 4, 1978.

14.923 Computer Programming — Introductory COBOL

Purpose – For persons who want to learn business computer programming using the widely used "high-level" language COBOL. The course is also suitable for accountants or accounting students who want to understand programming in a data processing environment. For the persons who want to program in COBOL as a career, this course serves as preparation for 14.924 Advanced COBOL.

Objective – On completion of this course, students will have a good understanding of *(a)* the basic instructions of the COBOL language; *(b)* the basic principles and practices of business computer programming; *(c)* a fundamental knowledge of file structures, including sequential disk and tape files.

Outline – The course covers the basic instructions of the COBOL language as they are applied in business programs which the students write to run on the IBM System/370. Principles and practices of business computer programming flowcharting, sequence checks, control breaks, page over-flow, input and output controls. Other topics include modular programming, tables, file descriptions and record formats, and introduction to disk and tape file organization.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Thursday: 6:45-9:45 p.m.	Sept. 15
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – 14.901 Data Processing — Introduction or permission of the instructor if the student has data processing experience.

This course will be repeated in Term II commencing Monday or Thursday, January 9 or 12 and in Term III commencing Monday or Thursday, April 3 or 6, 1978.

14.924 Computer Programming — Advanced COBOL

Purpose – This course is designed for persons who want to write COBOL programs in a data processing environment using disk and tape files.

Objectives – On completion of the course students will have a good understanding of *(a)* tape file organizations and the COBOL instructions associated with tape files; *(b)* disk file organizations, including indexed-sequential, and random access files, and the COBOL instructions associated with their use; *(c)* utility programs and program libraries; *(d)* special techniques.

Outline – The course covers 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. The disk libraries, DOS utility support, and sort programs are also taught. The students write a number of programs which apply these techniques.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – 14.923 Computer Programming — Introductory COBOL or previous programming experience in COBOL.

14.925 Computer Operations — Introduction

Purpose – To provide an introductory course for people who have some data processing knowledge and are interested in employment as computer operators. The course also provides students with an opportunity to learn the functions of an operations department.

Objectives – To give students practice in using operations techniques and a basic knowledge of DOS POWER/VS operating system, thus enhancing their employment prospects as a computer operator.

Outline – A mixture of classroom lectures and "hands on" operating, students must be prepared to attend one or more Saturdays during the term for "hands on" operating practice.

The course includes the organization of a data processing installation, operator duties and responsibilities, running the equipment within installation standards, input-output control, tape-disk library functions, error reporting.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15
Term I (12 weeks) *Unit:* 1.0

Prerequisite – 14.901 Data Processing — Introduction or the equivalent.

This course will be repeated in Term II beginning Thursday, January 12, 1978.

14.926 Computer Operations Management

Purpose – The course is intended for experienced operators, shift supervisors, or operations manager candidates, to provide theoretical and practical training in operations management.

Objective – On completion of the course the student can expect to understand commonly used techniques and the responsibilities of computer operations management.

Outline – A mixture of lecture, discussion, and practising techniques. Topics include standards policy, department organization and training, budgeting estimating and costing, planning, forecasting and scheduling, performance measurement, personnel evaluation, security.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15
Term I (12 weeks) *Unit:* 1.0

Prerequisite – Practical operations experience or permission of the instructor.

This course will be repeated in Term II beginning on January 12, 1978 and in Term III beginning on April 6, 1978.

14.927 R.P.G. II — Introduction

Purpose – To provide an introductory course for people who have some data processing knowledge and want training in the fundamentals or programming in R.P.G. II.

Objective – To give students practice in the use of elementary R.P.G. programming techniques and documentation, as applied in business applications.

Outline – The course is a combination of lecture and practical programming. The student will be expected to develop, write, test, and run several programs. Topics include basic R.P.G. logic; Input, Output and calculation specifications; programming techniques and other related topics.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13th
Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Tuesday, January 10, 1978, and in Term III commencing Tuesday, April 4, 1978.

14.928 Data Base Concepts

Purpose – To expose Data Processing Personnel to the principles involved in the evaluation, selection and implementation of Data Base Management Systems.

Objectives – To introduce students to the purpose of data base systems, their functions and facilities. On completion of the course, the students will be familiar with the various approaches taken to data base software and will know the procedures for installing a Data Base Management System.

Outline – The course will include the evaluation of data structures, advantages and disadvantages of data base, a review of existing data base applications and an insight into the various Data Base Management Systems on the market. The role of the Data Base Administrator will be developed. A mixture of lecture, discussion and practising techniques will be used.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Unit:* 1.0

This course may be offered one more evening depending on demand.

Prerequisite – Programming or Systems Design experience or permission of the instructor.

14.929 Data Base Design

Purpose – To provide guidance for data base administrators, systems analysts or designers and senior programmers who wish to know the detailed procedures involved in data base design and implementation.

Objective – To educate students in all phases of data base design and implementation.

Outline – The course will cover the techniques of data collection, data relationship analysis, data structure analysis, and data dictionary preparation. The course will use the CODASYL'S Data Base Task Group Report as its prime reference. There will be heavy emphasis on student participation in workshop sessions.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Unit:* 1.0

This course may be offered one more evening depending on demand.

14.931 The Computer as a Tool for Management Decisions — Simulation

Purpose – To provide the basic principles of decision-making under uncertainty and offer an opportunity to apply these principles in the context of computer simulation.

Objective – On completion of this course a person should be able to recognize situations where computer simulation might successfully be applied, be able to develop a simulation computer program and communicate the results effectively. Typical situations might be, for example, the introduction of a new product, the expansion of a firm's activities or the improvement of production scheduling in a plant.

Outline – The course will cover the elementary principles of decision-making under uncertainty, simulation and queuing theory. As one of the assignments, participants will be asked to develop a simulation program, in FORTRAN or BASIC, for an inventory system or application of their choice.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (12 weeks) *Unit:* 1.0

Prerequisite – 14.901 Data Processing — Introduction or equivalent.

This course may be offered on more than the one evening depending on demand.

Enrollment is limited to 20 persons.

14.932 Office Minicomputers in Business

Purpose – A specific exposure to minicomputers in the office. The course is intended for those people who already are or will be involved in the selection, implementation and operation of an office computer. People interested in this course would be small business owners, office managers and supervisors.

Objective – Upon completion of the course, the student should be familiar with the principles and technology required to manage a small office computer installation. He or she should also have an understanding of the potential of a minicomputer.

Objective – Upon completion of the course, the student should be familiar with the principles and technology required to manage a small office computer installation. He or she should also have an understanding of the potential of a minicomputer.

Outline – What is data processing? Why an office computer? Introduction to types of minicomputers and various I/O devices available; overview of available application packages; reporting possibilities; questions to ask before selecting an office computer; installation of your minicomputer.

Tuesday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 13
Thursday: 6:45-9:45 p.m.	Sept. 15
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II beginning Tuesday or Thursday, January 10 or 12, 1978. Enrollment limited to 20 persons.

14.934 Mark IV — Introduction

Purpose – This course is designed to provide data processing personnel who have no experience in Mark IV with the opportunity to learn the structural capabilities of Mark IV.

Objectives – On completion of this course the student should be able to: 1) Code Mark IV file definitions, transaction definitions and table definitions for hierarchial files. 2) Code Mark IV requests to edit transactions, update a master file and produce simple reports. 3) Understand the capabilities and limitations of Mark IV.

Outline – The course content includes such topics as Mark IV's structure, approach to systems design, use and misuse, special features and Mark IV on line.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – Data Processing experience preferably with some knowledge of computer systems and programming.

This course will be repeated in Term II commencing Wednesday, January 11, 1978.

14.935 BASIC — Interactive Programming II

Purpose – To provide an advanced programming course for those persons who expect to work with the BASIC Language on an interactive computer terminal system.

Objective – On completion of the course, the student should be able to program effectively and efficiently in BASIC on an interactive minicomputer.

Outline – The course includes lectures and practical "hands-on" experience on the B.C.I.T. Hewlett-Packard minicomputer. Topics include tape and disk storage, file processing, sequential and direct disk accessing, print formatting, arrays, BASIC instruction set, system commands, functions, subroutines, program efficiency, the interpreter concept.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – BASIC-Interactive Programming I or equivalent programming experience.

14.982 Office Systems and Procedures — Introduction

Purpose – This is an introductory course for those desiring a broad basic knowledge in office routines. It will introduce to the student the names and uses of many common business forms, the proceaures in which they are involved, and a few of the more common business applications.

Objective – To provide a basic knowledge in business forms, forms design, and procedures and applications.

Outline – The course includes exercises in forms control, forms design, one-write systems, paper flowcharting, and an introduction to the Burroughs L8500 mini-computer.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Monday, January 9, 1978.

14.983 Computers in Education

Purpose – For teachers in all subject areas and at all teaching levels who have little or no experience in computing, an introduction to the basic principles of computing and applications in education. This course would be especially suited for teachers in schools which have recently acquired a general purpose digital computer for teaching purposes. Hands on experience using a typical teaching computer is provided throughout the course.

Objective – Upon completion, the student should be able to develop instructional methods in his/her subject area using a computer component. Moreover, the student will have a basic background in the principles of computing and the various applications of computing in education.

Outline – Basic principles, Hardware/Software, Programming and Programming Languages, Algorithms, File Structures, and Manipulations, Computer-Assisted Instruction, Teaching of Programming and Data Processing, teaching of specific subjects, sources of computing power, hardware/software requirements for educational requirements.

Considerable "hands-on" experience on an interactive computer is provided. In addition, a student will have an opportunity to develop and implement a teaching module in his/her subject specialty using a computer component.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

14.936 The Computer as a Tool for Management Decision — Linear Programming

Purpose – This course is designed to provide managers as well as technologists with an understanding of computer methods for achieving specific objectives given limited resources (time, manpower, machine hours, etc.).

Objective – After the course, a participant should be able to apply these methods to problems arising in his or her working environment (for example, scheduling a specific project or using a packaged computer program to assist in planning operations, to maximize profit).

Outline – The course, with the assistance of existing computer programs, will cover PERT/CPM and optimizing methods such as Linear Programming, Transportation Models and Dynamic Programming. A large part of the course will be devoted to a project in which participants will be asked to analyse a company with problems and looking for ways to increase profit and generally improve operations.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13
Term I (12 weeks) *Unit:* 1.0

FINANCIAL MANAGEMENT TECHNOLOGY

Business Certificate in Accounting

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Accounting I (16.900)	1.0	Accounting II (16.901)	1.0	Data Processing — Introduction (14.901)	1.0
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
Economics I (10.135)	1.0	Economics II (10.235)	1.0	Elective	1.0
Financial Accounting I (16.907)	1.0	Financial Accounting II (16.908)	1.5		
YEAR III					
Elective	1.0	Elective	1.0		
and one of		*and one of*			
Cost Accounting I (16.902)	1.0	Cost Accounting II (16.903)	1.0		
Auditing I (16.506)	1.0	Auditing II (16.606)	1.0		
Taxation I (16.912)	1.0	Taxation II (16.913)	1.0		

Electives – to be approved in advance by a Programme Consultant. For a list of elevtives or substitute courses, see page 81.

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

FINANCIAL MANAGEMENT TECHNOLOGY

Business Certificate in Finance

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Accounting I (16.900)	1.0	Accounting II (16.901)	1.5		
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
Economics I (10.135)	1.0	Economics II (10.235)	1.5	Data Processing — Introduction (14.901)	1.0
*Elective	1.0	*Elective	1.0		
YEAR III					
Business Finance I (16.915)	1.0	Business Finance II (16.916)	1.5		
Basic Mathematics of Finance (22.936)	1.0	Security Analysis (16.911)	1.5		

*Financial Accounting or Taxation strongly recommended.

For a list of electives or substitute courses, see page 81.

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

FINANCIAL MANAGEMENT TECHNOLOGY

Electives — *Courses which may be used as electives or substitutes where appropriate for Certificate Programmes in the Financial Management Technology.*

Selections should by approved in advance by writing to a Programme Consultant to ensure that they are appropriate and will be accepted as an elective or substitute.

1. Any course listed in the Financial Management Technology (Prefix 16....)

		Units
2. 10.221/321	Management Psychology I and II	2.0
10.360/460	Business Law I and II	2.0
10.902/903	Small Business Management I and II	2.0
10.325/425	Labour Relations I and II	2.0
10.905	Managerial Styles	1.0
10.924	Management by Objectives	1.0
14.922	Computers in Business	1.0
20.502/602	Oral Communications & Public Speaking I and II	2.5
20.914	General Marketing	1.0
22.535/635	Statistics for Business & Industry	2.0
22.941/942	Work Study I and II	2.5
22.901	Purchasing	1.0
22.902	Inventory Planning & Control	1.0
31.503/603	Business & Technical Report Writing	2.0
31.504/605	Business Writing	2.0
22.936	Basic Mathematics of Finance	1.0

and other courses listed in the Business Management Technologies selected by the student and approved in writing by a Programme Consultant.

16.350 Public Financial Administration

Purpose – To familiarize students with the roles, problems and technology of governments in Canada, with emphasis on budgeting and finance.

Objective: To give students an appreciation of the broad ramifications of government action with emphasis on various costs and benefits and to acquaint them with techniques of budgeting.

Outline – Techniques used will include lectures, discussions, in-class presentations, selected readings and tests. Material covered will include a macroeconomic view of government activities, a comparison of various budget techniques including P.B.S. and M.B.O., auditing, financial markets, portfolio management and trusteeship.

Wednesday: 6:45-9:45 p.m. — *Begins:* Jan. 11
Term II (12 weeks) — *Unit:* 1.0

16.506/606 Auditing

Purpose – To equip the student with knowledge and skills relative to auditing techniques and procedures that will prove helpful to him in entering employment in such fields as public accounting, internal auditing, or management in any business.

Objectives — On completion of the course the student can expect to *(a)* have an understanding of the meaning and purpose of audit functions; and *(b)* to be able to make critical assessments of accounting procedures and to prepare opinions of them.

Outline – A mixture of lectures, discussions, and the undertaking of a short audit case will provide for an interesting course. Topics include basic auditing procedures, the audit programme, features of the internal control system, plus internal and other specialized audits.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15
16.506 Term I (12 weeks) — *Unit:* 1.0
16.606 Term II (12 weeks) — *Unit:* 1.0

Prerequisite – 16.901 Accounting II or equivalent. Admission may be granted with permission of the instructor.

16.900 Accounting I

Purpose – To permit individuals with little or no accounting background to become familiar with the techniques required in working through the full accounting cycle. This course will provide *theoretical* and *practical training* in basic accounting. Persons already employed, or seeking employment in accounting, will find this course helpful in broadening their employment possibilities. It also serves as preparation for Accounting II.

Objectives – On completion of the course the student can expect *(a)* to have an understanding of basic accounting functions; *(b)* to be able to maintain the financial records and prepare the financial statements of any small business; and *(c)* to have gained an appreciation for the accounting theory which sets the foundation for accounting procedures.

Outline – A mixture of lectures and laboratories will provide for an interesting course. 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.

Monday or Tuesday or Wednesday or Thursday: 6:45-9:45 p.m. *or Saturday:* 9-12 noon — *Begins:* Sept. 12 or 13 or Sept. 14 or 15 or Sept. 17
Term I (12 weeks) — *Unit:* 1.0

Please indicate a preference of the date you wish to attend and an alternative. This Accounting I course starts again in January as 16.905 — Accounting IL.

16.901 Accounting II

Purpose – To permit individuals with a basic course in accounting to expand their knowledge of financial and management accounting techniques. This course will provide *theoretical* and *practical* training in these areas. Persons already employed or seeking employment in accounting will find this course helpful in broadening their employment possibilities. It also serves as preparation for 16.902 and 16.903.

Objectives – On completion of the course the student can expect *(a)* to have gained an appreciation for a number of financial and management accounting techniques; *(b)* to prepare and interpret detailed financial statements and management reports; and *(c)* to converse with and understand the requirements of professional accountants.

Outline – A mixture of lectures and laboratories with the undertaking of a practice set will provide for an interesting course. Topics include inventory, long-lived assets, liabilities, forms of business organization, cash-flow analysis, manufacturing accounting, management accounting, income tax, consolidated statements and analysis of financial statements.

Monday or Tuesday or Wednesday or Thursday: 6:45-9:45 p.m. *or Saturday:* 9-12 noon	*Begins:* Jan. 9 or 10 or Jan. 11 or 12 or Jan. 14
Term II (18 weeks)	*Units:* 1.5

Prerequisite – 16.900 Accounting I or permission of the instructor if the applicant claims equivalent experience.

Please indicate a preference of day you wish to attend and an alternative.

16.902 Cost Accounting I

Purpose – To enable the student with some background in introductory accounting to understand the basic tools that management can use in planning and controlling the activities of an organization. In addition, problems related to inventory valuation and income determination in manufacturing enterprises will be introduced.

Objective – The successful student will be able to apply the techniques which he has learned to problem areas in his own particular area of employment. He will also be equipped to move on to Cost Accounting II or its equivalent.

Outline – A mixture of lectures and problem-solving periods. The course will emphasize the role of the management accountant, cost terms and purposes, cost-volume-profit relationships, job-order accounting, budgeting, responsibility accounting, and standard costs.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – 16.901 Accounting II or its equivalent or permission of the instructor if claiming equivalent experience.

16.903 Cost Accounting II

Purpose – To enable the student who has completed 16.902 or who has considerable practical cost accounting experience, or who has had accounting training through a recognized professional accounting organization to understand accounting techniques which will assist management in planning, control, income determination, and decision-making.

Objective – The successful student will be able to apply these diversified management accounting techniques to his own particular area of employment at the management, cost accounting, or audit level within the business community.

Outline – A mixture of lectures and problem-solving periods. The course will emphasize

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.

Wednesday: 6:45-9:45 p.m.	*Begins:* Jan. 11
Term II (18 weeks)	*Units:* 1.5

Prerequisite – 16.902 Cost Accounting I or permission of the instructor if claiming equivalent experience.

16.904 Accounting for the Manager

Purpose – This course is designed for the manager who wants to understand basic accounting principles without taking a formal introductory accounting course. It will also serve as refresher for those who have taken an introductory course or for persons who wish to know more about the accounting function as a vocation.

Objective – The student completing this course can expect to have a good understanding of the accounting function, the services it can provide to the manager, and how to interpret statements, reports, budgets, etc., in managerial decision-making.

Outline – Through lectures and problem-solving labs the student is exposed to the accounting cycle, inventory valuation and control, depreciation methods, determination of uncollectable accounts, types of liabilities, consolidation, and analysis of financial statements.

Tuesday or Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 13 or 15
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II, beginning Tuesday, January 10, or Thursday, January 12 and again in Term III, beginning Thursday, April 6th.

16.905 Accounting IL

This course is designed to permit students to start the basic course in accounting in January. It covers the equivalent of 16.900 and the first six weeks of 16.901 for a total of 18 weeks of the 30 week presentation. The remaining 12 weeks can then be completed starting in September 1978; (16.906 Accounting IIS).

For a description of the course content see 16.900 and 16.901 on page

Monday, or Tuesday or Wednesday or Thursday: 6:45-9:45 p.m.	*Begins:* Jan. 9 or 10 or Jan. 11 or 12
Term II (18 weeks)	*Units:* 1.5

16.906 Accounting IIS

This is the follow up course to 16.905 above to enable students to complete the last 12 weeks of the basic accounting courses.

For a description of course content see 16.901 on page 77.

Tuesday or Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 13 or 15
Term I (12 weeks)	*Unit:* 1.0

16.907 Financial Accounting I
16.908 Financial Accounting II

Purpose – To provide students who have successfully completed the study of introductory accounting with an opportunity to enrich and broaden their understanding of

the accounting process and its underlying theory. This will equip them for more responsible employment in the accounting field.

Objectives – On completion of the course a student can expect to *(a)* have sufficient accounting knowledge to perform competently in an intermediate-level financial accounting position; *(b)* have determined his affinity and aptitude for more advanced accounting study; and *(c)* have gained exemption from the equivalent course offered by a professional accounting body (subject to achieving a prescribed mark) should the student decide to seek a professional qualification.

Outline – Each weekly session will consist of lecture and discussion segments and a period of supervised practical work on weekly problem assignments.

The course is generally concerned with developing company financial information and properly presenting it on financial statements prepared for external circulation. Specifically, it will include a review of the accounting process from a more analytical standpoint; a study of cost, valuation, and presentation problems associated with each balance sheet category; statements from incomplete data; income tax allocations; and internal and external analysis of financial statements, including preparation and use of funds flow information.

PART I (16.907)

Wednesday or Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 14 or 15
Term I (12 weeks)	*Unit:* 1.0

PART II (16.908)

Wednesday or Thursday: 6:45-9:45 p.m.	*Begins:* Jan. 11 or 12
Term II (18 weeks)	*Units:* 1.5

Prerequisite – 16.900 Accounting I and 16.901 Accounting II or permission of the instructor if claiming equivalent experience.

16.909 Credit and Collections

Purpose – To give the student a thorough understanding of the uses of credit in business today at various levels of the economy; *(a)* Government (a brief study only); *(b)* Financial institutions; *(c)* Manufacturing and construction; *(d)* Wholesaling; *(e)* Retailing; *(f)* Hotel, motel, and restaurant credit; *(g)* Consuming.

The course is suitable for the following people: *(a)* Persons contemplating employment in the field who have no or limited previous experience in credit work; *(b)* Persons whose knowledge of credit is specialized, and who wish to broaden their understanding of the subject; *(c)* Persons in areas such as marketing, accounting, etc., to whom a knowledge of credit would be advantageous now or in the future.

Objectives – There will be a detailed examination of credit granting and collection techniques and philosophy in all levels of business. On completion of the course a student can expect *(a)* to be able to handle the complete responsibilities of a credit manager of a small or medium sized business; or *(b)* to assist the credit manager of a larger business in any area of the subject.

Naturally, the experience, age, and ability of each student will govern the level of responsibility attained in industry.

Outline – Each evening there will be a lecture of about one and one-half hours, followed by a discussion of about the same length of time. The discussions will be based on material prepared in advance by each student, based on specified readings from the prescribed text and the previous week's lecture. Topics include determining credit-risk; credit instruments and collateral security: types of consumer credit and credit cards; sources of consumer credit

information, mercantile credit terms and limits; sources of mercantile credit information; collections; credit and collection letters; credit department management; credit manuals; sales department cooperation; credit history, present and future.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

Classes will be limited to 25 students.

This course repeats in Term II, beginning Tuesday, January 10, 1978.

16.911 Security Analysis and Employee Benefits

Purpose – To permit persons with little or no knowledge of security markets to invest more successfully.

Objective – To familiarize participants in this course with employee benefits in Canada, their methods of funding, investing and pension benefits.

Outline – In a combination of lectures and labs topics include: sources of information, financial analysis, business cycle analysis, technical analysis, taxation and commodity markets.

Six evenings will be devoted to Pension Plans in Canada, Registered Retirement Savings Plans and measurement of pension investment performance.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (18 weeks) *Units:* 1.5

16.912 Taxation I (formerly Taxation-Basic)

Purpose – To provide individuals who have little or no background in income tax an opportunity to become familiar with the basis of Canadian income tax. This course is designed to assist individuals in completing tax returns and schedules to their best advantage. It should be of particular interest to the small businessmen operating under the form of a limited company, partnership, or sole proprietorship.

Objective – On completion of the course the individual can expect to have gained a general understanding of Canadian income tax and the financial advantage of tax planning.

Outline – A mixture of lectures and discussions will provide for an interesting course. Topics include classes of taxpayers; income tax rates and the computation of tax; gross income versus taxable income; computation of income of losses from office, employment, business, and property; capital gains and losses, accounting income versus taxable income; tax evasion and avoidance, tax planning; tax returns, assessments, payment of tax and appeal procedures.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

This course repeats in January commencing Monday, January 9, 1978.

16.913 Taxation II (formerly Taxation-Advanced)

Purpose – To provide a more in-depth study of Canadian taxation than provided in the basic course. This course is designed to broaden and further the knowledge of individuals who have a "working knowledge" of Canadian taxes.

Objectives – Upon completion of this course, the individual can expect a better-than-average knowledge of the subject and be acutely aware of the problem areas and pitfalls regarding tax planning.

Outline – The course is designed to be a discussion-type course rather than a lecture course. Topics include concept of income, computation of income — employment, business, property; capital cost allowance and cumulative eligible capital, capital gains and losses, computation of tax for corporations; corporate distributions; trusts and partnerships; sales taxes (Federal and Provincial); estate taxes and succession duties.

Monday: 6:45-9:45 p.m. *Begins:* April 3

Term III (12 weeks) *Unit:* 1.0

Prerequisite – 16.912 Taxation I or permission of the instructor.

16.914 Financial Independence

Purpose – A course designed to introduce students to a variety of savings and investment aspects to build a sound programme to achieve their long-term financial goal.

Objective – At the conclusion of the course the student should be in a position to follow an investment programme tailored to his needs.

Outline – A mixture of lectures and discussions will provide for an interesting course for individuals of all ages. Topics include money management, life insurance, investments and portfolio distribution, home ownership, wills and estates.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II, beginning Thursday, January 12, 1978.

16.915 Business Finance I

Purpose – To familiarize the individual with little or no background in the field of financial management with the various methods of optimizing the firm's economic position.

Objective – To train the individual in Business Finance in order that the student, as a member of middle management, may make the best decisions on the financing of the firm.

Outline – The course combines 12 lectures and discussions on topics, including control and financial management of the business firm, a study of profit planning, cash and capital budgeting, as well as inventory control.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

Prerequisite – A working knowledge of accounting is helpful.

16.916 Business Finance II

Purpose – To familiarize the individual with the various methods of obtaining finances for the firm.

Objective – To teach the student how to obtain capital in order to finance the firm.

Outline – The course combines 18 lectures and discussions on topics, including 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.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Units:* 1.5

Prerequisite – 16.915 Business Finance I is preferable, but not essential.

STUDENTS MAY ENTER TERM I or TERM II.

16.917 Management Accounting

Purpose – This course is designed to assist managers in using available financial data for decision purposes. It will also enable the manager to determine what additional data is required and what present data need not be accumulated for decision purposes.

Objective – The student will be made aware of managerial techniques which can be of assistance in making rational, well-informed decisions, and will gain experience in applying those techniques.

Outline – Course techniques will include lectures, discussions, problem-solving labs, home assignments and tests. Material covered will include the accounting cycle, inventory valuation and control, depreciation methods, determination of uncollectable accounts, types of liabilities, consolidation and analysis of financial statements.

Tuesday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 13 or
Thursday: 6:45-9:45 p.m.	Sept. 15
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Tuesday or Thursday, January 10 or 12, 1978.

HOSPITALITY INDUSTRY TECHNOLOGY

Business Certificate in Hospitality Industry Management

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)	*January (Term II)*	*April (Term III)*
YEAR I Units	Units	Units
Front Office Procedures (18.203) 1.0	Night Audit Procedures (18.418) 1.0	Elective . 1.0
Accounting I (16.900) 1.0	Hospitality Management Accounting (18.908) 1.0	
YEAR II		
Food Management — Introduction (18.503) 1.0	Food Management — Introduction (18.603) 1.0	Elective . 1.0
Food and Beverage Cost Control (18.313) 1.0	Marketing and Sales Promotion for the Hospitality Industry (18.907) 1.0	
YEAR III		
Tourism and Destination (18.915) 1.0	Understanding Wines (18.913) 1.0	Elective . 1.0
Data Processing Introduction (14.901) 1.0	Profitable Restaurant Operations (18.911) 1.0	

Students considering the Hospitality Industry as a career are advised to consider course 18.900 The Hospitality Industry — An Introduction as described on page 94 before embarking on a certificate programme.

HOSPITALITY INDUSTRY TECHNOLOGY

Elective:

Courses which may be used as electives or substitutes where appropriate for Certificate Programmes in the Hospitality Industry Technology.

1. Courses listed in the Hospitality Industry Technology (Prefix 18....)
2. Electives and substitutes may be selected with approval from a Programme Consultant from the courses listed in the various technologies that are considered appropriately related such as:

		Units
10.135/235	Economics I and II	2.5
10.907	Discussion Leadership	1.0
16.901	Accounting II	1.5
16.909	Credit and Collections	1.0
20.906	Public Relations	1.0
22.936	Basic Mathematics of Finance	1.0
22.941	Work Study I	1.0
31.504/604	Business Writing	2.0

Other courses listed in the Business Management Technology selected by the student and approved in writing by a Programme Consultant.

HOSPITALITY INDUSTRY TECHNOLOGY

Business Certificate in Travel and Tourism

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Tourism and Destination (18.915)	1.0	*Rail, Bus & Ship (18.917)	1.0	International Air (18.919)	1.0
*Tours and Hotels (18.916)	1.0	*Domestic Air (18.918)	1.0		
*NOTE: These courses may be taken in any order.					
YEAR II					
Salesmanship (20.275)	1.0	Accounting for the Manager (16.904)	1.0	Elective	1.0
General Marketing (20.914)	1.0	Public Relations (20.906)	1.0		
YEAR III					
Advertising I (20.910)	1.0	Advertising II (20.911)	1.0		
Oral Communications & Public Speaking I (20.502)	1.0	Oral Communications & Public Speaking II (20.602)	1.5		

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

HOSPITALITY INDUSTRY TECHNOLOGY

Electives:

Courses which may be used as electives or substitutes where appropriate for Certificate Programmes in the Travel and Tourism Programme.

Courses which may be used as electives or substitutes:

		Units
10.131/232	Management in Industry I and II	2.0
10.221	Management Psychology I and	1.0
10.321	Management Psychology II or	1.0
10.906	Organizational Behaviour	1.0
10.902	Small Business Management I	1.0
10.903	Small Business Management II	1.0
18.907	Marketing and Sales Promotion for the Hospitality Industry	1.0
20.476	Sales Management	1.0

These and courses listed in the Business Management Technologies may be selected but should be approved in writing in advance by a Programme Consultant.

NOTE:—A short seminar course (6 hours) on world geography as related to travel and tourism will be presented periodically and considered mandatory for applicants for this certificate.

Courses in Hospitality Industry

18.203 Front Office Procedures

Purpose – To allow persons with little or no hotel/motel experience to explore the industry as a possible career field. Specifically, this course will provide theoretical and simulated practical training in most aspects of front office operation. Persons already employed in hotels/motels will find this course helpful in broadening their employment possibilities. It also serves as preparation for course 18.418 Night Audit Procedures.

Objectives – On completion of the course a student can expect to *(a)* be knowledgeable of the specific functions of the front office department in a hotel or motel; *(b)* be capable of performing standard postings on a NCR 4200 accounting machine; and *(c)* be able to perform the duties of a junior front-desk clerk in a hotel or motel (after a brief period of on-the-job training).

Outline – A mixture of lectures, discussions, and simulated practice sessions will provide for an interesting course. Topics include: Who does what in a hotel or motel; personal requirements to be a front-desk clerk; reservation systems; credit procedures; dealing with guests, management, and fellow employees; effective sales techniques, cash and credit handling, handling emergencies, career opportunities and steps to gain employment as desk clerk. Limit 20 students.

Monday or Tuesday: 6:45-9:45 p.m.	*Begins:* Sept. 12 or 13
Monday or Tuesday: 6:45-9:45 p.m.	Jan. 9 or 10
Monday: 6:45-9:45 p.m.	April 3

The first 8 sessions (24 hrs.) will be on the Monday or Tuesday night. The remaining 12 hrs. will be scheduled on a Saturday and Sunday at the end of the course for NCR machine practicum.

18.313 Food and Beverage Cost Control

Purpose – To allow persons who are interested in the catering field to gain an understanding of internal control procedures and information systems. The course will deal particularly with the interpretation of data obtained through such procedures/systems to allow for the making of corrective management decisions. Participants should enjoy working with figures and basic arithmetic calculations. Previous experience or related course work would be helpful, though not necessary.

Objective – To teach the fundamentals of internal control and information systems for food and beverage operations of all types. Emphasis will be given to the interpretation of information supplied by the control systems in order that meaningful and appropriate decision-making and action can be taken in sufficient time to correct undesirable results or trends.

Outline – The following are the major control points that will be covered: Sales, ordering and purchasing, receiving; storeroom and inventory, production (costing). Lectures and problem-solving exercises will be used; some take-home assignments will be given.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

18.418 Night Audit Procedures

Purpose – To prepare persons for work as night audit clerks in the hotel and motel industry. This is an advanced course; participants are expected to have completed course 18.203 Front Office Procedures or be able to operate the NCR 4200 machine. An interest in working with figures is the only other prerequisite.

Objective – On completion of the course a student can expect to be able to understand and perform standard night audit procedures using either the hand transcript or an NCR 4200 system. With such training a person would be prepared to enter the hospitality industry as a junior night auditor.

Outline – The course is problem-oriented. Practical exercises are designed to simulate typical hotel/motel situations. Small classes allow for close instructor/student contact.

Limit — 12 participants *Unit:* 1.0

To create a realistic training situation the course is scheduled as a two-weekend workshop:

Times:
Friday 7-10 p.m.
Saturday 9-5 p.m.
Sunday 9-5 p.m.

Dates: *Workshop I*
Nov. 19 to 20 & 26 to 27
Workshop II
Apr. 14 to 16 & 22 to 23

18.422 Menu Planning

Purpose – To allow persons with limited experience in the food service industry to gain theoretical and practical experience in the planning and design of menus.

Objective – On completion of the course a student can expect to *(a)* be knowledgeable about the factors that influence the make-up of a menu, such as types of market served, price structure, staffing, physical plant, limitations, storage, availability of foods, costing; *(b)* be able to analyse the above data and compose suitable menus; *(c)* be able to advise management on layout, colour, print-type, and manufacture of actual menus.

Outline – Lectures and discussions will be used to introduce new material, followed by practical exercises that will allow the students to apply theory to practice. Some take-home assignments will be given.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12
Term II (12 weeks) *Unit:* 1.0

18.503/603 Food Management — Introduction

Purpose – To allow persons with limited or no experience in the food service industry to become aware of the multiple aspects of food operations. Having taken this course, a person will be prepared to take more specialized courses, i.e., Menu Planning, Restaurant Planning. In the meantime, he will have gained a comprehensive over-all picture of the catering management field.

Objective – On completion of the course a person can expect to have a fundamental understanding of food service operations.

Outline – Through lectures, discussions and problem-solving exercises the topics covered will include — food hygiene, food service design and layout, personnel administration, storage, identification, classification and selection of foods, menu planning and operational cost control.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0
Term II (12 weeks) *Unit:* 1.0

18.900 The Hospitality Industry — An Introduction

Purpose – This course has a two-fold purpose. It introduces the hotel and food service field to the newcomer in search of a new career. For persons presently working in the

industry it affords the opportunity 'to look beyond' and explore career opportunities and training requirements in the light of personal needs, hopes and present skills.

Objectives – At the conclusion of the course the participant could expect to be able to *(a)* describe the characteristics of the segments of the industry, *(b)* list the requirements for employment in terms of training and experience, *(c)* discuss the functions of the various job titles in hotels and restaurants, *(d)* describe their life and career plans more accurately than before the course, *(e)* prepare an action plan for their personal career development.

Outline – Through lectures, films, discussions, guest presentations, student projects, these topics will be discussed: Functions of various departments in hotels and restaurants; types of hotels and restaurants; related operations (airlines, resorts, camps, clubs); skills and personal qualifications required for various jobs; training programs available; career planning skills; how to apply for and get a job.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 14

Term I (12 weeks) — *Non Credit*

18.901 Cocktail Lounge Management

Purpose – To allow *persons with some work experience* in a cocktail lounge to expand their understanding of bar management in order to broaden their career opportunities in this fast-expanding field.

Objective – Upon completion of the course a student can expect to be able to perform the mixing of standard bar drinks and understand the principles and practices of modern cocktail lounge management.

Outline – Typical session would be divided into time for lecture, discussions, and practice sessions in the training bar. Topics include drink mixing, wine storage and service, bar design and layout, Liquor Administration Branch regulations, inventory control, cost control, menus, customer service, staffing.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13

Term I (12 weeks) — *Unit:* 1.0

This course will be repeated in Term II commencing Tuesday, January 10 and in Term III commencing Tuesday, April 4, 1978.

18.905 Supervisory Development for Hotel and Food Service Personnel

Purpose – To allow persons with practical experience in some aspects of the industry to explore problematic aspects of human relations and develop skills necessary to function as supervisors. Participants may be presently employed in junior/middle management positions or wanting to prepare themselves for a move in that direction.

Topics dealt with will be directly related to interpersonal relations with guests, fellow-workers, owner/managers, and people outside the operation. This course is not designed to prepare a person for one particular job, rather it will provide opportunity for personal learning and growth and thus help the individual to be a better, more meaningful functional person on the job and away from it.

Objective – On completion of the course the student can expect to *(a)* have gained an understanding of theoretical principles involved in interpersonal relationships; *(b)* be familiar with specific skills which can be used to improve interpersonal communications; *(c)* be knowledgeable of and be able to deal with some of the problem areas that arise when acting in a supervisory role; *(d)* have learned how he/she reacts in different situations and how others react in different situations; *(e)* have had experience in problem-solving and decision-making techniques.

Outline – A mixture of small lectures, discussions, case studies, communication

exercises, films, and selected readings will be used to make the course meaningful to each participant. Specific course topics within the framework of this outline will be selected by the students and the instructor.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

18.907 Marketing and Sales Promotion for the Hospitality and Tourism Industry

Purpose – To serve as basic material for an individual wishing to advance into a sales and marketing capacity, broaden his existing managerial skills, or enter the hospitality or tourism field by operating one's own business.

Objective – To give the individual an understanding of the use to which sales and marketing skills can be put, with particular reference to the hospitality and tourism industry. Although the course, of necessity, is primarily theoretical, weekly in-class and take-home assignments will give the student a chance to apply the theory.

Outline – Major topics include defining the product and the consumer, the feasibility study, developing a marketing plan, establishing prices, the elements of advertising, sales promotion and merchandising, interaction between elements of the tourism industry, marketing tools and sales agents, internal promotion, brochure planning, incentive schemes.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (18 weeks) *Units:* 1.5

18.908 Hospitality Management Accounting

Purpose – To allow persons with some background in accounting to study principles and procedures of hospitality management accounting. An understanding of general accounting principles is necessary to benefit fully from the course. If you are interested and not too sure about this or other aspects of the outline, consult the counsellor prior to registration.

Objective – To obtain an understanding of departmental income statements and balance sheets in order to be able to interpret and analyse the results and information shown; and to learn the use of management tools such as the break-even technique, budgeting, and investing.

Outline – The course is problem-oriented. Brief lectures will be used to introduce the different concepts, followed by discussion and problem-solving exercises. Such exercises will be directly related to present-day hospitality industry accounting.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (12 weeks) *Unit:* 1.0

18.909 Restaurant Planning

Purpose – To allow persons to gain theoretical and simulated practical experience in planning a food-service operation from the initial concept to the eventual opening. Experience at the operational or supervisory level in the food service industry is required. This course is primarily aimed at persons who expect to be involved in the planning of a new operation or alteration to existing facilities.

Objective – On completion of the course a participant can expect to understand and be able to initiate a thorough planning procedure for the establishment of a restaurant or similar food-service operation.

Outline – The participants will work in groups for assigned in-class projects. Through

small classes and close consultation with the instructor, active participation of all participants will be possible and expected. Topics include development of concept; management; location, menu development; staffing; equipment; buildings; layout; financing; promotion and operational planning.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

18.911 Profitable Restaurant Operation

Purpose – This course permits persons who are involved in the restaurant business to question and analyse their particular cost problems and solutions. This detailed course is directed at persons who are desirous of reducing operational restaurant costs.

Objective – The success of this course can be determined on a weekly basis as the participant may institute suggestions for cost reduction immediately within his operation and the results can be established quickly.

Outline – Brief lectures on actual proven cost-saving techniques, followed by group discussion and on-site evaluation. Cost areas covered include management, product, service, staff, utilities, and advertising.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10
Term II (12 weeks) *Unit:* 1.0

18.913 Understanding Wines

Purpose – To give the student an understanding of the origins, manufacture, service, compatibility with food and selling aspects of wine in restaurants. Specific reference will be made to products available in B.C. The course is primarily aimed at personnel in the hotel and food service industry, but would also be of interest to the general public.

Objectives – At the conclusion of the course a student could expect to be capable of *(a)* describing the characteristics of popular products available in British Columbia, *(b)* describing the growing and manufacturing process of wines, *(c)* listing the requirements for storing and handling of wines, *(d)* distinguishing basic types of wine using acceptable sensory evaluation procedures, *(e)* conducting staff training session on the merchandising aspects of wines in restaurants.

Outline – Through lectures, film and slide presentations, discussions, field trip, guest presentations, samplings and student projects the following topics will be covered: The wine growing process, wine making, geographical and grape differences, government regulations, label and cork terminology, storage, selling techniques, serving procedures, staff training.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11
Term II *Unit:* 1.0

18.915 Tourism and Destination

Purpose – This course provides an introduction to travel and tourism for persons who are newly involved or anticipate employment in the field.

Objective – To study tourism as a discipline and its function as a National and International industry as well as to understand the economics and sociological and environmental aspects of this important and rapidly developing field. On completion of this course students should have a good grounding for pursuing further training towards a career in this area.

Outline – Some of the topics which will be covered by lectures, films and group discussion are: the structure growth potential, and impact of the Tourism Industry; the contributions and functions of Government, private enterprise and transportation and lodging companies; why people prefer certain destinations and current trends in creating new destinations; travel marketing and other functions of the Industry.

Monday or Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 12 or 14
Term I (12 weeks)	*Unit:* 1.0

This course will repeat in Term II, beginning on Monday or Wednesday, January 9 or 11 and in Term III on Monday or Wednesday April 3 or 5, 1978.

TRAVEL AGENTS COURSES

Purpose – The first three 12 week courses in this Travel Agents group are designed for people who are planning to enter this field or who are relatively new to the work and wish to improve their knowledge and skills.

Objective – On completion of these courses students will be able to handle, under supervision, the services performed by a travel agency or to act in a referral capacity. They will understand terminology, booking and reservation procedures, the structuring of itineraries and the fundamentals of air, steamship, rail and bus transportation, tours and hotels.

18.916 Tours and Hotels — Travel Agents

Outline – Through lectures, slides, films and sales materials students will: become familiar with terminology related to the sale of tours and land packages; achieve a knowledge of the basic types of tour packages; be aware of geography and trends in travel motivation; develop sales techniques and basic skills in handling reservations, reporting procedures and reference sources.

Monday or Tuesday or Wednesday: 7:00-10:00 p.m.	*Begins:* Sept. 12 or 13 or 14
Term I (12 weeks)	*Unit:* 1.0

This course repeats in Term II on January 9 or 10 or 11, 1978 and also repeats in Term III, on Monday or Wednesday beginning April 3 or 5, 1978.

18.917 Rail, Bus and Ship — Travel Agents

Outline – This section of training for travel agents will include lectures, illustrations and materials covering:

Rail: International and domestic rail transportation, fares and ticketing.
Bus: Domestic and international schedules and fares.
Steamship: Passenger transportation, cruises and freighter travel.
Other: Car rental, travel documents required for trips abroad, travel insurance, preparation of sales reports, etc.

Monday or Tuesday or Wednesday: 7:00-10:00 p.m.	*Begins:* Sept. 12 or 13 or 14
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II beginning, January 9 or 10 or 11, 1978. It will also be repeated in Term III, on Monday or Wednesday beginning April 3 or 5, 1978.

18.918 Domestic Air — Travel Agents

Outline – Working with the Consolidated Passenger Air Tariff under direction students

will receive training in the fundamentals of handling Domestic (within Canada and the U.S.) Air passenger travel. This includes: construction of normal and special fares; terminology and the structuring of itineraries; ticketing procedures; schedules; etc.

Monday or Tuesday or Wednesday: 7:00-10:00 p.m.	*Begins:* Sept. 12 or 13 or 14
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II, beginning January 9 or 10 or 11, 1978. This course will also be repeated in Term III, on Monday or Wednesday, beginning April 3 or 5, 1978.

18.919 International Air — Travel Agents

Purpose – This course is for persons with previous experience in the Industry or for students who have completed 18.918, Domestic Air.

Objective – Successful students will be able to understand the terminology and fundamentals of international fare construction and under supervision to handle all facets of international air travel tariffs for travel agencies.

Outline – The material presented will include: the Air Tariff general rules (passenger); fare construction rules (fare construction units, the mileage system, etc.); special fare rules for fare types generally as saleable from Canada and/or the U.S.A.

Ticketing will be limited to discussions of specific ticket entries and students must have a sound knowledge of general ticketing procedures before enrolling in this course.

Wednesday: 7:00-10:00 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

Prerequisite – Domestic Air.

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

This class is limited to 40 students.

18.925 NCR 4200/8000 Posting Practicum

Purpose – A weekend seminar designed to give those interested in working at the 'front desk' of a hotel or motel, a complete understanding and knowledge of how to operate the billing machines, NCR 4200 and the latest electronic NCR 8000 model.

Objective – Upon completion of this seminar the student should be able to handle all procedures and transactions relating to the machines, i.e., posting debits & credits to guest accounts, handling transfers to city ledger, correcting errors, cash reports, etc.

Outline – The seminar content will include lectures, handouts, exercises and practical experience on the latest NCR posting equipment. The seminar is limited in enrollment in order that the student gains as much machine practical experience as possible.

Seminars will be held on the first weekend of each month.

Saturday/Sunday: 9:00 a.m.-3:00 p.m.

Begins:	Oct. 1 & 2	Feb. 4 & 5
	Nov. 5 & 6	Mar. 4 & 5
	Dec. 3 & 4	Apr. 1 & 2
	Jan. 7 & 8	May 6 & 7

18.926 Dining Room Management

Purpose – To introduce persons with limited experience in restaurant management to the

fundamentals, techniques and prerequisites of successfully operating a quality dining room.

Objective – On completing the course participants will have a clear knowledge and understanding of a first-class dining room operation. It may allow them to assume relevant responsibilities at the junior management level in this field and to better understand its supervision.

Outline – The course will consist of lectures, lab sessions, demonstrations and discussions entailing such topics as: personality development; equipment knowledge; special set-ups and arrangements; proper service techniques; banquets; menu planning and costing; Maitre D' or Hostess responsibilities; staff supervision and safety.

Saturday: 9:00 a.m.-12 noon — *Begins:* Sept. 17

Term I (12 weeks) — *Unit:* 1.0

This course repeats in Term II beginning Saturday, January 14, 1978.

BUILDING SERVICES MANAGEMENT PROGRAMME

(formerly Executive Housekeepers)

B.C.I.T. in co-operation with the Canadian Building Servicing Association of British Columbia is pleased to present the following certificate programme relative to this important and expanding field.

Business Certificate In Building Services Management

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three years period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Supervisory Skills (10.904)	1.0	Purchasing (22.901)	1.0	Elective	1.0
Maintenance and Control (19,902)	1.0	Safety and Sanitation (19.905)	1.0		
YEAR II					
Labour Relations I (10.325)	1.0	Labour Relations II (10.425)	1.0	Elective	1.0
Accounting for the Manager (16.904)	1.0	Selection Interviewing (10.913)	1.0		
YEAR III					
Management Psychology I (10.221)	1.0	Organizational Behaviour (10.906)	1.0	Elective	1.0
Work Study I (22.941)	1.0	Discussion Leadership (10.907)	1.0		

See page 102 for the list of electives and substitute courses.

BUILDING SERVICES MANAGEMENT PROGRAMME

Electives

Courses which may be used as electives or substitutes where appropriate for the Certificate Programme in Building Services Management Technology.

Electives may be selected in consultation with a Programme Consultant from the courses listed in the various technologies that are considered appropriately related such as:

19.903	Interior Design — Basic	1.0
10.918	Accident Prevention	1.0
10.131/232	Management in Industry I and II	2.0
22.942	Work Study II	1.5
10.910	Personnel Management	1.0
22.902	Inventory Planning and Control	1.0

Other courses listed in the Business Management Technology selected by the student and approved in writing by a Programme Consultant.

COURSES IN BUILDING SERVICES MANAGEMENT

Basic Social Sciences and Communications for Executive Housekeepers

(formerly 19.901)

This course has been discontinued as it duplicated other courses in the Business Technology which are available in greater depth, i.e. 10.221 Management Psychology I, 10.906 Organizational Behaviour, 10.904 Supervisory Skills, etc. (see certificate programme on preceding pages).

19.902 Maintenance and Control

Purpose – To prepare candidates for a supervisory role in the Building Management field and to assist people in this line of work who have not had formal training.

Objective – Students will acquire considerable depth of understanding of maintenance from a supervisory viewpoint and in particular of the chemicals involved in the various types of maintenance.

Outline – Lectures, demonstrations, visual aids and viewing equipment will provide knowledge of chemicals, disinfectants, equipment and techniques for maintaining floors, carpets, windows, blinds, etc., with particular attention to hotel, hospital, and institutional maintenance.

Wednesday: 7:00-9:00 p.m. — *Begins:* Sept. 14
Term I (12 weeks) — *Unit:* 1.0

19.903 Interior Design — Basic

Purpose – This course is of value to people who are merchandising home furnishings, architectural students, people in industry, institutions and others with a general interest in the field. Also, recently graduated students seeking a career find it a useful means of evaluating the field as a possible career.

Objective – Students completing these 12 weeks have a good understanding of the interior design art form.

Outline – Through lectures, slides, class projects, assignments, and practical exercises the instructor covers the principal elements of design as they relate to the interior environment — balance, emphasis, rhythm, and proportion. It includes how to influence the home through effective colour schemes, lighting arrangements, space planning, form or shape relationship, linear effects, and interesting textural compositions.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 14
Term I (12 weeks) — *Unit:* 1.0

This course will be repeated in Term II beginning Wednesday, January 11, 1978.

19.905 Safety and Sanitation

Purpose – This presentation is for building managers, those persons who are desirous of achieving such a position, and anyone who may benefit from knowledge in this area of expertise.

Objectives – The student will acquire a sound understanding of the causative factors of diseases and the methods available to control its incidence. The student will be able to identify physical and chemical safety hazards and utilize established methods to protect himself and others.

Outline – Presentation will be made from a composite of lectures, visual aids, demonstrations, and discussion sessions. Specific topics that will be covered are: Sanitation — terminology, related bacteriology, behaviour control via physical and chemical agents, cleaning techniques, waste-material handling, insect and rodent control, plumbing, and case studies. Safety — ergonomics, chemical hazards, ventilation, protective equipment, flowable and corrosive liquids, tools and machinery, accident prevention, safety training, radioactive materials, fire hazards, disaster planning, evacuation, and case studies.

Monday: 6:45-9:45 p.m. — *Begins:* Jan. 9
Term II (12 weeks) — *Unit:* 1.0

MARKETING MANAGEMENT TECHNOLOGY

Five Certificate programmes are listed in this Technology including one in Traffic and Transportation Management.

Suggested programmes and a variety of courses available to students pursuing a career in these areas are set out on the following sections.

Business Certificate in Industrial Marketing

The following is a suggested programme for the basic Certificate (15 units) attainable over 3 years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Marketing (20.180)	1.0	Marketing (20.280)	1.5	Elective	1.0
Business and Technical Report Writing (31.503)	1.0	Business and Technical Report Writing (31.603)	1.0		
YEAR II					
Accounting for the Manager (16.904)	1.0	Salesmanship (20.275)	1.0	Elective	1.0
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR III					
Oral Communications and Public Speaking I (20.502)	1.0	Oral Communications and Public Speaking II (20.602)	1.5		
Elective	1.0	Sales Management (20.476)	1.0		

See page 109 for the list of electives and substitute courses.

MARKETING MANAGEMENT TECHNOLOGY

Business Certificate for Technical Sales Representative

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Marketing (20.180)	1.0	Marketing (20.280)	1.5		
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
Salesmanship (20.275)	1.0	Marketing and Customer Behaviour (20.389)	1.0	Elective	1.0
*Technical Elective	1.0	*Technical Elective	1.5		
YEAR III					
Business and Technical Report Writing (31.503)	1.0	Business and Technical Report Writing (31.603)	1.0	Elective	1.0
Elective	1.0	Marketing Planning (20.387)	1.0		

* Students may select the Technical Electives from any approved course taken from the Engineering Section.

See page 109 for the list of electives and substitute courses.

MARKETING MANAGEMENT TECHNOLOGY

Business Certificate in Advertising and Public Relations

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Marketing (20.180)	1.0	Marketing (20.280)	1.5		
Advertising I (20.910)	1.0	Advertising II (20.911)	1.0		
YEAR II					
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0	Elective	1.0
Public Relations (20.906)	1.0	Copywriting — Radio & T.V. I (12.905)	1.0		
YEAR III					
Accounting for the Manager (16.904)	1.0	Marketing and Customer Behaviour (20.389)	1.0	Elective	1.0
Oral Communications and Public Speaking I (20.502)	1.0	Oral Communications and Public Speaking II (20.602)	1.5		

See page 109 for the list of electives and substitute courses.

MARKETING MANAGEMENT TECHNOLOGY

Business Certificate in Retail Merchandising

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Marketing (20.180)	1.0	Marketing (20.280)	1.5		
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
Retailing (20.384)	1.0	Merchandising (20.472)	1.5	Elective	1.0
Advertising I (20.910)	1.0	Marketing Planning (20.387)	1.0		
YEAR III					
Salesmanship (20.275)	1.0	Marketing Research (20.903)	1.0	Elective	1.0
Elective	1.0	Marketing and Customer Behaviour (20.389)	1.0		

See page 109 for the list of electives and substitute courses.

MARKETING MANAGEMENT TECHNOLOGY

Business Certificate in Traffic and Transportation

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
International Trade (20.912)	1.0	Traffic and Transportation (20.902)	1.5	Elective	1.0
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR II					
Accounting for the Manager (16.904)	1.0	Purchasing (22.901)	1.0	Elective	1.0
General Marketing (20.914)	1.0	Elective	1.0		
YEAR III					
Elective	1.0	Transportation Trends and Economics (20.913)	1.5		
Economics I (10.135)	1.0	Economics II (10.235)	1.5		

See page 109 for the list of electives and substitute courses.

MARKETING MANAGEMENT TECHNOLOGY

Electives

Courses which may be used as electives or substitutes when appropriate for Certificate Programmes in the Marketing Management Technology.

Selections should be approved in advance in writing by a Programme Consultant to ensure that they are appropriate and will be accepted as an elective or substitute.

1. Courses listed in the Marketing Management Technology (Prefix 20...) when approved as above.

or

2. Such courses as:

		Units
10.135/235	Economics I and II	2.5
10.221	Management Psychology I	1.0
10.325/425	Labour Relations I and II	2.0
10.360/460	Business Law I and II	2.0
10.906	Organizational Behaviour	1.0
10.907	Discussion Leadership	1.0
10.924	Management By Objectives	1.0
14.901	Data Processing — Introduction	1.0
16.900/901	Accounting I and II	2.5
16.904	Accounting for the Manager	1.0
16.909	Credit and Collections	1.0
22.951	Systems Analysis	1.0
22.951/952	Materials Handling I and II	2.0
22.902	Inventory Planning and Control	1.0
22.901	Purchasing	1.0
22.963	Mathematics for Management	1.5
22.903	Operations Planning	1.5
31.503/603	Business and Technical Report Writing	2.0
31.504/604	Business Writing	2.0
31.505/605	Technical Writing	2.0

and

Other courses listed in the Business Management Technology selected by the student and approved in writing by a Programme Consultant.

Courses in Marketing Management

20.180/280 Marketing

Purpose – An introductory course for those who plan a career in Marketing or related fields.

Objective – To give the student a thorough understanding of the basic marketing functions in a firm. On completion of the course students are well prepared to proceed to other courses for a greater depth of training in the various Marketing Management courses.

Outline – Main topics covered are: Nature of Marketing Management, methods of Marketing Research, Product Planning and Development, Branding, Packaging, Fashion, Physical Distribution, Retailing, Wholesaling, Pricing Practices and Policies, Advertising, and Personal Selling. Industrial and International Marketing also will be introduced.

Each lecture period includes participative discussions and special assignments are given on marketing problems of various types. These assignments may include case studies as well as marketing of a new product.

Monday: 6:45-9:45 p.m. or	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m. or	Sept. 13
Wednesday: 6:45-9:45 p.m. or	Sept. 14
Saturday: 9:00 a.m. to 12 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0
20.280	*Begins:* Jan. 3, 4, 7 or 9
Term II (18 weeks)	*Units:* 1.5

Please indicate a preference of day you wish to attend.

20.914 General Marketing

Purpose – To provide an introductory course in marketing for persons who wish to have a short 12-week course rather than the longer combined Marketing Course. This course will be useful to persons concentrating their studies in areas other than marketing who wish limited exposure to the field of marketing. It also may be used by persons employed in the field of marketing or studying that area who, because of the nature of their work, can only commit a shorter period of time. Students who complete the course may go on to take the more advanced Marketing Courses or they may take at some future date the Marketing 280 portion of the Marketing Course. In the latter case, however, there will be some overlap.

Objective – The students will be given many concepts in the general field of marketing and asked to relate these to their own business situation and thereby see how the theory does apply to a situation to which they are familiar. Hopefully this will provide the students with a conceptual framework of marketing in their own firm as well as a theoretical understanding of this discipline.

Outline – The course will cover market grid analysis, marketing concept, uncontrollable factors, total product, market segmentation, product differentiation, packaging, branding, product classification for consumer and industrial goods, product life cycle, style and fashion, place utility objectives and channels of distribution, retailing, wholesaling, promotion blending, pricing policies. Students will be expected to answer questions on examinations on the readings from the textbook as assigned and as well make an oral and written presentation relating the lecture and textbook material to their firm or to some business situation, should they not be employed.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Monday, January 9 and again in Term III commencing Monday, April 3, 1978.

20.275 Salesmanship

Purpose – To provide basic sales training for the sales aspirant and to give those already in the sales field who have had no formal training an understanding of the mechanics of salesmanship.

Objective – To provide the trainee with sufficient knowledge and skills to seek a career in the sales field. For those already in sales and who have had no formal training an opportunity to make an in-depth study of the mechanics of salesmanship and develop their skills to a professional level.

Outline – Through a series of lectures, reading assignments, and the use of training film the student covers the pre-approach, approach, demonstration/presentation, handling of objections and closing techniques.

Students will develop selling skills through practical application of the various sales techniques to a product or service of their choice. Sales practice (role-playing) with the use of video tape and discussion proves to be of great assistance to the student.

Wednesday: 6:45-9:45 p.m. or	*Begins:* Sept. 14
Thursday: 6:45-9:45 p.m. or	Sept. 15
Saturday: 9:00 a.m. to 12 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, Thursday or Saturday, January 11, 12 or 14 and in Term III commencing Tuesday, April 4, 1978.

Please indicate a preference of time you wish to attend.

20.384 Retailing

Purpose – This course is for students who are relatively new in the retail field and who wish to prepare themselves for advancement or for students seeking a career in retail merchandising who have completed the course Marketing 20.180/280.

Objective – On completing this course students should have an understanding of sound retailing management principles and the strategies of retailing in a competitive environment.

Outline – Both small-scale and large-scale retailing will be dealt with in covering such areas as — principles of retail location and layout; trading area analysis; principles of retail gravitation; retail strategies and trends; shrinkage problems; productivity, sales promotion and consumerism.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

20.387 Marketing Planning

Purpose – This course is for people who can benefit from understanding the highly important principles and techniques of planning in a marketing situation.

Objective – To provide students with an understanding of the need for planning, how to plan in both strategic and operational time frames and to see the benefits of an organized approach to marketing a product or service more effectively.

Outline – A combination of class lectures, discussion, case studies and a term project will be used to provide a comprehensive range of knowledge in this important marketing area. Specific topics covered include: analysing and reaching present and potential markets, improving various aspects of the product mix, applying marketing research methods and techniques, determining marketing objectives, and utilizing advertising, promotion, distribution, and price strategies.

Tuesday: 6:45-9:45 p.m.	*Begins:* Jan. 10
Term II (12 weeks)	*Unit:* 1.0

Students should have some marketing background through experience or training and the courses Management in Industry and Management By Objectives taken prior to this will be helpful.

20.389 Marketing and Customer Behaviour

Purpose – This course is designed to broaden the students understanding of the "people aspects" in marketing and to introduce the various research findings which relate to customer behaviour. Whether new to the marketing field, planning to enter it or an "old hand", all will benefit from a better understanding of the ever-important customer.

Objectives – On completion of this course the student can expect to a) be knowledgeable about the characteristics of various consumer publics and simple demographic variables such as age, sex and socioeconomic level; b) be able to understand how and why consumers act individually and in mass; c) be able to understand purchase and postpurchase behaviour; d) understand the behaviour of people as buyers and users of goods and services; and e) be able to understand "product image" and "product personality" and the progress and changes being made toward a discipline of customer behaviour.

Outline – A mixture of lectures, discussions, seminars, projects, and assignments will provide an interesting course. Topics include the importance of customer behaviour, problems relating to customer behaviour, mass communications, foundations of customer behaviour, consumer economic theory, contributions of the behavioural sciences, and customer behaviour present and future.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (12 weeks) *Unit:* 1.0

20.472 Merchandising

Purpose – To prepare persons with limited experience in retailing to gain an understanding of basic concepts and practices in merchandising. Specifically, this course will deal with the techniques of establishing, procuring, maintaining, evaluating, and promoting a merchandise assortment.

Objectives – On completion of the course a student can expect to be conversant with assortment planning, factors in selection of resources, buying plans, characteristics of fashion and staple operations, fundamentals of budgets, standards, assortment maintenance, selection techniques, vendor relations, merchandise presentation, and basics of sales promotion. With such training the student would be in a position to seek advancement in specialty retail and department store employment.

Outline – Lectures and problem-solving exercises will be used; some take-home assignments will be given.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Unit:* 1.5

20.476 Sales Management

Purpose – This intensive training is for the sales person planning to "step up" to managerial responsibility or for those who have such responsibility now and would benefit from a better understanding of supervisors and what motivates sales people to put extra effort into "making the sale."

Objective – On completion of the course students should know and appreciate the fundamentals of managing a sales force large or small and should be able to tackle typical sales management problems with confidence.

Outline – Through lectures, discussions, case studies and role plays, this course will

provide students with a basic overview of the sales management process as well as a close examination of selected topics such as selection, assimilation, training, supervision, and performance appraisal techniques. The course content emphasizes the human resources. Supplementary topics include sales research, planning, organization, and sales management ethics.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Monday, January 9, 1978.

20.902 Traffic and Transportation

Purpose – This course will deal with the elements of traffic and transportation and will be introductory rather than technical in its presentation. It may also be utilized as a refresher course for those already involved in traffic and transportation management.

Objective – The course is intended to develop the individual's knowledge of transportation for both the buyer's and seller's point of view.

Outline – Those areas to be dealt with include the role of transportation in industry; railways vs. highway carriers; the bill of lading, a legal document; quantity transportation purchases, warehousing; ocean shipping; private vs. public carriage; unit load-handling; air shipments; and pipe-line movements.

Tuesday: 6:45-9:45 p.m. or *Begins:* Jan. 10
Thursday: 6:45-9:45 p.m. Jan. 13

Term II (18 weeks) *Units:* 1.5

Please indicate a preference of day you wish to attend.

20.906 Public Relations

Purpose – This course is designed for people in business, government, municipalities, associations, and organizations who have a responsibility for communicating with the public and within the organization.

Objective – Students completing this course will tackle their information and communication assignments with increased confidence and competence.

Outline – Through lectures, examples, case studies, and discussion sessions the course material covers planning and executing a public relations program, writing for the mass media, principles of news writing, specialty advertising, utilizing the various media, community relations, external and internal communications, and meetings.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Wednesday, January 11 and in Term III commencing Wednesday, April 5, 1978.

20.910 Advertising I

Purpose – This course is carefully designed to help creatively inclined persons assess their potential and abilities for careers in the advertising field; to assist newcomers to advertising in expanding their knowledge of the craft and exposing them to the newest trends and up-to-date changes taking place in advertising.

Objectives – On completion of Advertising I a student will be able *(a)* to be a competent critic of advertising; *(b)* to measure his or her own abilities and talents in one of the phases of advertising; *(c)* to have a deeper understanding of advertising in the marketing picture; *(d)* to understand better the problems and challenges of advertising; *(e)* to get valuable insights

into the factors affecting creative endeavours; and *(f)* to make a more effective contribution if involved in an advertising career.

Outline – History of advertising — the field today and tomorrow. Definitions of local and national advertising. The media and media mix — newspapers, radio, TV, magazines, direct mail, and transit. Classroom projects and field visits. Copy writing, layout design, graphics, typography and art techniques. Production of effective advertising.

Tuesday: 6:45-9:45 p.m. or — *Begins:* Sept. 13
Thursday: 6:45-9:45 p.m. — Sept. 15

Term I (12 weeks) — *Unit:* 1.0

Please indicate a preference of day you wish to attend.

20.911 Advertising II

Purpose – To put into sharp focus the subject material covered in Advertising I; to enable persons holding junior advertising positions to advance to more responsible areas; to show the inter-relationship between marketing and advertising.

Objectives – On completing this course the student should expect *(a)* to possess a fair grounding in aspects of measuring advertising effectiveness; *(b)* to differentiate between advertising and sales promotion; *(c)* to understand media planning and budgets; *(d)* to know the make-up of advertising campaigns; *(e)* to know how an advertising agency operates; *(f)* to implement marketing planning, co-ordination, controls, and measurements; and *(g)* to take on greater responsibilities in an advertising operation.

Outline – A blend of active learning lectures, assignments, competitive team projects (backed up by analysis and performance critiques) provides a unique learning experience in advertising and marketing planning. Media, sales promotion, radio and TV writing, film productions, creative processes, the principles and practices of marketing planning, co-ordination, controls, and measurements.

Thursday: 6:45-9:45 p.m. — *Begins:* Jan. 12

Term II (12 weeks) — *Unit:* 1.0

Prerequisite – Advertising I or permission of the instructor.

20.502 Oral Communications and Public Speaking I

20.602 Oral Communications and Public Speaking II

Purpose – To improve oral communications in business and social situations. Those people who lack self-confidence generally and who specifically lack confidence in communication situations should find this course very profitable. Class structure is flexible enough to allow for individuality of the class.

Objective – Each student will develop increased skill and confidence in all speaking situations.

Outline – Various types of communications situations are examined — telephone, conversation, social and business speaking situations, communication breakdown and how to avoid it, etc.

Training films, buzz groups, along with wide use of video will be utilized. Every night each student will be required to make some sort of public presentation. The final night of the course is in the form of a formal banquet at which the students have the opportunity to make speeches to class members and invited guests.

PART I

Tuesday: 6:45-9:45 p.m. or — *Begins:* Sept. 13
Wednesday: 6:45-9:45 p.m. — Sept. 14

Term I (12 weeks) — *Unit:* 1.0

PART II

Tuesday: 6:45-9:45 p.m. or *Thursday:* 6:45-9:45 p.m. — *Begins:* Jan. 10, Jan. 12

Term II (18 weeks) — *Units:* 1.5

Please indicate a preference of day you wish to attend.

20.970 Oral Communications and Public Speaking IL

This course is designed to permit students to start the Oral Communications course in January. It covers the equivalent of 20.502 and the first six weeks of 20.602 for a total of 18 weeks of the 30 weeks course.

For a description of the course content see 20.502/602 above.

Monday: 6:45-9:45 p.m. — *Begins:* Jan. 9

Term II (18 weeks) — *Units:* 1.5

20.971 Oral Communications and Public Speaking IIS

This is the remaining 12 weeks of the 30 week course which students commenced the previous January (see above).

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12

Term I (12 weeks) — *Unit:* 1.0

20.903 Marketing Research

Purpose – A fundamental course designed to assist persons who are or will be involved in the marketing research function or its application, to understand better the theoretical and operational aspects of this important area of marketing.

Objectives – To provide interested persons with the knowledge and ability to apply basic marketing research methods and techniques to a wide variety of marketing problems.

Outline – A combination of class lectures, discussions, case studies, and a field project will be used to provide a comprehensive knowledge of this integral marketing function. Specific topics covered are sampling theory and practice, questionnaire design and field interviewing, consumer behaviour, media, advertising, product, and industrial marketing research.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13

Term I (12 weeks) — *Unit:* 1.0

20.912 International Trade

Purpose – This presentation is aimed at those in industry who are involved or are interested in the facets, functions, and documentations of international trade.

Objectives – Ability to handle details of import and export procedures; to understand just what happens to shipments and the paperwork concerning the goods, costing, financing, insurance, transportation, documentation, and customs clearance.

Outline – The course content will be geared to the needs and interests of the attending students. Class discussions will be encouraged.

The practical approach is emphasized. The intent of this course is to assist those in industry to understand the complexities of international trade, the terminology of international trade, and the activities involved within international trade as it is happening on the local and foreign scenes.

Tuesday: 6:45-9:45 p.m. or *Begins:* Sept. 13
Thursday: 6:45-9:45 p.m. Sept. 15

Term I (12 weeks) *Unit:* 1.0

Please indicate a preference of day you wish to attend.

20.913 Transportation Trends and Economics

Purpose – This course is intended to round out the student regarding advancements in all modes of transportation while at the same time evaluating present and intended rate structures, classifications, and related areas of transportation costing.

Students will find this course extremely beneficial as they will be made aware of current developments in matters of physical distribution.

Objectives – For advancement in industry, individuals engaged in physical distribution activities should be aware of what is occurring in their own particular field and that of their competitors; be it another mode of transportation or another user of this service. This course is intended to broaden the student's horizons and enable him to relate better with his peers in the transportation world.

Outline – Presentations will be made from a composite of lectures and classroom discussions, with heavy emphasis on current handouts, films, and any other techniques necessary to update and provide the student with an insight into the transportation infrastructure and its evolution.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Units:* 1.5

20.907 Salesmanship — Salesmen

Purpose – This course is designed for men and women who are already employed as salesmen. It is also suitable for those who are employed in an "inside sales position" and who wish to move up into the sales representative category.

Objective – To give those persons already in the sales field an opportunity to develop further their sales skills and eliminate the costly "trial and error" method of learning.

Outline – A study of the mechanics of salesmanship covering the pre-approach, approach, demonstration, objection-handling, and closing techniques. Emphasis will be placed on selling practice, role-playing using video tape and group-evaluation techniques. A number of sales training films are employed.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II commencing Monday, January 9 and in Term III commencing Monday, April 3, 1978.

OPERATIONS MANAGEMENT TECHNOLOGY

Business Certificate in Operations Management

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Work Study I (22.941)	1.0	Work Study II (22.942)	1.5	Elective	1.0
Mathematics of Finance (22.936)	1.0	Management Psychology I (10.221)	1.0		
YEAR II					
Statistics for Business and Industry (22.535)	1.0	Statistics for Business and Industry (22.635)	1.0	Organizational Behaviour (10.906)	1.0
Management in Industry I (10.131)	1.0	Management in Industry II (10.232)	1.0		
YEAR III					
Project Planning and Scheduling (22.953)	1.0	Systems Analysis (22.951)	1.0		
Inventory Planning and Control (22.902)	1.0	Operations Planning (22.903)	1.5		

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

OPERATIONS MANAGEMENT TECHNOLOGY

Electives

Courses which may be used as electives or substitutes when appropriate for Certificate Programmes in the Operations Management Technology.

Electives or substitutes may be selected for this Certificate Programme from the following list.

Selections should be approved in advance in writing by a Programme Consultant to ensure that they are appropriate and will be accepted as an elective or substitute.

1. Courses listed in the Operations Management Technology (Prefix 22....) with approval as stated above.
2. Such courses as:

		Units
10.907	Discussion Leadership	1.0
10.360/460	Business Law I and II	2.0
10.135/235	Economics I and II	2.5
14.901	Data Processing — Introduction	1.0
14.909	FORTRAN IV — Basic	1.0
16.904	Accounting for the Manager	1.0
31.503/603	Business and Technical Report Writing	2.0
49.900	Draughting	1.0

and

Other courses listed in the Business Management Technologies selected by the student and approved in writing by a Programme Consultant.

OPERATIONS MANAGEMENT TECHNOLOGY

22.535/635 Statistics for Business and Industry

Purpose – To provide a comprehensive understanding of the techniques of elementary statistical methodologies used as aids to objective decision-making. The course is generally suitable for persons requiring statistics for initiating research in the fields of marketing, audit sampling, quality control, inventory control, and business forecasting.

Content – Descriptive Statistics and Probability is taken in Term I; Inferential Statistics and Forecasting in Term II. The package, however, is regarded as a single unit.

Outline – Introduction to the use of statistics in business and industry; descriptive statistical techniques involving collection and treatment of data and a review of elementary set theory and probability; Inferential Statistics include sampling, hypothesis testing, goodness of fit, regression analysis, correlation, and time series analysis.

Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 15
Term I (12 weeks)	*Units:* 1.0
Term II (12 weeks)	1.0

22.901 Purchasing

Purpose – This course is for people preparing to enter the purchasing field, for those who are given buying responsibilities in a small operation along with other responsibilities, for people newly appointed to a purchasing department, and for those in related fields who will benefit from knowing the fundamentals of purchasing, for example, housekeepers, maintenance personnel, etc.

Objective – Students will gain a fundamental knowledge of the principles and practices of purchasing.

Outline – In the 12 weeks this course will include the functions of a purchasing unit, the relationship and responsibilities to management; centralized purchasing; negotiating controls; buying for quality, quantity, and price; timing and sources of supply; receiving and warehousing; and inventory control. (See 22.902) for a supporting course in Inventory Planning & Control.

Tuesday: 6:45-9:45 p.m.	*Begins:* Sept. 13
Term I (12 weeks)	*Unit:* 1.0

This course repeats in Term II, beginning Thursday, January 12, 1978.

22.902 Inventory Planning and Control

(formerly part of Production Control Management)

Purpose – This course is designed for people preparing to enter the inventory planning field and for those who interface with an inventory system and would benefit from knowing the fundamentals of inventory planning.

It will be of particular interest to people intending to enter the Operations Planning field and others such as Purchasing Agents, buyers, maintenance planners, production schedulers, sales managers, warehouse managers, mill storekeepers and parts-men.

Objective – On completion of the course students will have a basic knowledge of the techniques used in the design and control of inventory systems.

Outline – Material covered will include: forecasting inventory requirements (the need and the techniques); the A.B.C. classification to material requirements planning; the role of the computer; inventory information flow and inventory control system design.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Students enrolling in this course should have some understanding of basic algebra.

22.903 Operations Planning

(formerly part of Production Control Management)

Purpose – This course is for people preparing to enter the production control management field, for those who are presently working in a production environment such as production schedulers, production foremen shippers, etc., and for those working in related fields, for example — salespersons, stores personnel, or systems analysts.

Objective – On completion of Operations Planning the student should expect *(a)* to have a fundamental knowledge of techniques used in the design and control of raw material production and sales co-ordinating systems, *(b)* to be able to analyze an existing system and recommend changes to the information flow.

Outline – The course through lectures, case studies and a factory simulation will cover the following materials: types of production environments; production information flow, inventory/production/sales relationships, forcasting production requirements, production planning, manpower and machine loading, scheduling, analyzing and controlling performance, the role of the computer and Production Control System design.

Students will operate a factory for several weeks of consecutive plant operation through the facilities of a computerized production system simulator. This simulation will provide the student with a means of gaining experience in controlling and designing a total production system.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Units:* 1.5

Prerequisite – Inventory Planning and Control or permission of the instructor.

22.904 Quality Control Methods I

Purpose – To provide people who would benefit from a knowledge of quality control with a basic understanding of the principles of modern methods.

Objective – On completing this course students will have an insight into the problems encountered in achieving quality levels and an understanding of the important techniques used to solve problems of product quality in Industry.

Outline – Main topics covered are: development of quality, planning for quality, organizing for quality, engineering a quality product, reliability and maintainability assurance, material control system, inspection and test, non-destructive testing, metrology and quality costs.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Units:* 1.0

22.905 Quality Control Methods II

Purpose – This course is a continuation of Quality Control Methods I and is designed to enable the student to handle some of the advanced techniques for quality control.

Objective – On completing this course students will have been prepared to write the American Society for Quality Control exams for Quality Technician and/or Quality Engineer.

Outline – Main topics covered are: Quality Control Management, Engineering Technology of Quality Control, Statistical Technology of Quality Control, Motivational Methods, Applying Total Quality Control in the Company.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Units:* 1.0

22.936 Basic Mathematics of Finance

Purpose – An introductory course for those who wish an understanding of the earning power of money and its changing value over time as it applies to commercial transactions, as well as the personal financial planning of everyday activities.

Objective – Since the concept of interest is universally applicable to both business and personal transactions, the primary objective of this course is to give the student a sound background in the basic mathematical principles used in computations.

Outline – Through lectures and supervised class exercises the course material covers a brief review of basic mathematics, marketing applications (markup and markdown), note discounting, interest, the concept of present value, instalment plans, annuities, mortgages, sinking funds, depreciation methods, and techniques of evaluating investment alternatives.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

22.941 Work Study I

Purpose – This course is the fundamental course in Operations Management and is designed to create a systematic approach to problem-solving.

Objective – To create a plan for solving problems and to give the student the ability to apply this technique to his daily environment.

Outline – Principles of systematic scientific problem-solving as related to business and industry; selection of study areas, including economic feasibility; recording techniques, including assembly and display of data for analysis and dissemination; critical examination and development of alternative solutions for design and production problems; installation and maintenance of preferred solutions; importance and implications of human factors related to method study; motion economy and workplace design, supplemented by application of all topics to practical situations, intended as Part I of a two-part programme leading to a basic knowledge of Work Study.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

22.942 Work Study II

Purpose – To proceed from Work Study I into the area of time analysis and relating costs of time.

Objective – (1) To familiarize the student with the various systems of recording time and establishing standard times for work.

(2) To allow the student to do a complete work study exercise through to final report.

Outline – The course will cover historical times, work sampling and techniques, predetermined time systems, and the development of standard times from these techniques.

It will present a case problem requiring the student to apply the knowledge gained in both Work Study I and II as a final assignment.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (18 weeks) *Units:* 1.5

22.951 Systems Analysis

Purpose – This course is designed for students entering system analysis field and for those who desire to use the systematic techniques of problem solving in administration, manufacturing, sales and technical fields.

Objective – To provide a basic training in theory and practice of systems quantitative analysis in such manner to enable students to practice these in their own particular field of endeavour.

Outline – The course will offer drawing in system theory, problem selection, organization, definition; Use of system charts and quantitative methods for data gathering and analyses; Development of alternatives, reporting and followup; and cost/benefit analysis. In addition to lectures and exercises students will be expected to complete a term project as a part of the course.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Unit:* 1.0

22.953 Project Planning and Scheduling

Purpose – This course is designed for those who have a limited knowledge of the Critical Path Method or who wish to acquire a basic grounding in the CPM technique and its application to the management of projects.

Objective – To introduce the fundamentals of the Critical Path technique, especially in the area of planning, scheduling, resource allocation, and project management.

Outline – Through lectures, case studies, and a simulated construction project, the course material covers 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.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

22.961 Materials Handling I

Purpose – This course will be of particular interest to people in the fields of warehousing, purchasing and stores and traffic and transportation. It provides the basis for proceeding to Materials Handling II.

Objective – To introduce an organized approach to the study of materials handling problems. The course is designed to allow the person with little or no analytical background to develop a basic awareness of materials handling problems and to become familiar with techniques of analysing and developing solutions to those problems.

Outline – Lectures, films and working sections coupled with home assignments develop a basic working knowledge of how to solve materials handling problems. The course will provide an introduction to the materials handling environment, methods study techniques, classification of problems, layout planning (both over-all and detailed) for plant and office; introduction to economic justification for change.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

22.962 Materials Handling II

Purpose – To give the person who has been introduced to the materials handling field a detailed method of analysing problems and determining alternative materials handling systems.

Objective – To enable the student to develop and sell a materials handling system.

Outline – Detailed handling analysis, development of integrated handling systems, economic justification of change, and comparison of current systems and equipment.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Unit:* 1.0

Prerequisite – Materials Handling I.

22.963 Mathematics for Management

Purpose – To provide a solid foundation in the type of mathematics fundamental to many of the quantitatively oriented business subjects, techniques, or formal programmes of study (BCIT Bus. Cert., M.B.A., B.Comm., R.I.A.)

Objective – In the past two decades, new techniques such as linear programming, simulation, discounted cash flow, and inventory control models have been widely applied in a variety of business situations. However, persons wishing to learn about these new techniques are often hampered by a deficient mathematical background. Also, persons seeking full competency in such subject areas as economics, finance, marketing research, etc., often feel restricted by an inadequate grounding in the quantitative skills relevant to these subjects. The object of this course is to provide the necessary mathematical background.

Outline – The course is application-oriented, with the applications being chosen from the real business world. After an initial period of reviewing some necessary high school algebra, new theory will be introduced as it is required in the context of solving a real-life problem.

Some topic-problem area associations will be mathematics of finance — mortgages, depreciation, etc.: linear algebra — break-even analysis of business operations; matrices and determinants — material and labour constraints; linear inequalities — available resource constraints; linear programming — optimum resource allocation.

As a point of interest, the student will get some computer experience in solving the linear programming problems just mentioned.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Units:* 1.5

COURSES IN ENGLISH

31.900 English Fundamentals

Purpose – The course is intended to review the fundamentals of writing, emphasizing practise in various forms and development of a language sense.

It operates mainly on a tutorial basis, since the diagnosis and correction of individual weaknesses is the fundamental purpose.

Objective – On completion of the course, students can expect to have improved their ability to write correct English.

Outline – Material covered includes spelling, punctuation, work-choice, grammar, agreement and coherence. The use of dictionaries, reading and exercise courses will be emphasized, and written exercises are given at almost every session. Seminar-type analysis and discussion of the assignments then follows.

Thursday: 6:45-9:45 p.m. *or* — *Begins:* Sept. 15
Saturday: 9:00 a.m. to 12 noon — Sept. 17

Term I (12 weeks)

This class will be limited to 20 students.

This course will be repeated in Term II commencing Thursday, January 12 or in Term III commencing Thursday, April 6, 1978.

31.901 Communications

Purpose – This course is designed for anyone who wishes to develop more effective communication skills — oral and written with particular reference to business contexts.

Objective – The primary objective is to examine basic principles of communication and to offer students experience in their application in speech and writing.

Outline – Students will examine the communication process, communication breakdowns and their solutions, in theory and through models taken from a variety of business contexts. They will practice techniques for gathering, organizing and presenting information. Assignments will cover a variety of oral and written presentations; speeches, memoranda, letters and reports.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Unit:* 1.0

This course will be repeated in Term II commencing Thursday, January 12 and in Term III commencing Thursday, April 6, 1978.

NOTE: Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties. Those who suspect that their fundamental English writing and speaking skills may be deficient, should consider first enrolling in a remedial language training programme before joining a business or technical writing course.

31.503/603 Business and Technical Report Writing

Purpose – This is designed to improve the report writing skills of persons presently employed, or intending to be employed, in business or industry.

Scope – The organization and presentation of a variety of reports will be considered, discussed, and practised. Particular attention will be given to those types of reports selected by the students as best meeting their vocational needs. Some aspects of letter writing will be discussed, but emphasis will be placed on report writing. Other communication techniques

(such as film, tape, and public speaking) may also be examined.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Saturday: 9:00 a.m. to 12 noon	Sept. 17
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

This course also repeats in Term II, beginning Monday, January 9 or Saturday, January 14 and in Term III Monday and Wednesday evenings beginning April 3, 1978.

NOTE: Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties. Those who suspect that their fundamental English writing and speaking skills may be deficient, should consider first enrolling in a remedial language training programme before joining a business or technical writing course.

31.504/604 Business Writing

Purpose – To improve the student's ability to communicate. Business writing appropriate to the student's present and future needs are discussed and practised. Persons presently employed in a business setting should find this course useful.

Objective – On completion of this course a student can expect to *(a)* be capable of writing an effective business letter and memorandum; *(b)* be capable of writing an effective business report; and *(c)* be able to give an effective oral presentation.

Outline – A mixture of lectures, discussions, writing sessions, and films will provide an interesting course. The following topics will be covered: *(a)* Sales letters; *(b)* collection letters; *(c)* inquiries and orders; *(d)* credit letters; *(e)* claim and adjustment letters; *(f)* application letters and résumés; *(g)* memorandums; *(h)* short reports; *(i)* long or formal reports; and *(j)* oral reports.

Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 15
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

NOTE: Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties. Those who suspect that their fundamental English writing and speaking skills may be deficient, should consider first enrolling in a remedial language training programme before joining a business or technical writing course.

31.505/605 Technical Writing

Purpose – The improvement of the student's ability to communicate in a technical context is the principal purpose of this course. Though business and technical writing share a common basis of "good", i.e., "effective" English, there is a distinction in content. Technical writing is predominantly concerned with material generated by engineering and the applied sciences. This course is designed for persons working in these fields, although in today's industry there is a considerable overlap between technology and commerce, and some employment categories, e.g., marketing, allow no such demarcation.

Objective – While no specific vocational objectives for this course can be formulated, the student may expect to improve confidence and competence in dealing with the wide range of communications required by modern industry. Thus, the work will be adapted as far as possible to the needs of individual students, and will include diagnosis of special problems and intensive remedial coaching through supervised assignments.

Outline – A study of the principles of style and form which govern effective report writing will be undertaken. Assignments will include letters, memos, formal reports, specifica-

tions, and various kinds of technical description. Some other communication techniques (such as film, tape, and public speaking) will be examined, but the emphasis throughout will be on written communications.

Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 15
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

NOTE: Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties. Those who suspect that their fundamental English writing and speaking skills may be deficient, should consider first enrolling in a remedial language training programme before joining a business or technical writing course.

31.905 Reading Improvement

Emphasis will be placed on purposeful and flexible reading techniques related to speed of comprehension. This will involve skill development in the following areas: Reading rate, comprehension, vocabulary, pre-reading, note-taking, and study habits and skills.

Classes will meet for two hours twice a week for six weeks. Each class is limited to 15 students for emphasis on individual attention. This course is not intended for persons for whom English is a second language.

Tuesday and Thursday: 6:45-8:45 p.m.	*Begins:* Sept. 13
Term I (6 weeks)	

NOTE: There will be a second set, beginning October 25th.

This course will be repeated in Term II beginning January 10 with students attending Tuesday and Thursday.

N.B. Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties.

31.907 Business and Technical Writing — Advanced

Purpose – This is an advanced course designed to be of interest to those who have the basic skills and knowledge necessary to write literate English and who already occupy middle or upper management positions in business, government or industry.

Objective – The primary objective is to improve students' ability to organize material into logical written form(s).

Outline – Through lectures, seminars and case studies, the course will cover report formats, logic, summarization, problem solving and topic development. Where possible, emphasis will be placed on improving examples of written work students are actually doing for their employer.

Thursday: 6:45-9:45 p.m.	*Begins:* Jan. 12
Term II (12 weeks)	*Unit:* 1.0

NOTE: Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties. Those who suspect that their fundamental English writing and speaking skills may be deficient, should consider first enrolling in a remedial language training programme before joining a business or technical writing course.

31.101/102 Communication (Primarily for Engineering Technologies)

Purpose – This course is designed for students who intend to enroll in an Engineering

Technology and desire full course credit for 31.101/102.

Objective – To teach the student fluency in all forms of communication used in Engineering fields.

Outline – Technical style and content in correspondence, letter and memorandum reports, formal reports and oral reports. Depending on the needs of the students, this course may also include instruction in improving reading efficiency and in using audio-visual aids.

Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 15
Term I (12 weeks)	*Unit:* 1.0
Term II (18 weeks)	*Units:* 1.5

31.102/202 Communication (Primarily For Business Management Technologies)

Purpose – This course is designed for students who intend to enroll in a Business Management Technology and desire full course credit for 31.102/202.

Objective – To teach the student fluency in all forms of communication used in Business fields.

Outline – Technical style and content in correspondence, letter and memorandum reports, formal reports and oral reports. Depending on the needs of the students, this course may also include instruction in improving reading efficiency and in using audio-visual aids.

Tuesday and Thursday: 7:00-9:00 p.m.	*Begins:* Sept. 13
Term I (12 weeks)	*Unit:* 1.0
Term II (18 weeks)	*Unit:* 2.0

WEEKEND SPECIALS

31.970 Writing For Results

Purpose – This 16 hour weekend presentation is designed for the student who wishes to improve skills and explore techniques in effective business writing.

Objective – Students will return to the office after this weekend with a better understanding of process and the capability to function more effectively in business writing.

Outline – The presentation will deal primarily with letters, memo and reports which are normal to a business office. Material covered will include analyzing the reader's needs and expectations, using appropriate formats and techniques for producing clear, concise communication.

Limit 20 students.

NOTE: Applicants should note that this English course is not designed to diagnose and remedy basic English language difficulties. Those who suspect that their fundamental English writing and speaking skills may be deficient, should consider first enrolling in a remedial language training programme before joining a business or technical writing course.

Session I starts:	Oct. 28	*Fri.:* 7-10 p.m. *Sat.:* 9 a.m.-4:30 p.m. *Sun.:* 9 a.m.-4:30 p.m.
Session II starts:	Feb. 25	*Fri.:* 7-10 p.m. *Sat.:* 9 a.m.-4:30 p.m. *Sun.:* 9 a.m.-4:30 p.m.
Session III starts:	Mar. 23	*Fri.:* 7-10 p.m. *Sat.:* 9 a.m.-4:30 p.m. *Sun.:* 9 a.m.-4:30 p.m.

Please indicate preference of session.

Registration closes on the Friday prior to the sessions.

COMBINED BUSINESS AND ENGINEERING CERTIFICATE PROGRAMMES

The Division of Continuing Education & Industry Services will award combined Business and Engineering Certificates to students who successfully complete 15 units of study drawing courses from both areas. The object of these certificates is to provide a course of studies which provides a general business base, but flexible in the branch of engineering of interest to each individual. For example:

Industrial Management Certificate (Branch of Engineering)

	Units
Management in Industry I and II	2.0
Work Study I and II	2.5
Business and Technical Report Writing	2.0
Engineering Courses and Business Electives	8.5
Total	15.0

Technical Marketing Certificate (Branch of Engineering)

Marketing	2.5
Salesmanship	1.0
Business and Technical Report Writing	2.0
Engineering Courses and Business Electives	9.5
Total	15.0

In both the above certificates the main branch of engineering would be stated. For example:

Industrial Management Certificate — Food Processing.
Technical Marketing Certificate — Forest Products.

The electives can be drawn from the main branch of engineering chosen or from approved related areas. In some cases 2 or 3 units will be devoted to Technical Mathematics.

ENGINEERING DIVISION

ENGINEERING TECHNOLOGY
CERTIFICATE PROGRAMMES AND COURSES

Courses and programmes in this section of the Calendar are in the following order:

ENGINEERING TECHNOLOGY CERTIFICATE PROGRAMMES

The Division of Continuing Education & Industry Services will award certificates in the Engineering technologies to any student who successfully completes the programme as shown under the particular technology. A suggested course sequence and unit breakdown is given under the particular technology.

The following table is a general certificate programme format for students in engineering technology:

Engineering Technician Certificate

	Units
Mathematics	3.0
Basic technology course	4.0
Supporting or other basic technology course	8.0
Total	15.0

Senior Engineering Technician Certificate

Physics	2.0
Mathematics beyond certificate level	2.0
English	2.0
Supporting, basic, or technology course	6.0
Technology course	3.0
Total	15.0

Diploma of Technology

Students who have earned the Senior Engineering Technician Certificate and wish to study toward a Diploma of Technology should arrange to discuss their programme with a Programme Consultant. At least an additional 15.0 Units required.

BIOLOGICAL SCIENCES TECHNOLOGY

Students who require advice in this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in Biological Sciences Technology

Food Processing Option

44.904 Food Processing

Purpose – To provide an overview of the basic methods of food preservation to persons already employed in food manufacturing or government inspection services or to those wishing to explore the food industry as a possible career field.

Outline – An introduction to the processes of canning, freezing, fermenting, concentrating, and dehydrating of foods. Experimental lots of food will be preserved by these methods during laboratory periods.

This course will not be offered in the 1977/78 term.

44.906 Quality Control for Food Processing

Purpose – The course is designed primarily for persons associated with the food manufacturing industry or allied Government inspection services or for those wishing to explore this career area. It provides an introduction to the most frequently used quality control methods and emphasizes their importance in food processing.

Outline – General principles of quality control; inspection forms; acceptance sampling; control charts; evolutionary operations; instrumental measurement and specification of food quality; Government standards and grades; sensory panel tests, including consumer tests; equipping a quality control laboratory.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13

Term I (12 weeks) — *Unit:* 1.0

44.907 Pesticides in Plant Protection

Purpose – The course is designed for persons engaged in commercial landscape maintenance, general plant culture, food production or distribution and the sale of pesticides, who intend to write certification examinations under the Pharmacy Act to become Certified Pesticide Dispensers, or Certified Pesticide Applicators.

Objective – To provide the necessary background and knowledge of pesticides used in British Columbia. Candidates will have the opportunity to write the Pharmacy Act examination under the direction of the British Columbia Ministry of Agriculture in the sixth week.

Outline – The course emphasis is on lectures and problem sets dealing with legislation, pesticide safety, pesticide formulation, prescribed uses and interpretation of the data in the various official spray calendars, environmental impact and the responsibilities of pesticide users.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (6 weeks) — *Unit:* 0.5

The class will be limited to 20 students.

44.908 Alternatives in Plant Protection

Purpose – The course is designed for holders of Pesticide Applicators or Pesticide

Dispensers Certificates who wish to broaden and extend their knowledge about pest control.

Objective – To provide an in-depth review of pestology which will lead to the concept of control strategies, integrated control and the judicious use of pesticides in conjunction with other appropriate methods.

Outline – Representative weeds, insects and disease pests of ornamental and agricultural plants in British Columbia will be described. Emphasis on the principles of their life habits leading to suitable control measures, whether chemical or otherwise; the principle of biological control. Laboratory sessions will include the identification of the representative weeds, insects and diseases.

Thursday: 6:45-9:45 p.m. *Begins:* Oct. 27

Term I (6 weeks) *Unit:* 0.5

Prerequisite – Certification under the Pharmacy Act and/or 44.907.

The class is limited to 20 students.

44.909 Landscape Irrigation

Purpose – This course has been instituted to provide technical information and basic training for persons associated with or interested in turf and landscape irrigation.

Outline – Lectures, demonstrations, problem sessions, and product displays will be used to provide an understanding of turf and landscape irrigation. Topics discussed will include basic hydraulic theory, system design, and construction fundamentals. The scientific and practical aspects of water application on various surfaces and plants will be covered, together with the equipment required to apply water effectively. Installation, operating, and maintenance procedures for major types of irrigation systems (manual, automatic, etc.) will also be discussed.

This course will not be offered in the 1977/78 term.

44.910 Sports Turfgrass Management I

Purpose – The course is designed for persons who are associated with golf courses or municipal parks and recreational facilities. It provides an introduction to turfgrass management as applied to sports areas.

Outline – Turfgrass botany, classification, nomenclature identification and utilization. The main weed, disease and insect problems of turfgrass and the strategy for their control. Soils; introduction, textural classes, soil amendments and fertilizers. Tillage and cultivation systems. Irrigation principles in turfgrass, irrigation equipment design and construction.

This course will not be offered in 1977/78.

BUILDING TECHNOLOGY

Engineering Technician Certificate in Building Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Mathematics — Algebra II (32.901)	1.0	Mathematics — Logarithms (32.902)	1.0	Mathematics — Trigonometry (32.903)	1.0
YEAR II					
Draughting and Design (40.901)	2.0	Draughting and Design (40.902)	2.0	Draughting and Design (40.903)	2.0
YEAR III					
Building Construction I (40.512)	2.0	Building Construction I (40.612)	3.0		
Statics (42.103)	1.0	Strength of Materials (42.205)	1.5		

List of Suggested Electives

		Units
40.522/622	Building Construction II	2.5
40.913	Building Services — Plumbing	1.0
40.923	Building Services — Heating and Ventilating	1.5
40.933	Building Services — Air conditioning	1.5
40.543/643	Building Services — Electrical	2.0
42.103	Statics	1.0
42.205	Strength of Materials (Civil & Structural)	1.5
51.540/640	Engineering Surveying	2.5
40.914	Introduction to Construction Estimating and Specifications	1.0
40.934	Construction Specifications	1.5
40.915	National Building Code	1.0

NOTE: Fifteen (15) units from the above courses including the three Math courses are required for a Certificate.

Students who require advice on this programme should read section 3 on "Programme Consultation" on page 15 of this calendar.

COURSES IN BUILDING TECHNOLOGY

40.901 Draughting and Design — Introduction to Architectural Draughting and Design.

Purpose – To provide an introduction to architectural draughting and history of architectural design for those persons with little or no experience in the subject. Provides training in most aspects of architectural draughting operation and will familiarize students with the technical vocabulary. It also serves as preparation for advanced draughting, presentation and design courses.

Objective – On completion of the course a student can expect to, *(a)* be knowledgeable of the specific aspects of architectural design, *(b)* be capable of performing a simple graphical presentation by utilizing most draughting equipment, *(c)* be able to present ideas, through free-hand sketching technique, lettering and draughting.

Outline – Lectures, discussions and lab assignments, covering the following topics: historical evolution of structural systems; materials used through the ages; analysis of functional and visual aspects of design, covering the period from 4000 B.C. up to the 19th century; free-hand sketching technique; lettering and draughting.

Tuesday & Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 13
Term I (12 weeks)	*Units:* 2.0

NOTE: Technical vocabulary will be built by a comparative method through lectures on history of architecture. Draughting assignments will concentrate on building element description rather than on geometrical subjects.

40.902 Draughting and Design — Architectural Draughting & Design Presentation

Purpose – To allow persons with draughting experience outside an architectural office to explore advanced draughting technique and improve the comprehension of two and three dimensional graphical presentation, and to develop student's understanding of various constraints affecting the design.

Objective – On termination of the course students will, *(a)* become familiar with the systematic approach to drawing presentation, *(b)* be capable of explaining a design three-dimensionally, *(c)* be aware of various design restrictions, and *(d)* be familiar with design services offered in industry.

Outline – Mixture of lectures, discussions and lab assignments on subjects relating to: descriptive geometry and its use in design presentation; description of building elements through isometric and axonometric drawing; presentation in one and two-point perspectives; preliminary and design drawings; application of regulations in design draughting and presentations.

Tuesday & Thursday: 6:45-9:45 p.m.	*Begins:* Jan. 10
Term II (12 weeks)	*Units:* 2.0

NOTE: Guide to restriction in design and existence of approving authorities through all levels. Possible examination in this subject.

40.903 Draughting and Design — Fundamentals of Architectural Design

Purpose – An introduction to architectural design as it relates to functional aspects, based on problems in residential buildings. Planning and construction. It also provides an opportunity to improve manual techniques and to become conversant with the vocabulary of design. This course will prepare students for courses in Design II.

Objective – On completion students can expect to, *(a)* be knowledgeable of the specific aspects of design principles, *(b)* be able to take simple design problems and to bring them to a satisfactory form for further design development, *(c)* be able to understand client's statement of needs, *(d)* cope with basic design vocabulary and *(e)* be capable of taking directions from a superior and delegating to a junior.

Outline – Mixture of lectures, discussions and lab assignments on aspects of design such as: site determinants; program planning; living, dining, sleeping, dressing, kitchen and utility facilities, planning multiple dwellings, student residence, and others in the residential field.

Tuesday & Thursday: 6:45-9:45 p.m. — *Begins:* April 4
Term III (12 weeks) — *Units:* 2.0

40.512/612 Building Construction I

Purpose – To improve the comprehension of good construction practise on the part of designers, draughtsmen, builders, inspectors, and appraisers, as well as beginners. In addition, to provide an opportunity to develop professional standards in the preparation of working drawings.

Accreditation may be claimed in 40.102/202 Building Construction in the day programme, if marks are satisfactory.

Objective – To give those with a minimum background an understanding of the basic principles of construction, a knowledge of standard practices, and the ability to prepare working drawings for residential and small commercial work.

Outline – Detailed examination of light wood systems — stud and joist, post, beam, and plank; of masonry systems — brick, concrete, block, hollow tile. Introduction to characteristics of materials and application to interior and exterior finishing. Detailing of doors, windows, stairs, cabinet work, fireplaces.

Application of the above to preparation of typical working drawings for residential construction.

Monday & Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 12
40.512 Term I (12 weeks) — *Units:* 2.0
40.612 Term II (18 weeks) — *Units:* 3.0

40.522/622 Building Construction II

Purpose – A continuation from Construction I, this portion dealing with fire-resistive construction.

Objective – As well as dealing with construction systems and details, deals with building science — the effect of natural forces on the building envelope relative to weathering, deterioration, heat transfer.

Outline – Principles of building construction in fire-resistive structures. Standard assembly of materials in industrial post and beam, masonry bearing, steel frame, and concrete structures. Curtain walls, panel walls, partitions. Exterior and interior finishing materials and detailing. Prefabrication and systems building. Building science. Free-hand preliminary working drawing sketches.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12
40.522 Term I (12 weeks) — *Units:* 2.5
40.622 Term II (18 weeks)

40.913 Building Services — Plumbing

Purpose – This course may be taken as a self-contained course in plumbing technology. It

is geared to the needs of industry personnel wishing to round out their mechanical systems knowledge, to junior personnel wishing to advance to technologist status, and for accreditation purposes for building technology courses.

Objective – To teach rational design of building water supply and drainage systems; plumbing system fixtures, valves and appurtenances; centrifugal pumps in plumbing service. Code interpretation. Guidance on practical lab project.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

NOTE: This is a special Plumbing course for the Building Technology which is different from the more detailed design course offered by the Mechanical Technology.

40.520/620 Heating, Ventilating and Air Conditioning

Purpose – To provide a fundamental understanding of the principles and practices of heating, ventilating and air conditioning for technicians engaged in design, contract, and sales fields.

Outline – Comfort criteria; properties of water, steam, refrigerants and air; flow in pipes and ducts; building thermal loads.

Function and performance of pumps, boilers, fans, heat exchangers, compressors, condensers, filters and heat distributing units; equipment component selection and balancing; integrated component assemblies; piping and duct material and system controls. controls.

Planning, design, and drafting of warm air and hot water heating systems; vapour compression refrigeration systems for air conditioning; air conditioning systems embodying multi-zone terminal reheat, induction and variable volume principles.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15
49.520 Term I (12 weeks) *Unit:* 1.0
49.620 Term II (18 weeks) *Units:* 1.5

NOTE: This is a special course for the Building Technology which is different from the more detailed design course offered in the Mechanical Technology.

40.543/643 Building Services — Electrical

Purpose – An introductory course in illumination and wiring as applied to buildings. Recognized for accreditation purposes for Building Technology Courses.

Objective – To give instruction and practice in fixture selection and arrangement, and in the attendant wiring necessary to provide a complete system.

Outline – Single, and three-phase alternating current, including power, reactive power, power factor, load factor, elementary short-circuit analysis, and theory of lighting. Equipment commonly encountered in building services. Application to actual design of industrial and commercial building services. Economic factors.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13
40.543 Term I (12 weeks) *Units:* 2.0
40.643 Term II (12 weeks)

40.914 Introduction to Construction Estimating and Specifications

Purpose – To introduce construction contracting procedures to persons already acquainted with building construction.

Objectives – To provide students with a working knowledge of how construction contracts are made; to provide students with the prerequisite knowledge for courses in

40.524/624 Construction Estimating, and 40.934 Construction Specifications, described elsewhere.

Outline – Basic of real property development by construction work and the persons and functions involved. Design, bidding, and contracting procedures. Types of construction contracts. Measurement and specification of construction work. The basis of construction costs. The course comprises lectures, discussions, and practical measurement of construction work.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II beginning Wednesday, January 11 and in Term III beginning Wednesday, April 5, 1978.

40.924 Measurement of Construction Work

Purpose – To assist estimators to recognize and solve advanced problems in measurement of construction works, and to teach reliable techniques of measurement, mensuration and arithmetic based on modern practises.

Objective – To assist students to improve their speed, accuracy and confidence in their own work; also to assist students to pass the CIQS Examination entitled Quantities 2.

Outline – Discussion of the general principles of measurement advocated by the CIQS and others; particular methods of measuring excavation, concrete and formwork, reinforcing steel, carpentry work, and roofing and sheet-metal work; a general approach to the measurement of structural steelwork, metal doors and windows, and various finishes.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (18 weeks) *Units:* 1.5

Prerequisite – Extensive knowledge and experience of building construction will be necessary to adequately understand the content of this course. A second class standing in 40.914 Introduction to Construction Estimating and Specifications, or a Diploma in Building Technology from a recognized Institute of Technology or permission of the Instructor. An entrance test may be given at the Instructor's discretion.

40.934 Construction Specifications

Purpose – To develop the student's understanding and use of specifications as bidding and contract documents and to further develop a specific knowledge of construction materials and methods.

Objectives – To compile and interpret specifications of work in the structural and architectural trades; to develop judgment in the selection and specification of construction materials; to develop the use of technical language.

Outline – Writing and organizing specifications according to the uniform system. Sources and use of data on selected structural and architectural materials. Office organization and selected contractual procedures.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Units:* 1.5

Prerequisite – 40.914 is recommended as preparation for this course.

40.944 Pricing of Construction Work

Purpose – To assist estimators to learn the techniques necessary to develop and assemble valid unit prices for various items of construction work and to introduce reliable sources of construction cost data to students.

Objective – To assist students to improve their pricing and cost-accounting skills, to reduce errors in estimates of cost; also to assist students to pass the CIQS Examination entitled Estimating.

Outline – General principles of pricing; specific aspects of pricing overhead costs, excavation, concrete and formwork, reinforcing steel, masonry, carpentry, structural steelwork, roofing and sheet-metal and lath and plaster work.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Units:* 1.5

40.954 Construction Administration

Purpose – To familiarize students with the practical day-to-day running of a construction company, both in the office and at the site.

Objective – To develop awareness of typical problems which arise in construction, and to discuss solutions to such problems; also to assist students to pass the CIQS examination on Construction Administration.

Outline – Office and site administration, personnel, bidding, relationships between parties, labor relations, committee work, surveys and reports.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Extensive knowledge and experience of building construction will be necessary to adequately understand the content of this course. A second class standing in 40.914, Introduction to Construction Estimating and Specifications, or a Diploma in Building Technology from a recognized Institute of Technology or permission of the Instructor.

40.964 Project Management

Purpose – To learn the procedures and techniques used in the construction industry to manage large commercial and institutional projects.

Objective – To prepare students to cope with the trend towards management contracts in construction; to integrate the various techniques into a unified system; also to assist students to pass the CIQS Examination entitled Construction Project Management.

Outline – Principles of management, planning construction work, cost control, supervision, data processing, programming, and related topics.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

Prerequisite – Extensive knowledge and experience of building construction will be necessary to adequately understand the content of this course. A second class pass in 40.914, Introduction to Construction Estimating and Specifications, or a Diploma in Building Technology from a recognized Institute of Technology or permission of the Instructor. An entrance test may be given at the Instructor's discretion.

40.915 National Building Code

Purpose – To enable persons to become familiar with the purpose, scope, and contents of the current National Building Code of Canada.

Objective – This will be of use to architects, draughtsmen, building inspectors, contractors, mortgaging authorities, and those in similar areas of the construction industry who are designing, approving, or carrying out projects. This Code is now in force in British Columbia as a result of Provincial Statute.

Outline – Short history of the Code. General review of contents by section. Detailed consideration of Part 3 Use and Occupancy, Part 4 Cladding, Part 6 Services, and Part 9 Housing.

Under the supervision of W. H. Ball, of the Division of Building Research, National Research Council.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

CHEMICAL & METALLURGICAL TECHNOLOGY

Engineering Technician Certificate Chemical Laboratory Technology

Students who complete fifteen units of appropriate courses may qualify for the above certificate. The certificate is intended for individuals working in a variety of chemical related laboratories. Electives may be chosen to meet personal requirements. On completion of a first level certificate, the student may progress to a Senior Engineering Technician Certificate.

The following is a suggested programme for a first level and a Senior Engineering Technician Certificate.

September (Term I)	Units	*January (Term II)*	Units	*April (Term III)*	Units
YEAR I					
Chemical Principles I (30.902)	2.0	Chemical Principles II (30.903)	2.0		
Mathematics — Algebra II (32.901)	1.0	Mathematics — Logarithms (32.902)	1.0		
YEAR II					
* Laboratory Workshop (41.102)	1.0	Chemical Laboratory Techniques (30.920)	1.5		
Technical Writing (31.505)	1.0	Technical Writing (31.604)	1.0		
YEAR III					
Organic Chemistry I (30.905)	1.0	Organic Chemistry II (30.906)	1.0		
Physics II (33.509)	1.0	Physics II (33.609)	1.0		
		Laboratory Safety & Organization (30.918)	1.0		

* This is a day school course which can only be attended with the permission of the Department Head.

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

Senior Engineering Technician Certificate in Chemical Laboratory Technology

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Analytical Chemistry (30.510)	2.0	Analytical Chemistry (30.610)	2.0		
Mathematics (Introduction to Statistics) (32.507)	1.0	Mathematics (Introduction to Statistics) (32.607)	1.0		
YEAR II					
Introduction to Biochemistry (30.901)	2.0	Chemical Instrumentation I (30.305)	1.0	Chemical Instrumentation II (30.405)	1.0
		Gas Chromatography (30.913)	1.0		
YEAR III					
Mineral Analysis (41.505)	2.0	Mineral Analysis (30.605)	2.0		
or		*or*			
* Environmental Anal. Methods (41.413)	1.0	* Environmental Anal. Methods (41.413)	1.0	* Chromatography	1.0

* This is a day school course which can only be attended with the permission of the Department Head.

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

CHEMICAL AND METALLURGICAL TECHNOLOGY

Engineering Technician Certificate in Metallurgical Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Mathematics — Algebra II (32.901)	1.0	Mathematics — Logarithms (32.902)	1.0	Mathematics — Trigonometry (32.903)	1.0
Metallurgy I (41.502)	1.0	Metallurgy I (41.602)	1.0	Elective	1.0
YEAR II					
Physics I (33.508)	1.0	Physics I (33.608)	1.0	Elective	1.0
Elective	1.0	Elective	1.0		
YEAR III					
Metallurgy II (41.503)	1.0	Metallurgy II (41.603)	1.0		
Elective	1.0	Elective	1.0		

List of Suggested Electives

41.505/605	Mineral Analysis	4.0
30.510/610	Analytical Chemistry	4.0
48.901	Process Instruments I	1.0
48.902	Process Instruments II	1.0
48.903	Process Instruments III	1.0
30.305	Chemical Instrumentation I	1.0
30.405	Chemical Instrumentation II	1.0
32.507/607	Mathematics (Intro. to Statistics)	2.0
42.103	Statics	1.0
42.205	Strength of Materials (C. & S.)	1.5
49.900	Draughting — Fundamentals	1.0

Students who require advice in this programme should read section 3 on "Programme Consultation" on page 15 of this calendar.

CHEMICAL AND METALLURGICAL TECHNOLOGY

Paint Technician Certificate

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Paint Technology (41.902)	1.0	Elective	1.0	Elective	1.0
Mathematics — Algebra II (32.901)	1.0	Mathematics — Logarithms (32.902)	1.0	Mathematics — Trigonometry (32.903)	1.0
YEAR II					
Chemical Principles I (30.902)	1.0	Chemical Principles II (30.903)	1.0	Elective	1.0
Paint Technology — Part I (41.903)	1.0	Elective	1.0	Elective	1.0
YEAR III					
Business and Technical Report Writing (31.503) *or* Technical Writing (31.505)	1.0	Business and Technical Report Writing (31.603) *or* Technical Writing (31.605)	1.0	Elective	1.0

List of Suggested Electives

		Units
30.905	Organic Chemistry I	1.0
30.906	Organic Chemistry II	1.0
30.908	Lab Safety and Organization	1.0
32.507/607	Mathematics (Introduction to Statistics)	2.0
30.913	Gas Chromatography	1.0
41.904	Paint Technology. Part II	0.5
41.905	Paint Technology. Part III	0.0
30.510/610	Analytical Chemistry	4.0

Students who require advice in this programme should read section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in Chemical and Metallurgical Technology

41.502/602 Metallurgy I

Purpose – To acquaint students with the concepts of basic physical metallurgy and with metallurgy testing methods.

Objectives – Those completing the course should have an understanding of metallurgical principles relating to the casting, forming, heat-treatment, and welding of metals. They should also be acquainted with methods of physical testing methods and metallography.

Outline – An introductory course in physical metallurgy covering casting and forming of metals, heat treatment, physical testing, nondestructive testing, and metallurgy of welding. Both ferrous and nonferrous metals will be dealt with.

Laboratory work involving metallography,. heat treatment and corrosion constitutes approximately half of the course. Field trips to material processing plants will be arranged.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Units:* 2.0
Term II (12 weeks)	*Units:* 2.0

41.503/603 Metallurgy II

Purpose – To develop the subject areas covered in Basic Metallurgy I to a more advanced level.

Outline – Iron and steel-making processes, solidification of metals and alloys, casting methods and defects, foundry technology, metal-forming operations, review of phase diagrams for binary alloy systems, isothermal transformations in steels, heat-treating techniques, nonferrous metals and alloys, welding metallurgy, principles of nondestructive testing. Laboratory sessions supplement the lectures by field trips to industrial plants and emphasize physical testing of materials, metallography service failure investigation and nondestructive testing.

This course will not be offered during the 1977/78 term.

41.505/605 Mineral Analyses

Purpose – To provide a course which deals specifically with chemical methods of ore analysis.

Objectives – To provide students with a working background in analytical chemistry or assaying with an opportunity to develop laboratory skills. Students are encouraged to attempt the Provincial examination for the British Columbia Government licence to practise assaying in British Columbia.

Outline – Review of general methods of ore analysis. Lecture and laboratory work includes principles and practice of fire assaying for gold and silver, gravimetric and volumetric analysis. Students should have taken basic chemistry and some analytical chemistry previously.

Tuesday & Thursday: 6:45-9:45 p.m.	*Begins:* Sept. 13
Term I (12 weeks) Term II (12 weeks)	*Unit:* 4.0

41.506/606 Introduction to Chemical Engineering

Purpose – This evening course offered by BCIT in Unit Operations should be of special interest to mechanical, civil, and electrical engineers who are employed or associated with

chemically based industries, but who do not have a formal background in Unit Operations of the Chemical Process Industries.

Objective – Unit Operations is the study of the fundamental operations or "building-blocks" which comprise all chemical engineering processes. These units of operation cross both industry and process lines, and include such areas as heat transfer, evaporation, materials transfer, and distillation. The traditional curricula of non-chemical engineers do not usually include Unit Operations, yet many engineers find themselves in industries such as pulp and paper, refining, and food processing, or with consulting firms, in which a sound knowledge of basic Unit Operations would contribute greatly in the performance of their work and in continuing professional development.

To supplement the theory of the course, BCIT possesses the newest and one of the best-equipped Unit Operations laboratories of its type in the West for demonstration and experimental purposes. This course would also be suitable for those persons who intend to study toward their professional engineering examinations.

Outline – First and second law of thermo-dynamics; enthalpy, entropy, thermodynamic diagrams, and tables; fluid flow and measurement in pipes and channels, piping, pipe-fittings and valves; solid handling, grinding, crushing, screening, mixing, settling, sedimentation, filtration, flow of heat, conduction, convection, radiation, film, and over-all transfer of coefficients, heat exchangers; principles and application of equipment for evaporation distillation, absorption, extraction; humidification and dehumidification; drying; ion exchange.

Monday & Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Units:* 4.0
Term II (12 weeks)

41.902 Paint Technology

Purpose – This 12-week presentation is designed to assist those personnel who are actively engaged in paint and coatings manufacture, in the technical field, as well as the production side. It is also of value to those catering to the coating industry, such as new material suppliers, along with architects, professional decorators, paint salesmen, etc.

Specifically, the course is designed to provide a basic background for those students intending to continue to further studies in Paint Technology, and serves as preparation for 41.903. Paint Technology — Part I — Latex Paints.

Objectives – On completion of the course, students can expect to have an understanding of the raw materials used in the coatings industry, the methods by which coatings are manufactured, along with application methods and formulating techniques.

Outline – Lectures and discussions will cover the following topics:

1. Introduction. History of surface coatings, leading to recent developments.
2. Vehicles used in the coatings industry: Oils, resins, lattices, etc.
3. Pigments: White and inert pigments, organic and inorganic cold pigments, corrosion-inhibiting pigments.
4. Agents and additives: Driers, antiskin agents, flow-control agents.
5. Solvents: Petroleum solvents, esters, ketones, alcohols, etc.
6. Formula calculations: Bulking value, pigment volume. W.P.G., etc.
7. Trade sales finishes: Solvent and latex types.
8. Industrial finishes: Corrosion and corrosion-resistant coatings, baking enamels.
9. Manufacturing methods.
10. Paint testing.
11. Application methods.

This course will not be offered in the 1977/78 term.

41.903 Paint Technology — Part I — Latex Paints

Purpose – This 6-week presentation consists of lectures and laboratory presentations, and is designed to complement the basic course in Paint Technology.

Objectives – On completion of the course, students can expect to be knowledgeable on all aspects of polymer emulsion manufacture, and to be well versed in the formulation and manufacture of latex paints.

Outline – This course will cover:

1. Monomers used in latex manufacture.
2. Emulsifiers, additives, etc.
3. Formulation of lattices.
4. Manufacturing methods and techniques.
5. Raw materials used in latex paints, and their function.
6. Formulation of latex paints.
7. Testing of latex paints.
8. Practical laboratory demonstrations showing the manufacture of a typical latex, a latex finish, and testing of same.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (6 weeks)

41.904 Paint Technology — Part II — Alkyd Resins

Purpose – This 6-week presentation consists of lectures combined with plant visits, and is designed to complement the basic course in Paint Technology.

Objectives – On completion of the course, students can expect to be knowledgeable regarding the raw materials, formulative and manufacturing techniques for alkyd resins.

Outline – Lectures and discussions will cover the following subjects:

1. Raw materials used in alkyd manufacturing.
2. Formulation of alkyd resins.
3. Manufacture of alkyd resins.
4. Use of Alkyd resins.
5. Test methods.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (6 weeks)

41.905 Paint Technology — Part III — Modern Coating Resins

Purpose – This six-week presentation is designed to acquaint the student with modern surface-coating resins used in the production of present-day finishes. It is intended to complement the basic course in Paint Technology.

Objectives – On completion of the course, students can expect to have a good understanding of the resins used in modern finishes, and will be acquainted with their end use.

Outline – Lectures and discussions will cover the following subjects:

1. History and development.
2. Epoxy resins.
3. Urethane resins.
4. Vinyl resins.
5. Acrylic resins.
6. Silicone resins.
7. Powder coatings.
8. Electro deposition.

Monday: 6:45-9:45 p.m. *Begins:* April 3
Term III (6 weeks)

41.906 Glassblowing

Purpose – To develop skill in the heat working of glass tubing.

Outline – Laboratory practice sessions will cover the following: identification of glasses; preparation and cutting of glass; procedures 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 winding.

Tuesday: 6:45-9:45 p.m. *or* — *Begins:* Jan. 10
Thursday: 6:45-9:45 p.m. — Jan. 12
Term II (12 weeks) — *Unit:* 1.0

30.905 Organic Chemistry I
30.906 Organic Chemistry II

Purpose and Objectives – To allow individuals with little or no background in chemistry an opportunity to obtain a basic knowledge of organic chemistry. Persons wishing to prepare for the pre-registration examination for the Association of Professional Engineers would find this course useful.

Outline – Course covers nomenclature, physical properties, reactions, and preparations of the major classes of organic compounds — aliphatic, aromatic, halides, alcohols, ethers, carboxylic acids, esters, aldehydes, ketones, amines, and amides. Attention will be focused on the uses of organic chemicals in industrial preparations and applications, e.g., oil refining, the petrochemical industry, polymers, etc.

Discussions of infrared, nuclear magnetic resonance, mass spectrometry, and ultraviolet spectroscopy are included. Attempts are made to give a working knowledge of interpretation of spectra. Theory of chromatography; column, paper, thin-layer, and its application to organic qualitative analysis.

Part I

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12
Term I (12 weeks) — *Unit:* 1.0

Part II

Monday: 6:45-9:45 p.m. — *Begins:* Jan. 9
Term II (12 weeks) — *Unit: 1.0*

30.913 Gas Chromatography

Objective – To provide training in the theory and operation of the gas chromatograph. On completion of this course one should be able to operate efficiently and perform analyses using a gas chromatograph. This is an introductory course suitable for persons with little or no previous experience with gas chromatography.

Outline – Topics discussed include basic instrumentation, separation theory, columns, detectors, quantitative and qualitative analysis, trouble shooting. Emphasis will be placed upon laboratory work and techniques involved with the gas chromatograph.

This course will not be offered in 1977/78.

CHEMISTRY DEPARTMENT

30.510/610 Analytical Chemistry

Purpose – To introduce the student to basic concepts, methods, and techniques used in "wet" and common instrumental analysis. The course should be of interest to individuals working in a variety of chemical laboratories, and who wish a basic understanding of common methodology and techniques.

Outline – Part I: Topics covered in lectures include sample decomposition, data treatment, precipitation and complexiometric titrations, solvent extraction, ion exchange, and fire assaying.

Laboratory exercises include the wet analysis of Fe, Cr. Sn, Cu, As, S, SiO_2 and fire assaying for Au and Ag.

Monday and Tuesday: 6:45-9:45 p.m. — *Begins:* September 12

Term I (12 weeks) — *Units:* *2.0*

Part II: Topics covered in lectures include absorption theory (visible, ultraviolet, infrared, and atomic absorption) and related instrumental components and techniques, flame photometry, gas chromatography, potentiometric methods, polarography, and automated analysis.

Laboratory exercises include the use of the common Laboratory instruments.

Monday & Tuesday: 6:45-9:45 p.m. — *Begins:* January 9

Term II (12 weeks) — *Units:* *2.0*

30.902 Chemical Principles I
30.903 Chemical Principles II

Objectives–To allow persons with little chemical background to understand the basic concepts and operations of chemical analysis. Emphasis is placed on the practical application of chemical theory to laboratory problems.

Outline–Topics studied are chemical symbols, molarity, normality, balancing of equations, acid-based reactions, redox reactions, theory of volumetric analysis, acid-base equilibria in solution (pH and pOH, buffers, hydrolysis), solubility equilibrium (precipitation reactions and solubility product calculations, colligative properties (vapour-pressure lowering and depression of freezing point), electrochemistry (electrolytic and voltaic cells, electromotive series, standard and nonstandard cell potentials, Nernst equation, corrosion). Organic chemistry recognizing the more common functional groups, nomenclature of both common and IUPAC names, some chemical and physical properties, reactions, preparations, and uses of some of the more common commercially available organic chemicals.

Part I

Monday & Wednesday: 6:45-9:45 p.m. — *Begins:* September 12

Term I (12 weeks) — *Units:* *2.0*

Part II

Monday & Wednesday: 6:45-9:45 p.m. — *Begins:* January 9

Term II (12 weeks) — *Units:* *2.0*

30.918 Laboratory Safety and Organization

Objective – To enable people in the following categories to manage science laboratories efficiently and safely using a scientific approach to overcome inherent problems and dangers; *(a)* laboratory assistants, technicians, teaching assistants, and science support staff

employed in educational establishments; *(b)* stores personnel employed in industry, research organizations, schools, hospitals, colleges, and universities; *(c)* laboratory assistants and technicians employed in industrial and research laboratories *(d)* secondary school students, graduates, or anyone interested in categories *(a)* to *(c)*, inclusive.

This course will consist of lectures, laboratory instruction, and open discussion as the material to be covered dictates.

Outline – General rules, dangers, and precautions from general operations, chemicals, poisons, and explosions. Fire precaution, classes, extinguishers, fire-fighting; dangers from electricity, precautions; dangers from gas cylinders, precautions; dangers from radioactivity, precautions; dangers, precautions, design in planning chemical stores, storage of chemicals, hazardous combinations; storage by scientific approach; function, control, records, documentation; the ordering process, stock movement and control; solving special organizational and management problems.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II starting Tuesday, January 10, 1978.

30.305 Chemical Instrumentation I

Objective – To allow persons engaged in chemical and related industries to understand and to perform the simpler aspects of servicing and maintenance of common chemical instruments.

Outline – Electrodes and transducers, electrical components, power supply modules; pH meters, potentiometric recorders, colorimeters, gas chromatographs. Laboratory work consists of examination of components, calibration, and fault-finding on instruments.

This course has no special prerequisites and has been designed for persons involved in a diverse range of industries.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Unit:* 1.0

30.405 Chemical Instrumentation II

Objective – To allow persons with some background in instrumental analysis to understand basic signal-processing techniques and to construct some useful auxiliary circuits.

Outline – Fundamentals of operational amplifiers, methods used in detecting equivalence points in potentiometric titrations, coulometric titrators, integrators in polarography, and gas chromatography. Uses of logarithmic amplifiers. Analogue to digital convertors. Laboratory work consists of construction and evaluation of instruments described in lectures.

Wednesday: 6:45-9:45 p.m. *Begins:* April 5

Term III (12 weeks) *Unit:* 1.0

Prerequisite – 30.305 Chemical Instrumentation I

30.920 Chemical Laboratory Techniques

Purpose – To develop further the lab technician with limited experience and knowledge in chemical separation methods frequently used in industrial laboratories.

Objective – On completion of the course the student will have the basic knowledge required to progress in performing analytical methods.

Outline – Topics covered include the basic techniques and concepts of weighing, sampling, moisture determinations, ashing, gravimetric and volumetric techniques, extractions. An introduction will be given to chromatographic techniques and instrumental methods analysis.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Units:* 1.5

30.921 Air Pollution: Chemistry and Sampling Techniques

Purpose – To provide a broad range of material which will enhance the student's experience in the study of air pollution. Lectures are designed to supply an up-to-date knowledge of air pollution chemistry, and this is coupled to laboratory exercises consisting of methods currently used in the analysis of air pollutants. This course is suitable for people with varied experience in air pollution, or those interested in the pollution monitoring field. Portions of the course content may be changed depending on participants' interests.

Outline – The chemistry of the major air pollutants and their interactions in the atmosphere will be covered. The formation and subsequent transformation of the oxides of sulphur, the oxides of nitrogen, carbon monoxide, carbon dioxide, hydrocarbons, particulates (including heavy metals), chlorocarbons and fluorocarbons, are among the topics to be discussed. The effect of air pollutants on human health and on the environment will also be covered. Laboratory work will include the collection of air pollutants by several methods, and the analysis of samples by various techniques including infra-red, gas chromatography, and atomic absorption.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

CIVIL AND STRUCTURAL TECHNOLOGY

Engineering Technician Certificate in Civil & Structural Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements, with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Mathematics—Algebra II (32.901)	1.0	Mathematics—Logarithms (32.902)	1.0	Mathematics—Trigonometry (32.903)	1.0
Statics (42.103)	1.0	Strength of Materials (42.205)	1.0		
YEAR II					
Business and Technical Report Writing (31.503) *Or* Technical Report Writing (31.505)	1.0	Business and Technical Report Writing (31.603) *Or* Technical Report Writing (31.605)	1.0		
Elective	1.0	Elective	1.5		
YEAR III					
Elective	1.0	Elective	1.0		
Elective	1.0	Elective	1.0	Elective	1.0

List of Suggested Electives

		Units
42.901	Structural Analysis	1.0
42.102	Hydrology	1.0
42.202	Hydraulics	1.5
42.905	Soil Mechanics I	1.0
42.906	Soil Mechanics II	1.5
42.507/607	Structural Detailing	2.0
42.912	Estimates & Contracts for Heavy Construction I	1.0
42.913	Estimates & Contracts for Heavy Construction II	1.0
42.914	Roads and Streets I	1.0
42.915	Roads and Streets II	1.5
42.916	Municipal Services	1.5
42.917	Computer Methods of Structural Analysis	1.0
51.540/640	Engineering Surveying	2.5
49.905	Draughting Civil & Structural	1.0
49.903	Mechanical Draughting I	1.5
49.900	Draughting - Fundamentals	1.0
22.941/942	Work Study I and II	2.5
42.104	Concrete Techology	1.0
42.902	Structural Design in Steel and Timber	1.5
42.903	Structural Design in Reinforced Concrete	1.5

Students who require advice in this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in Civil and Structural Technology

42.103 Statics

Purpose - This course, along with its follow-up 42.205 Strength of Materials, provides the basic background for all civil engineering courses, especially those in the structural field.

Outline - Historical development and relation to structural design; vectors; force systems; graphical representation; resultants and components; moments and couples; conditions of equilibrium; force polygon; funicular polygon; co-planar systems; three-dimensional systems; frames and trusses; stress diagram and Bowes notation; chains and cables; vertical shear force and bending moment diagrams; related problems and experiments, with emphasis on bridge and building structures and retaining walls.

Thursday: 6:45 - 9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks, 12 sessions) — *Unit:* 1.0

This course will be repeated in Term II commencing Thursday, January 12, 1978.

42.900 Statics

This course covers the same material as 42.103 but at a slower rate, to suit the student who needs more personal attention or has not taken the math prerequisite in recent years. During the term, four extra sessions will be scheduled on evenings to suit the group.

Thursday: 6:45 - 9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks, 16 sessions) — *Unit:* 1.0

Cost: Additional $10.00

42.104 Concrete Technology

Purpose: This course will introduce the participant to the theory and practice used in the design, manufacture, construction and quality control of concrete. Contractors, foremen, concrete finishers, inspectors or potential inspectors, concrete plant personnel, ready-mix truck drivers and municipal inspectors of concrete are some of the people who find this course appealing.

Objective: To provide the participant with: a) the knowledge required to select suitable materials for making quality concrete, to design a concrete mix for strength, workability and economy, to sample and to conduct quality control tests on concrete and aggregates; and b) an understanding of the theory and practices used in concrete manufacturing and construction.

Outline: Cement — types, manufacture, reaction; water requirements; aggregates — properties, production, requirements, sampling and testing; admixtures — air entraining, water reducers, retarders; calcium chloride, pozzolans; Concrete properties — strength, durability, permeability, workability, sampling and testing; concrete mix design; production — batching, mixing, transporting, placing finishing, curing.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Unit:* 1.0

This course will be repeated in Term II beginning Wednesday, January 11, 1978.

42.205 Strength of Materials (Civil and Structural)

Purpose - This course, along with 42.103 Statics, provides the basic knowledge for further study in civil engineering, especially in the structural field. Draughtsmen and people in design offices would find the course work useful. Some opportunity for experience in materials testing is provided.

Outline - Simple stresses; stress, strain, elasticity; compound bars and columns; temperature stress; elastic limit; limit of proportionality; yield, ultimate; factor of safety; load factor, ductility; resilience, fatigue; shock. Properties of sections, bending moments, shear forces, theory of flexure, slope and deflection of beams, restrained and continuous beams. Strut theories, eccentric loading, lateral loading. Compound stress and strain, ellipse of stress, Poisson's ratio, principal stresses and strains, Mohr's circle. Testing techniques, machines, extensometers, strain gauges, brittle lacquers, photo-elasticity, evaluation of results.

Thursday: 6:45-9:45 p.m. — *Begins:* Begins: Jan. 12
Term II (18 weeks) — *Units:* 1.5

Prerequisite: Statics, 42.103 or 42.900

42.901 Structural Analysis

Purpose - This course is designed to provide the student with a basic understanding of the behaviour of simple structures and the methods used in their analysis.

Outline - The major aspects of the prerequisites for this course are reviewed and emphasized. Force diagrams for pinjointed frames; differences between statically determinate and statically indeterminate structures; methods of moment area and superposition as supplied to slope and deflection; shear force and bending moment diagrams for beams and frames as derived from the method of moment distribution; influence lines as applied to statically determinate beams and trusses; portal frames including the effects of sidesway.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 14
Term I (12 weeks) — *Unit:* 1.0

Prerequisite: 42.103 or 42.900, Statics and 42.205, Strength of Materials or permission of the Instructor.

42.902 Structural Design in Steel and Timber

Purpose - To provide a good basic knowledge of structural design in steel and timber. The course is aimed primarily at people working in the design field.

Objective - At the end of the course students should be capable of designing any simple structure in steel and timber.

Outline - Loading, types and assumptions; tension members, compression members axially loaded; simple connections; trusses and frames; beams, bending, shear and deflection; eccentrically loaded columns; plate web girder; continuous beams; moment connections.

Tuesday: 6:45-9:45 p.m. — *Begins:* Jan. 10
Term II (18 weeks) — *Units:* 1.5

Prerequisite: Structural Analysis, 42.901.

42.903 Structural Design in Reinforced Concrete

Purpose – To provide a good basic knowledge of structural design in reinforced concrete. This course is primarily aimed at individuals working in the design field.

Objective – At the end of the course students should be capable of designing any simple structure in reinforced concrete.

Outline – Bending and shear in reinforced concrete; simple beams and one-way slabs, compressive reinforcement, tee-beams; two-way slabs, columns, concentric and eccentric loading; footings, retaining walls. Introduction to ultimate load design and simple prestressed-concrete beams.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11
Term II (18 weeks) *Units:* 1.5

Prerequisite: Structural Analysis, 42.901.

42.102 Hydrology

Purpose - To intoduce the basic concepts and techniques of small watershed analysis. The course should give an introduction to the type of work involved in the design, supervision, and construction of drainage facilities.

Objective - On successful completion of the course the student should be able to (a) have working knowledge of the terminology involved in hydrological and drainage studies; (b) be capable of determining flood criteria for design of storm-drain systems for small watersheds.

Outline - The course will consist of lectures and design projects. The topics covered will be the hydrological cycle - run-off phase, hydrological equation; precipitation - causes, characteristics, measurement, measuring devices; snow measurement, typical melting conditions, result of melt run-off; hydrographs, mass curves, frequency curves, intensity curves, other graphical representation of data, storms and statistical probability; subsurface water and simple groundwater surveys, infiltration, extraction of groundwater, storage co-efficients, maximum yield of wells; stream-flow measurement, peak discharge and flood run-off, flow in open channels.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

42.202 Hydraulics (Civil and Structural)

Hydrostatics, properties of fluids, pressure, centre of pressure; flow of fluids, equation of continuity, velocity head, venturi, jets; orifices; notch and weir. Bernoulli equation; flow in pipes; simple pressure piped systems; waterworks equipment; friction and pipe flow; Reynold's experiments, sudden stoppage, water hammer; viscous flow, laminar and turbulent; open-channel flow, regular channels, hydraulic jump, irregular channels, backwater curve; dimensional analysis, dynamic similarity, model testing; meters, valves, pumps, and turbines. Laboratory experiments form a basic part of this course.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11
Term II (18 weeks) *Units:* 1.5

42.905 Soil Mechanics I

Purpose - To gain an introduction into some of the more basic principles of soil mechanics and soil-testing procedures. The course will provide a background for people in the engineering and construction field who have little or no theoretical or laboratory testing experience. It is also a preparation for, and prerequisite of, Soil Mechanics II.

Objectives - Successful completion of the course should enable the student (a) to conduct and calculate the results of the basic soil mechanics laboratory tests; (b) to have an appreciation and working knowledge of soil mechanics terminology and the more basic principles; (c) to be able to perform the duties of a junior employee in a commercial soil-testing laboratory.

Outline - The course will consist primarily of lectures and laboratory sessions. The specific topics will be the classification of soils; simple soil weight-volume relationships; soil shear strength; soil permeability; soil compressibility; permeability tests; shear strength tests; consolidation tests.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0
This class is limited to 20 students.

42.906 Soil Mechanics II

Purpose - To apply the basic principles of soil mechanics to various design situations. The course should give an appreciation of how soil properties and principles influence design and construction. The intention is to relate the importance of laboratory and field procedures in determining the final design as well as the understanding of some of the more common design procedures. Soil Mechanics I or its equivalent is a prerequisite.

Objective - On successful completion of the course the student should have (a) a better understanding of how field and laboratory inspection and testing influence design and hence should be able to conduct these activities more effectively and (b) the ability to perform and check simple design calculations.

Outline - The course will consist primarily of lectures, discussions, and design projects. The topics will include material from the following: seepage analysis, slope stability, earth pressures, earth-retaining structures, and foundation design.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Units:* 1.5

This class is limited to 20 students.

42.511/611 Public Services Inspection

Purpose - This course is designed for people who wish to enter the field of supervising and inspecting the installation of public services and for those who are already in the field and wish to deepen their understanding of materials and techniques.

Objective - On completion of the course students will have obtained a working knowledge of the subjects listed below, but other courses are required for depth of knowledge in any one subject.

Outline - The various areas are covered by members of BCIT staff and a number of guest lecturers. The first portion of the course covers (a) Soils and foundations - nature of soils; soil tests; compaction equipment and uses; types of foundations and excavations. (b) Concrete construction - cement, aggregates, plant tests, samples and records, transportation, placing, finishing, curing, joints. This is followed by (c) Legal aspects of inspectors' work - competitive bids, contracts, specifications, change orders, liquidated damages, legal soil tests; compaction equipment and uses; types of foundations and excavations, (b) considerations, acts of inspectors, (d) Utilities - water, sewers, gas, types of pipe, coatings relations, other utilities, (e) Asphalt paving and asphalt plants - nature of materials, tests, plants and productions, paving procedures, techniques, and problems, (f) Inspectors' duties and records - responsibilities, characteristics, qualifications, relations with contractors, pitfalls of certain actions, safety tools, records, public relations. With three sessions on (g) Surveying - instruments, measurements of distances, angles and elevations, construction surveys, property surveys, staking.

Note: The practical portion of surveying will be held on Saturday mornings (2).

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks)

Term II (12 weeks) Second Term begins Jan. 3

Note: This course does not carry credit towards the Engineering Technician Certificate in Civil and Structural Technology.

42.507/607 Structural Detailing

Purpose – To provide a good basic knowledge of structural detailing as it applies to wood, steel and reinforced concrete structures.

Objectives – At the end of the course, students should be able to solve most of the problems associated with designing and drafting of 1) joints in lumber structures; 2) joints and assembly in steel structures; 3) reinforcing details and Rebar Lists for reinforced concrete structures.

Outline – Students will be required to design and draw solutions to detailing problems taken from actual structures in wood, steel and R.C. including bill of materials and Rebar Lists. Although the practical aspects are emphasized, the theoretical side is investigated in some depth. The two text books will be complemented by handbook material in accord with the latest industrial standards.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
	(Second term commences Jan. 4)
Term I (12 weeks)	*Unit:* 1.0
Term II (12 weeks)	*Unit:* 1.0

Prerequisite: Draughting 49.900 and Draughting Civil and Structural 49.905 or permission of Instructor.

Desirable: Statics, Strength of Materials and Structural Analysis.

42.912 Estimates and Contracts for Heavy Construction I

Purpose – To introduce the basic concepts and techniques of the preparation of estimates and tenders for the construction of Civil Engineering projects by contract.

Objective – On successful completion of the course the student should have a working knowledge of the overall procedure from the calling for tenders through preparation of estimates, submission of tenders and the award of a contract for a heavy construction job. He should have a working knowledge of the estimating process.

Outline - The course will consist of lectures and the preparation of estimates for basic operations and components of a typical job. It will include such topics as an introduction to the heavy construction industry; contracts and specifications; preparation of estimates; estimate resources; estimates for various types of projects; overhead costs; estimate adjustments; cost accounting and job cost control.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

42.913 Estimates and Contracts for Heavy Construction II

Purpose – To develop and expand on the basic concepts and techniques considered in course No. 42.912: to gain further experience in the preparation of estimates and to consider problems which arise in the administration of contracts for heavy construction jobs.

Objective – On successful completion of the course the student should understand the total process of estimating and tendering for a straight-forward heavy construction job and be able to work effectively as a member of an estimating team. He should have an understanding of the types of problems involving claims for additional time and/or money which are most commonly encountered in heavy construction, and have gained classroom experience and guidance on how to deal with them.

Outline – The course will consist of lectures and the preparation of an estimate for, typically, a highway construction job and possibly a small bridge. It will include an expansion of the areas dealt with in Course No. 42.912 and such topics as labour agreements; equipment ownership/rental and operating costs; materials; sub-contracts; use of computers in preparing estimates; financial and legal aspects, and the administration of contracts.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (12 weeks) *Unit:* 1.0

Prerequisite: Estimates and Contracts for Heavy Construction I, 42.912.

42.914 Roads and Streets I

Purpose – To introduce the principles and practices of location, design, construction and maintenance of highways, roads and streets, in preparation for, and prerequisite to, more detailed consideration in Roads and Streets II.

Objective – On successful completion of the course the student should have an understanding of the terminology and fundamental principles of road classification, geometric design, pavement structures and of construction methods and maintenance procedures for highways, roads and streets.

Outline – The course will consist of lectures, problems and possibly a design project. It will include such topics as road classification and cross-section elements; horizontal and vertical alignments; intersections; materials of construction; drainage; pavement structures; location of utilities and services in relation to the right-of-way; lighting; surveys and air photo interpretation as applicable to Road Engineering; plans, specifications and contracts for construction of roads; environmental considerations; methods and equipment for construction; some problems encountered in maintenance.

Wednesday: 6:46-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

42.915 Roads and Streets II

Purpose – This course is designed as a follow-up to Roads and Streets I, to provide the student with a more detailed knowledge of the principles and practices of location, design, construction and maintenance of highways, roads and streets.

Objective – On successful completion of the course the student should have a working knowledge of the location and design of a highway, road or street, including calculations for the geometry, earthworks, drainage and pavement structure, and the preparation of drawings and tender documents for construction by unit-price contract. He should understand inspection practices required for various construction processes.

Outline: – The course will consist of lectures, discussions, and probably a design project. It will include more detailed consideration of the topics covered in Course No. 42.914, and such topics as soil surveys; surveys for construction materials; drainage; earthworks, compaction; pavement types and characteristics; design of flexible pavements; contracts for road construction; procedures for inspection and quality assurance of construction.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11
Term II (18 weeks) *Units:* 1.5

Prerequisite: 42.914 Roads and Streets I; 42.102 Hydrology; 49.905 Draughting Civil and Structural; 51.540/640 Engineering Surveying. It is recommended that Soils Mechanics I and II, 42.905 and 42.906 respectively, also be studied.

42.916 Municipal Services

Purpose: – To provide an introduction to the various types of services required, for example, in a city, municipality or a development such as may be built for the accommodation of the work force on a major heavy construction project. To consider the location, design and construction of such services and some problems which commonly occur in operation and maintenance.

Objective – On successful completion of the course the student should have a basic understanding of the function and terminology of the various services, and of the principles governing the design of water supply, sanitary sewer and storm drainage systems. He should have a working knowledge of the layout and design of water and sewer systems.

Outline – The course will consist of lectures, discussions and possibly a design project. It will include such topics as water supply - determination of flows and design of a distribution system; sanitary and storm sewers - determination of flows and design of the systems; loads on buried conduits; locations of gas and electrical systems; construction practices; procedures for inspection and quality assurance of construction; testing of systems; organizations for operations and maintenance; problems commonly encountered in operations and maintenance. The collection and disposal of solid waste and pollution control regulations will also be considered.

Thursday: 6:46-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Units:* 1.5

Prerequisite: 42.102 Hydrology, 42.202 Hydraulics. It is recommended that Roads and Street I also be studied.

42.917 Computer Methods of Structural Analysis

Purpose – To introduce the student to computer methods of structural analysis and design, and in particular to the stiffness matrix method as applied to plane frames.

Objectives – On completion of the course the student should be able to prepare and input data for frame analysis problems, understand what the computer does with the data, and obtain and interpret the results.

Outline – Applicable matrix methods and terminology; development of the stiffness matrix method as applied to the analysis of plane frames; elastic supports; influence lines; temperature stress analysis; three dimensional frames; symmetrical structures; the concept of finite elements; time-sharing systems; job control language, data files, output files; load cases and combinations; the concept of automatic member design.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (12 weeks) *Unit:* 1.0

Prerequisite: 42.103 Statics, 42.205 Strength of Materials and 42.901 Structural Analysis.

A knowledge of matrix methods and Fortran programming is desirable but not necessary.

ELECTRICAL AND ELECTRONICS TECHNOLOGY

Engineering Technician Certificate in Electrical and Electronics Technology

The following is a suggested first level certificate programme attainable over three years.

Students may amend this programme to meet their personal career requirements subject to department approval.

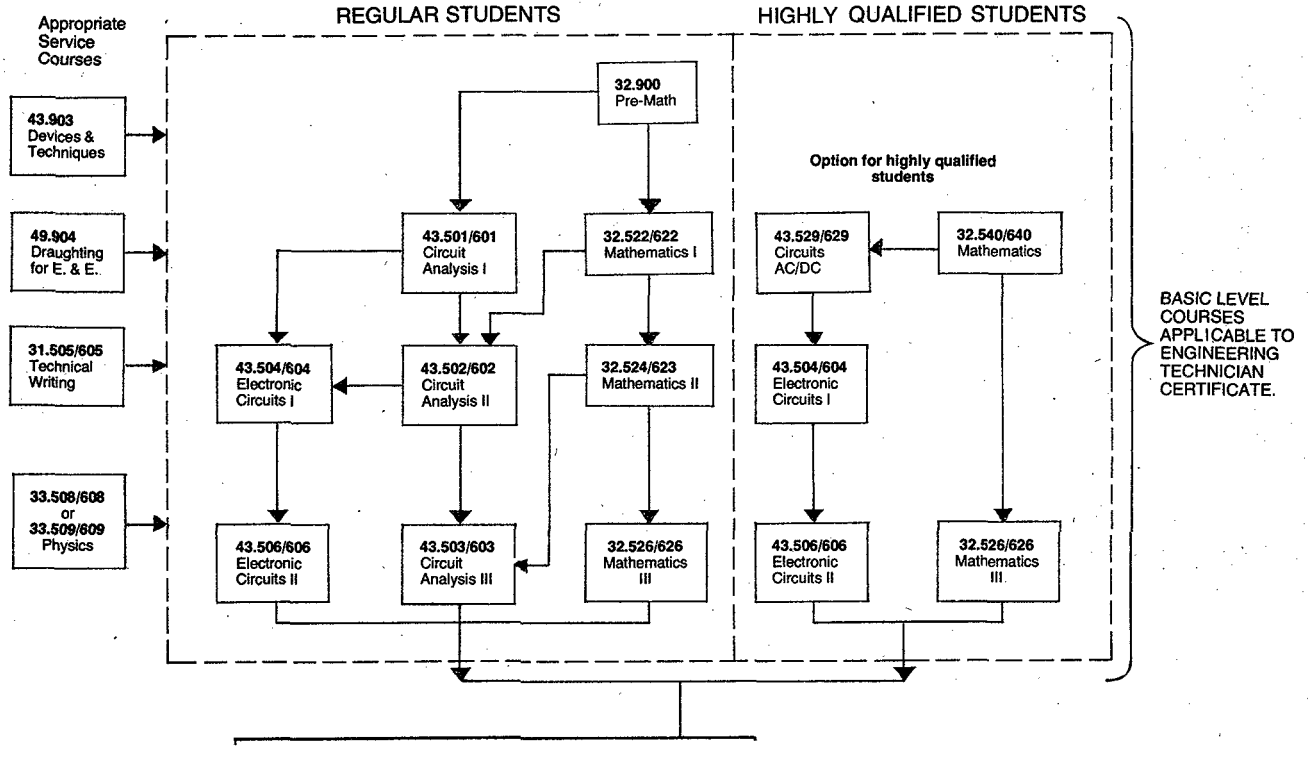
The three-year period is flexible. Fifteen units are required for this certificate.

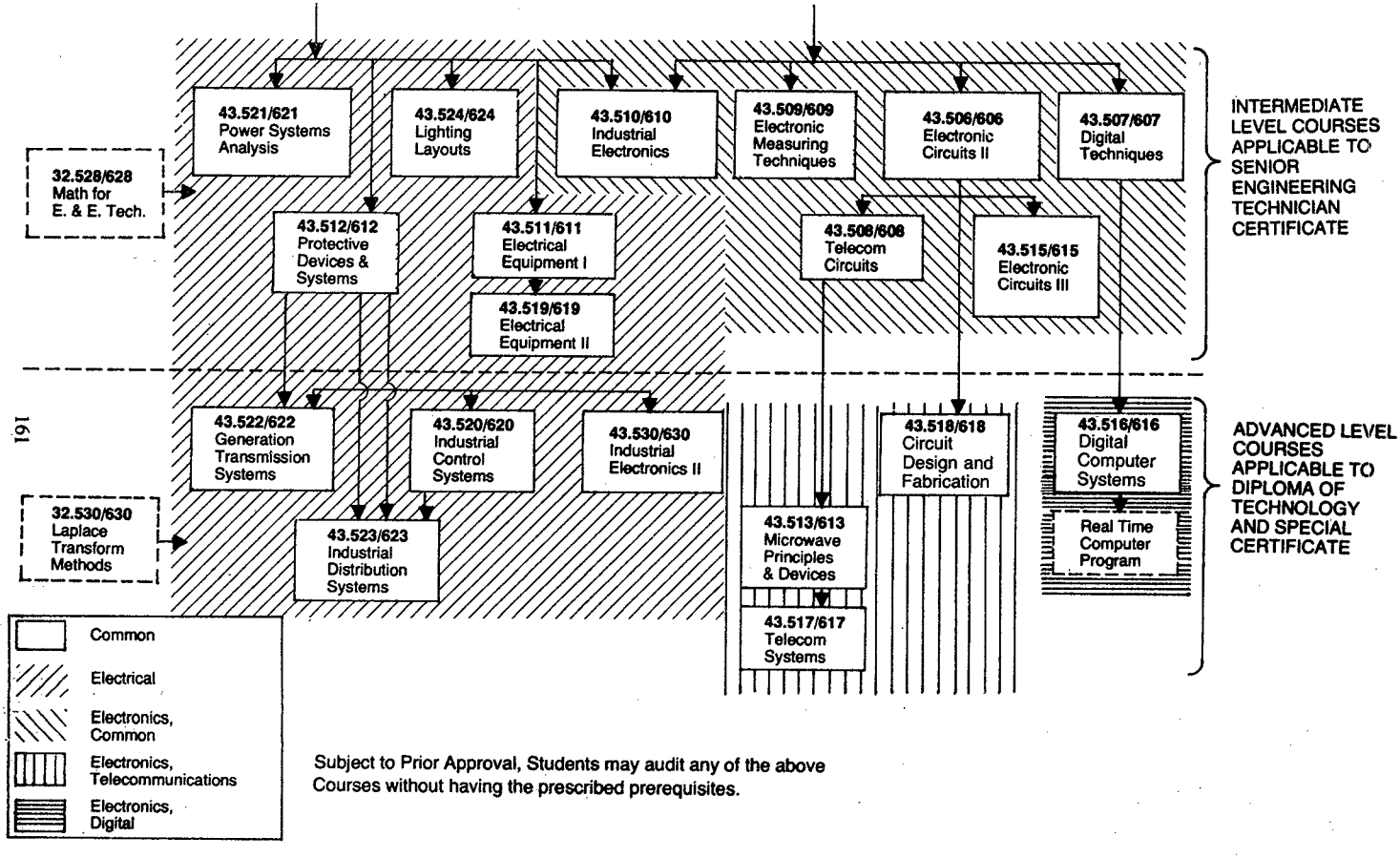
September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Circuit Analysis I (43.501)		Circuit Analysis I (43.601)	2.0	Circuit Analysis II (43.502/602)	2.0
Mathematics (for Electrical and Electronic Technologies) (32.522)		Mathematics (for Electrical and Electronic Technologies) (32.622)	2.0		
YEAR II					
Electronic Circuits I (43.504)		Electronic Circuits I (43.604)	2.0	Circuit Analysis III (43.503/603	2.0
Mathematics (for Electrical and Electronic Technologies) (32.524)		Mathematics (for Electrical and Electronic Technologies) (32.624)	2.0		
YEAR III					
Electronic Circuits II (43.506)		Electronic Circuits II (43.606)	2.0		
Mathematics (for Electrical and Electronic Technologies) (32.526)		Mathematics (for Electrical and Electronic Technologies) (32.626)	2.0		

For students who have completed a first-level Certificate, further programmes of study leading to Senior Certificates, Special Certificates, and Diplomas in Electrical and Electronics Technology may be designed to meet the needs of the individual student. Several specialty areas are available for advanced studies (refer to chart on following page).

Students who require advice on this programme should read section 3 of "Programme Consultation" on page 15 of this calendar.

TECHNOLOGY and SUPPORT COURSES in ELECTRICAL/ELECTRONICS TECHNOLOGY





Subject to Prior Approval, Students may audit any of the above Courses without having the prescribed prerequisites.

COURSES IN ELECTRICAL AND ELECTRONICS TECHNOLOGY

43.501/601 Circuit Analysis I

Purpose – To introduce the basic principles of circuit analysis through classroom lectures and practical laboratory sessions.

Objective – On completion the student will be able to analyze circuits containing resistance elements and supplies from direct current voltage or current sources. The student will be able to use basic direct current electrical equipment such as power supplies and multimeters. The course is a prerequisite to Circuit Analysis II and to Electronic Circuits.

Outline – The basic concepts of energy, work, current, voltage, resistance and power are thoroughly covered initially, proceeding to the analysis of series, parallel and series-parallel circuits utilizing circuit laws and techniques. The final portion of the course deals with techniques utilizing network theorems to analyze direct current, resistive networks.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12
Tuesday: 6:45-9:45 p.m. *or*	Sept. 13
Wednesday: 6:45-9:45 p.m. *or*	Sept. 14
Thursday: 6:45-9:45 p.m.	Sept. 15
43.501 Term I (12 weeks)	
43.601 Term II (12 weeks)	*Units:* 2.0

Text Reference – Electric Circuits for Engineering Technology – Ridsdale, Chap. 1-7 inclusive.

43.502/602 Circuit Analysis II

Purpose – To apply the principles learned in Circuit Analysis I to the analysis of circuits driven by single phase alternating current or voltage sources (a.c.)

Objective – On completion the student will be able to analyze circuits containing resistance, inductance and capacitance elements supplied from a.c. sources. The student will be able to operate a.c. power supplies, sine-wave generators, a.c. meters, watt meters and dual-trace oscilloscopes. The course is a prerequisite to Circuit Analysis III, Electronic Circuits II and Three-Phase Power Circuits.

Outline – Topics covered include waveforms, phases and phasors, capacitance, inductance, the analysis of non-resonant a.c. cirucits containing resistance, capacitance and inductance elements in series, parallel and series-parallel configurations.

Tuesday 6:45-9:45 p.m.	*Begins:* Sept. 13
43.502 Term I (12 weeks)	
43.602 Term II (12 weeks)	*Units:* 2.0

Text Reference – Electric Circuits for Engineering Technology – Ridsdale, Chap. 8, 9, 11-15 inclusive.

Prerequisite – 43.501/601 Circuit Analysis I or equivalent.

43.503/603 CIRCUIT ANALYSIS III

Purpose - To apply the principles learned in Circuit Analysis I and II to the analysis of resonant circuits, time constant circuits, a.c. networks and coupled circuits. The course will provide the fundamentals required for further study at the intermediate and advanced levels.

Outline - Topics covered include series and parallel resonance and practical resonant circuits, introduction to filters, time constant circuits including the analysis of R-C and R-L circuits with d.c. and square-wave voltage applied, introduction to integrating and

differentiating circuits, the use of network theorems in the analysis of a.c. networks, the analysis of two-port networks utilizing the z, y and h parameters.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15
43.503 Term I (12 weeks)
43.603 Term II (12 weeks) *Units:* 2.0

Prerequisite: 43.502/602 or equivalent.

Text Reference - Electric Circuits for Engineering Technology - Ridsdale - Chapter 8, 9, 10, 16, 17, 18.

43.903 Circuit Devices and Techniques

Purpose - This is an introductory course which will provide a general knowledge of the characteristics and application of the small components and procedures most frequently used in the electrical and electronics industry. It is designed to be followed by in-depth courses in the electrical and electronics field offered in this calendar.

Objectives - To familiarize the student with the small components used to create an operative circuit; to enable the student to handle and test each component commonly used; to understand the how and why of a basic circuit; to be able to perform the basic assembly skills required in the electrical and electronics industry; to become familiar with the basic test equipment and its operation, e.g., V.T.V.M., V.O.M., a.c. and d.c. power supplies and oscilloscope.

Outline - This course is largely a practical course. It will consist of introductory lectures followed by practical labs. Topics such as standards, coding systems, tolerances, and basic test procedures will be covered. The construction and operation of small components such as the resistor, capacitor, inductor, and transistor will form part of the content. Fabrication and assembly techniques will be performed by the student, including soldering, printed-circuit layout, processing and fabrication, inspection and quality control.

The course will culminate with the student producing an operative circuit in which all techniques, procedures, and components discussed will be used.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

43.504/604 Electronic Circuits I

Purpose - This course is the basic electronics course in this programme and should be considered as a prerequisite to higher level electronics courses.

Objectives - To give the student a basic knowledge of how transistors work and how they are used in electronic circuits to perform particular functions.

Outline - The course includes the following topics: basic theory of operation of the P-N junction and the junction transistor; characteristic curves and their interpretation; basic amplifier configurations and properties; loadline analysis; choice of Q-point; the transistor as a switch; bias circuit choice, design and analysis; a.c. equivalent circuits and their uses; frequency response considerations; power supplies, including rectification, filtering, and voltage and current regulation; feedback principles, leading to oscillation and oscillators. About one-third of the course time is spent in our well-equipped laboratories verifying theory and testing circuit designs.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
43.504 Term I (12 weeks)
43:604 Term II (12 weeks) *Units:* 2.0

Prerequisite: 43.502/602 Circuit analysis II, or 43.529/629 Electric Circuits AC/DC or equivalent.

This course will be repeated in Term II held Tuesday and Thursday evenings, beginning January 10, 1978.

43.505/605 Three-Phase Power Circuits

Purpose - To further develop the electrical knowledge of persons involved with the electrical power industry, either with Hydro, consulting engineering offices, or with the maintenance of power electrics in industry.

Objective - To develop the ability to analyse three-phase electrical power circuits and determine their behaviour under normal operating conditions.

This course is a highly desirable prerequisite for all further electrical equipment, industrial electronics, and electrical power courses.

Outline - The course consists of lectures and laboratory sessions, in well-equipped laboratories, to study the behaviour of electrical quantities. Problem-solving sessions are part of the regular programme and problems are assigned from time to time for home study and class-room discussion. A testing programme and final exam assure continued stimulation.

The topics include review of single-phase a.c. circuits, with emphasis on graphical analysis, with respect to circuit quantities, electrical load, and power-factor correction. Other topics include single-phase two and three-wire distribution, elementary transmission-line problems and corresponding voltage regulation, three-phase balanced and unbalanced systems, phase sequence determination, two-wattmeter methods for power measurement, three-phase transformer connections, and third harmonics.

Monday 6:45-9:45 p.m. — *Begins:* Sept. 12
43.505 Term I (12 weeks)
43.605Term II (12 weeks) — *Units:* 2.0

Prerequisite: 43.502/602 Circuit Analysis II or 43.529/629 Electric Circuits AC/DC or equivalent.

43.506/606 Electronic Circuits II

Purpose – This course, which is a continuation of Electronic Circuits I, gives the student an understanding of transistor circuits not included in the previous course, and then covers solid-state devices other than the junction transistor, with some of their circuit applications.

Outline - The course includes the following topics; tuned amplifiers; push-pull power amplifiers; transformerless power amplifiers; the UJT, PUT and the thyristor family; single-phase power control using the SCR and triac; field-effect transistors; integrated circuits with emphasis on linear circuits; the operational amplifier; heat-sink calculations; the tunnel diode; small-signal analysis.

About one-third of the course time is spent in our well-equipped laboratories verifying theory and testing circuit designs.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12
43.506 Term I (12 weeks)
43.606 Term II (12 weeks) — *Units:* 2.0

Prerequisite: 43.503/603 Circuit Analysis III is desirable and 43.504/604 Electronic Circuits I.

43.507/607 Digital Techniques

Purpose - To allow persons who have a thorough knowledge of solid state electronics to

become proficient in the rapidly developing and expanding field of digital electronics.

Objectives - On completion of this course the student should (a) have the knowledge and basic skills necessary for working with digital circuitry and (b) possess the prerequisite knowledge for entry into other courses employing digital techniques.

Outline - The course is presented in lecture form with laboratory sessions introduced at appropriate intervals. Topics include number systems; Boolean algebra and symbolic logic; AND, OR, NOR, and NAND circuits and their applications; switching circuit analysis and synthesis; Flip Flops and Flip Flop applications; serial and parallel counting systems; decoding and encoding systems; ring counters and shift registers; adder circuits and arithmetic systems; digital to analog and analog to digital methods; practical applications of digital techniques.

Tuesday 6:45-9:45 p.m. — *Begins:* Sept. 13
43.507 Term I (12 weeks)
43.607 Term II (12 weeks) — *Units:* 2.0

This course will be repeated in Term II held Monday and Thursday evenings beginning Jan. 9, 1978.

Prerequisite: 43.504/604 Electronic Circuits I or equivalent.

Admission - by successful completion of pre-screening test to be held on first night of classes only!

43.508/608 Telecommunication Circuits

Purpose - Introduces those principles which form the basis of all telecommunication systems. Covers specialized circuits as used in radio and telephone communications, including receivers and transmitters. Persons employed at the basic installation and service level will have their understanding of telecommunications circuits increased. Students should already understand electrical and electronic fundamentals and be familiar with the use of simple lab equipments, especially of oscilloscopes.

Objectives - Upon course completion student can expect to (a) understand basic types of modulation and demodulation (AM, SSB, PM, FM) including simple frequency and time division multiplexing; (b) be capable of performing standard tests of transmitters and receivers, such as tuning, alignment, testing of selectivity and sensitivity.

Outline - Lectures and practical lab sessions. NOTE — This course serves as preparation for courses 43.513/613 Microwave Principles and Devices and 43.517-617 Telecommunications Systems.

Tuesday 6:45-9:45 p.m. — *Begins:* Sept. 13
43.508 Term I (12 weeks)
43.608 Term II (12 weeks) — *Units:* 2.0

43.509/609 Electronic Measurement Techniques

Purpose - To instruct the student with a knowledge of basic electronic principles in the selection, operation, and typical methods of using the basic electronic test instruments. This course will aid one in "getting the most out of a test instrument" in day-to-day situations by understanding its operating principles.

Objective - For those on certificate programmes this course will provide the ability to cope with the requirements of other courses in the programme. For those now in the field it will allow them to improve their measurement techniques.

Outline - A mixture of lectures, demonstrations, and practice sessions in the laboratory will be provided. Topics covered include theory of operation and measurement techniques using various types of bridges, distortion analysers, electronic voltmeters, frequency

counters, oscilloscopes, RF power meters, signal generators, spectrum analysers, and Q-meters. Certain specialized techniques dealing with measurement of phase angle, power and distortion will also be presented.

Wednesday 6:45-9:45 p.m. *Begins:* Sept. 14
43.509 Term I (12 weeks)
43.609 Term II (12 weeks) *Units:* 2.0

Prerequisite: Completion of Circuit Analysis I and II or their equivalent.

43.510/610 Industrial Electronics I

Purpose- To provide a continuation of 43.504/604 Electronic Circuits I, with emphasis on industrial applications of electronics.

Objectives - On completion, a student should (a) be knowledgeable in the use of d.c. amplifiers, operational amplifiers, and phase control of thyristors (single and three phase circuits) and (b) have the ability, with additional practice and experience to "read" (interpret) industrial electronic schematics.

Outline - A mixture of lecture, problem, and laboratory sessions will deal with topics, including d.c. amplifiers, operational amplifiers, unijunction transistors, thyristors, phase control, and applications of thyristors. In the latter half of the course, emphasis will be directed to the interpretation ("reading") of electronic schematics.

This course will not be offered in the 1977/78 term

Prerequisite - 43.504/604 Electronic Circuits I. 43.505/605 Three-Phase Power Circuits is a desirable prerequisite to obtain maximum benefit from the course.

43.511/611 Electrical Equipment I

Purpose - To allow people with an electrical circuits fundamentals background to study the theory, characteristics, and operations of d.c. generators, motors, and transformers. Electricians, technicians, and draughtsmen will find this course useful in understanding the basic electrical equipment with which they work so frequently. This course is a mandatory prerequisite to 43.519/619 Electrical Equipment II. 43.520/620 Industrial Control Systems and 43.523/623 Industrial Distribution Systems.

Objectives - To give the student an appreciation of the theory of operation, the application and the limitations of each basic type of equipment; to enable him to determine the parameters such as speed and voltage regulation, starting torques, inrush current, efficiency, etc., and to provide him with experience in the connecting operating, and testing of the equipment.

Outline - The 24 sessions will consist of approximately 50 per cent lectures and 50 per cent practical laboratory exercises. The topics included in the course are: d.c. machines, voltage generation and regulation, torque and speed relationships, typical wiring connections; transformers, voltage regulation and efficiency.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
43.511 Term I (12 weeks)
43.611 Term II (12 weeks) *Units:* 2.0

Prerequisite: It is desirable to have Circuit Analysis I and II, 43.501/601 and 43.502/602 or Electric Circuits AC/DC 43.529/629 or equivalent.

43.512/612 Protective Devices and Systems

Purpose - To allow students with an electrical circuits fundamentals background to study protective devices such as fuses, circuit-breakers , protective relays, current and potential transformers, and lightning arresters and to prepare the student for 43.922. Generation and

Transmission Systems or 43.523/623. Industrial Distribution Systems.

Electricians, technicians, and draughtsmen will find this course useful in understanding the basic protective devices with which they work so frequently.

Objectives - To give the student an appreciation of the functions and limitations of protective devices: to enable the student to compare the characteristics of a protective device with others and be able to plan the co-ordination between these devices. Examples of this are (a) co-ordination between feeder protection and motor-overload relays and (b) co-ordination between transformer primary fuse and secondary curcuitbreaker.

Outline - The 24 sessions will consist of approximately 50 per cent lectures and 50 per cent laboratory and problem sessions. Topics to be discussed are the need for protection, fuses, circuit-breakers, co-ordination of fuses and circuit-breakers, protective relays, current and potential transformers, and lightning arresters.

Wednesday 6:45-9:45 p.m. — *Begins:* Sept. 14
43.512 Term I (12 weeks)
43.612 Term II (12 weeks) — *Units:* 2.0

Prerequisite: It is desirable that a student have 43.505/605 Three Phase Power Circuits or equivalent.

43.513/613 Microwave Principles and Devices

Purpose - For persons associated with the electronics industry, and with little or no experience in high-frequency techniques, this course provides an introduction to microwave principles and devices most frequently encountered in communications, radar, and industrial systems. Specifically, this course will provide theoretical and practical training on the techniques of transmission, generation, and measurement of microwave energy.

Objectives - On successful completion of this course a student can expect to be knowledgeable of the operation of most microwave appliances or devices used in industry. Also, the principles and techniques acquired will be a valuable background for further specialized training in the field of microwave communications.

Outline - A mixture of lectures, discussions, demonstrations, and laboratory projects will provide for an interesting course. Topics include transmission-line characteristics and the ideal lossless line: Smith Chart and graphical representation of the transmission-line; wave guides, coupling tees, attenuators, and terminations, directional couplers, detectors, cavities, wave-meters; typical single-channel microwave systems such as would be used in commercial systems.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12
43.513 Term I (12 weeks)
43.613 Term II (12 weeks) — *Units:* 2.0

43.515/615 Electronic Circuits III

Purpose – To introduce the student to the techniques and procedures employed in the analysis and design of solid state switching circuits. Specifically, the course emphasizes both a mathematical and empirical approach to the design and analysis of these circuits, and enables the student to construct, test, and modify his designs and note the advantages and disadvantages of various configurations.

Objective – To enable the student to identify, to thoroughly understand, and to analyse the basic switching circuits. The student will also be capable of performing basic designs in this area and have an appreciation of interfacing problems.

Outline – The course opens with a review of desirable characteristics of high-speed solid state switches and then uses these devices in the design and analysis of pulse generators,

pulse shapers, pulse delay circuits, linear ramp generators, Flip Flops, Schmitt Triggers, d.c.-a.c. converters, etc. Designs produced will be tested and verified in a well-equipped pulse laboratory.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

43.515 Term I (12 weeks)
43.615 Term II (12 weeks) *Units:* 2.0

Prerequisite – 43.502/602 Circuit Analysis II and 43.503/603 Circuit Analysis III or equivalent and 43.504/604 Electronic Circuits I, or permission of the Instructor.

43.516/616 Digital Computer Systems

Purpose – To allow persons with a knowledge of solid state electronics and digital techniques to become familiar with small digital computers and their industrial applications.

Objectives – On completion of this course the student should *(a)* understand the organization and operation of typical small digital computers, *(b)* be able to interface mini/microcomputer to external systems, *(c)* be able to write simple programmes in assembler language to test and to operate interfaced devices, *(d)* be able to write subroutines in assembler language and link them together to form a small system.

Outline – Topics include basic machine organization and operation of the digital computer; detailed analysis of digital computer architecture together with machine and assembler language programming; interfacing to peripheral devices and industrial systems; creation of a small real time system.

This course is presented in a series of lectures plus laboratory projects carried out on 8080 and 6800 microcomputers.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

43.516 Term I (12 weeks)
43.616 Term II (18 weeks) *Units:* 2.5

Prerequisite: 43.507/607 Digital Techniques or entrance examination.

43.517/617 Telecommunications Systems

Purpose – A seminar course to give an overview of the various telecommunications systems. This is a course for those who have a sound background in telecommunications principles and microwave techniques. It provides the "tie-together" for those on certificate programmes, with preference, with preference toward telecommunications.

Objective – On completion of this course the student will have a good understanding of telephone networks, general radio and microwave networks, radar and navigation systems.

Outline – The seminar sessions will cover telephone-switching systems principles, multiplex equipment and system layouts, radio propagation and path considerations, system transmission considerations and tests, system noise considerations, radio and radar navigation systems. Laboratory reinforcement will be limited to equipment available and its serviceability.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

43.517 Term I (12 weeks)
43.617 Term II (18 weeks) *Units:* 2.5

43.518/618 Circuit Design and Fabrication

Purpose – This course, which is a continuation of Electronic Circuits II, introduces the student to further applications of transistors and linear integrated circuits.

Outline – The course opens with a review of the fabrication techniques of monolithic integrated circuits and the resulting electrical characteristics of components making up the circuits. The course then shows how these characteristics may be used to advantage in the design of hybrid high-voltage amplifiers, balanced modulators, phase detectors, broad-band amplifiers, and active filters.

Approximately one-half of the course time will be spent in the laboratory constructing and testing your prototype circuit design.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

43.518 Term I (12 weeks)
43.618 Term II (12 weeks) *Units:* 2.0

Prerequisite – A necessary prerequisite is Electronic Circuits II or equivalent.

43.519/619 Electrical Equipment II

Purpose – This course is a continuation of 43.511/611 Electrical Equipment I which must be taken first. (Please read description for that course.) In addition, 43.505/605 Three Phase Power Circuits is a required prerequisite. This course is a desirable prerequisite to 43.520/620 Industrial Control Systems and 43.523/623 Industrial Distribution Systems.

Outline – Topics include single and three-phase squirrel-cage induction motors, wound rotor motors, synchronous generators and motors, duty cycles, load applications, and temperature classifications.

This course will not be offered in the 1977/78 term.

43.520/620 Industrial Control Systems

Purpose – This course is a continuation of Electrical Equipment I and II, 43.511/611 and 43.519/619, and students should have taken these courses or their equivalent.

Objective – To give the student a basic understanding of the electro-magnetic control devices used in control system (i.e., motor starters, relays, timing devices, etc.) and to design, connect, and test out control systems, using these devices.

Outline – Topics included in the course are basic control devices, their symbols for preparation of drawings, relays, starters, contactors, and the preparation of schematic and connection diagrams. Part of this course will involve the actual draughting of electrical diagrams associated with electromagnetic control schemes. Students should have taken a basic course in draughting prior to taking this course, if they wish to become proficient in Electrical Draughting.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

43.520 Term I (12 weeks)
43.620 Term II (12 weeks) *Units:* 2.0

43.521/621 Electrical Power System Analysis

Purpose – To further develop persons who have already a good knowledge of three-phase electrical theory, as outlined in courses 43.505/605 or equivalent.

Objective – To provide an introduction to the use of calculation methods for solving three-phase power system problems for application in the electrical power industry, electrical consulting engineering offices, or to lead to a better understanding of operation and maintenance problems encountered with electric power equipment.

Outline – Graphical analysis methods of voltage regulation; unbalanced three-phase electrical systems with an introduction to symmetrical components; short-circuit studies and per unit methods of solving utility and industrial power system problems; short-circuit

forces; circuit-breaker interrupting ability; maximum momentary duty of power equipment; power circle diagrams and transmission diagrams to analyse transmission-line power-handling capabilities; study of power angle diagrams as introduction to power system stability analysis.

This course will not be offered in 1977/78.

43.522/622 Generation and Transmission Systems

Purpose – This course is designed to be the final course in the area of utility systems.

Objective – To bring together the application of all types of electrical equipment with regard to their use in utility systems and to study utility system organization.

Outline – Topics include synchronous generators; generating stations; transmission-lines; substation layouts; protection of equipment and systems; power rate structures.

This course will not be offered in 1977/78.

Prerequisite – 43.505/605 Three Phase Power Circuits, 43.511/611 Electrical Equipment I, 43.519/619 Electrical Equipment II and 43.512/612 Protective Devices and Systems, or permission of the instructor.

43.523/623 Industrial Distribution Systems

Purpose – This course is designed to be the final course in the area of industrial distribution systems (as opposed to utility distribution systems).

Objective – To bring together the application of all types of electrical equipment with regard to the design of a complete electrical system for an industrial plant or a commercial building. All relevant types of equipment are briefly discussed (on the basis that the student has had previous exposure to the equipment), followed by system design-type problems which emphasize the selection of specific ratings of equipment. All relevant regulations of the Canadian Electrical Code are discussed and applied.

Outline – Topics included in the course are branch circuit wiring; feeder design; motor branch circuit wiring; motor control centres; demand factors; low-voltage switchboards; unit substations; voltage and system selection; grounding of systems and equipment; system protection.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

43.523 Term I (12 weeks)
43.623 Term II (12 weeks) *Units:* 2.0

Prerequisite – Desirable prerequisites are 43.505/605 Three Phase Power Circuits, 43.511/611 and 43.519/619 Electrical Equipment I and II, 43.512/612 Protective Devices and Systems, 43.520/620 Industrial Control Systems, and 43.524/624 Lighting Equipment and Layouts or equivalent.

43.524/624 Lighting Equipment and Layouts

Purpose – To introduce the fundamentals of lighting sources and lighting layouts. This course is also a desirable prerequisite to 43.523/623 Industrial Distribution Systems.

Objective – To allow the student to perform the necessary calculation in order to lay out a lighting system and to organize drawings showing these lighting layouts complete with branch circuit wiring.

Outline – Topics included in the course are lighting fundamentals, light sources, lighting system calculations, lighting layouts, and branch circuit wiring. Part of this course will involve the actual draughting of electrical building layouts related to lighting systems. Students should have taken a basic course in draughting prior to taking this course if they

wish to become proficient in electrical draughting.

This course will not be offered in 1977/78.

43.927 Printed Circuits

Purpose – To allow persons without any previous experience to manufacture a simple printed circuit after a few hours. This course introduces effective methods of printed circuit layout and fabrication.

Objective – On completion of the course a student can expect to have sufficient knowledge to undertake any circuit except those of very intricate and close tolerances.

Outline – 75 per cent of course is laboratory procedures with lectures and 16-mm films. Topics include printed circuit board layout, physical and electrical clearances; direct etch method; photographic etch method; and silk screen method.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (6 weeks)

This course will be repeated beginning October 31 and in Term II beginning Monday, January 9, 1978.

This class is limited to 20 students.

Prerequisite – Students applying for this course must be able to read a schematic.

43.529/629 Electric Circuits AC/DC

NOTE: This course is considered to be an accelerated programme, implying that it is very demanding and dependent upon a strong mathematics background. A special mathematics course will be instituted on the sixth week after classes start to complement this course. See 32.540/640 which is a combination of 32.522/622 and 32.524/624.

Registration for this course requires the student to obtain approval by Department counselling or authorization from the instructors in Circuit Analysis I.

Purpose – To enable persons with a strong background in the electrical industry to cover and/or review those topics necessary to take the more advanced courses in the electrical area.

Objective – To give students a basic knowledge of how single phase AC and DC circuits work and how to analyze and design them for a particular situation.

Outline – For topics covered, refer to the outlines of Circuit Analysis I (43.501/601), Circuit Analysis II (43.502/602), and Circuit Analysis III (43.503/603).

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13
43.529 Term I (12 weeks)
43.629 Term II (18 weeks) *Units:* 4.0

43.530/630 Industrial Electronics II

Purpose – To study the application of electronics and feed-back theory to the analogue control of electrical machinery. The course requires a basic knowledge of electronic circuits and electrical machinery (Industrial Electronics 43.510/610 or equivalent and Electrical Equipment I and II, 43.511/611; 43.519/619 or equivalent). A mathematics background to the level of 32.530/630 is desirable to obtain maximum benefit from the course.

Outline – Equal emphasis will be placed on lecture/problem sessions and practical lab work using a variety of standard industrial drive units. Topics include transfer functions, block diagrams, analysis of steady state and transilent performance of systems, application of feedback to machine control systems such as speed regulators, voltage regulators, current regulators.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13
43.530 Term I (12 weeks)
43.630 Term II (12 weeks) *Units:* 2.0

INSTRUMENTATION PROGRAMME

Automation and Control Systems

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three year period is flexible. Fifteen units are required for this Certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Process Instruments I (48:901)	1.0	Process Instruments II (48:902)	1.0	Mathematics-Trigonometry (32.903)	1.0
Mathematics-Algebra II (32.901)	1.0	Mathematics-Logarithms (32.902)	1.0		
YEAR II					
Process Control I (48.907)	1.0	Process Control II (48.908)	1.0	Elective	1.0
Electronic Methods for Instrumentation I (48.509)	1.0	Electronic Methods for Instrumentation I (48.609)	1.0		
YEAR III					
Electronic Circuits I (43.504)		Electronic Circuits I (43.604)	2.0	Elective	1.0
Elective	1.0	Elective	1.0		

List of Suggested Electives

48.903	Process Instruments III	1.0
43.507/607	Digital Techniques	2.0
43.516/616	Digital Computer Systems	2.5
33.508/608	Physics I	2.0
30.902/903	Chemical Principles I and II	4.0
31.503/603	Business and Technical Report Writing	2.0
31.505/605	Technical Writing	2.0

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in the Instrumentation Programme

48.901 Process Instruments I

Purpose – To allow persons with little or no experience to learn the fundamentals of industrial instrumentation and to prepare for more advanced courses. In addition to the terminology and symbols the participants will study the principles and characteristics of commercial instruments used to measure variables such as density of fluids, pressure in vessels, level in tanks, and flow in pipes and ducts.

Objective – On completion of this course the student will be able to perform routine instrument calibrations, understand the principles of their operation, and be familiar with standard calculations relating to the variables studied.

Outline – The course will consist of a series of lectures explaining how instruments work, the solution of typical instrumentation problems, as well as laboratory sessions working with commercial instruments.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

48.902 Process Instruments II

Purpose – Although persons with no prior Instrumentation knowledge may be admitted to this course it is a continuation of 48.901, Process Instruments I. It covers principles and application of methods of measurement of temperature, viscosity, humidity, dew point and gas analysis.

Objective – On completion of this course the student will be able to identify and discuss several methods of measurement of each of the variables listed above. The student will be able to operate sensors, commonly used measuring circuits and the associated componentry to obtain reliable readout.

Outline – The course consists of lectures, problem solving assignments and laboratory sessions working with commercial instruments.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (12 weeks) *Unit:* 1.0

48.903 Process Instruments III

Purpose – This course is a continuation of Process Instrument I and II, but they are not prerequisites. Topics covered include measurement of electrolytic conductivity and pH, basic spectrometry and typical spectrometer alignments, basic chromatography and chromatograph operating principles.

Objective – Successful completion of this course will indicate an understanding of the several methods of measurement covered and a familiarity with typical equipment used in those measurements. Though not a prime aim of this course, fault finding and correction will also be covered.

Outline – The course will consist of lectures, demonstrations, and problem-solving assignments and discussions, together with laboratory experiments reinforcing and expanding the class presentations. Most work is with commercial/industrial equipment.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

48.907 Process Control I

Purpose – To provide a basic understanding of the characteristics and properties common

to all types of automatic process control systems, for persons with little or no experience.

This course covers the concepts of closed loop control, negative feedback in devices and systems, block diagrams and transfer functions. These concepts will be applied to commercial equipment used for position servomechanisms, temperature, pressure, level and flow control systems.

The basic control components required will be examined for each working medium; electronics, pneumatics and hydraulics.

Objective – On completion of this course the student will be able to understand the requirements for a closed loop standard automatic control system. He will be able to make adjustments and recommendations to improve the operation of a control system.

Outline – This course will consist of lectures, demonstrations, and laboratory exercises; working with commercial equipment on several types of processes.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

48.908 Process Control II

Purpose – This course is a continuation of Process Control I. Topics covered include closed loop system stability and damping; strategies for control systems; controller modes ON/OFF, proportional, reset and rate, cascade control, ratio control, feed forward control, tuning control systems, introduction to computer control.

Objective – On completion of this course the student will be able to understand the principles and techniques required to adjust (tune) automatic control systems. He will be able to design a control method for various process conditions.

Outline – This course will consist of lectures, demonstrations and laboratory exercises working with commercial equipment on various types of processes.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (12 weeks) *Unit:* 1.0

48.509/609 Electronic Methods for Instrumentation I

Purpose - Directed toward the Instrumentation field, this course aids students in obtaining a good basis in the areas of electronics specifically relating to process measurement and control.

Objective - On completion of this course the student will have an understanding of the electronic mechanisms fundamental to all modern electronic measurement and control devices.

Outline - Topics will include bridges and bridge amplifiers used for measurement of temperature, strain, flow, etc. D.C. (saturated state) transistor theory applied to power supplies, on-off control and high/low limit alarms. Operational amplifiers applied to measurement circuits, D.C. amplifiers, signal conditioning, transducers, function generators, process simulators and controllers. Approximately one third of course time will be involved with laboratory exercises solving design and maintenance problems.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

48.509 Term I (12 weeks) *Units:* 2.0

48.609 Term II (12 weeks)

Prerequisite: Electronic Circuits I is required, Process Instruments I is a desirable prerequisite.

Part I, 48.509 repeats in Term II beginning Tuesday, January 10, 1978.

FOREST RESOURCES TECHNOLOGY

Engineering Technician Certificate in Forest Resources Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with approval from a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Wood Technology (45.103)	1.0	Forest Land Management (45.903)	1.5		
Mathematics Algebra II (32.901)	1.0	Mathematics—Lotharithms (32.902)	1.0	Mathematics—Trigonometry (32.903)	1.0
YEAR II					
Business and Technical Report Writing (31.503) *Or* Technical Writing (31.505)	1.0	Business and Technical Report Writing (31.603) *Or* Technical Writing (31.605)	1.0	Elective	1.0
Elective	1.0	Ecology (45.226)	1.5		
YEAR III					
Forest and Range Botany (45.120)	1.0	Elective	1.0		
Elective	1.0	Elective	1.5		

List of Suggested Electives

		Units
30.902/903	Chemical Principles I & II	4.0
33.508/608	Physics I	2.0
49.900	Draughting—Fundamental	1.0
45.106/206	Photo Interpretation and Mapping	2.5
45.904	Principles and Practices in Wildlife Management	1.0
45.326	Habitat Evaluation	1.5

Students requiring advice on this programme should read section 3 on "Programme Consultation" found on page 15 of this calendar.

FORESTRY TECHNOLOGY

Engineering Technician Certificate in Fish, Wildlife & Recreation.

The following is a suggested programme for the basic Certificate (15 units) attainable over three years. The three year period is flexible.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Mathematics—Algebra I (32.901)	1.0	Mathematics—Logarithms (32.903)	1.0	Mathematics—Trigonometry (32.904)	1.0
Forest and Range Botany (45.120)	1.0	Ecology (45.226)	1.5		
YEAR II					
Technical Writing (31.505)	1.0	Technical Writing (31.605)	1.0	Elective	1.0
Wildland Recreation & Park Management (45.910)	1.0	Habitat Evaluation (45.326)	1.5		
YEAR III					
Principles & Practices in Wildlife Management (45.904)	1.0	B.C. Fish and Fisheries (45.911)	1.0		
Elective	1.0	Elective	1.0		

List of Suggested Electives:

		Units
45.905	Conservation, Outdoor, Recreation, Education	1.0
45.903	Forest Land Management	1.5
45.106/206	Photo Interpretation and Mapping	2.5
10.904	Supervisory Skills	1.0
10.905	Managerial Styles	1.0

NOTE: Credits obtained in night school courses are not automatically granted to the day school courses and students are advised to seek consultation with the Forest Resources Technology if they are planning to attend the day school programme. Students should also be aware of the fact that the diploma is not available through the night school programme.

Students requiring advice on this programme should read Section 3 on "Programme Consultation" found on page 15 of this calendar.

COURSES IN FORESTRY TECHNOLOGY

45.103 Wood Technology

Purpose - This course is designed to enable the student to develop a basic understanding of the structure, properties, products, and uses of the commercial woods in British Columbia. This subject-matter will be found very useful whether the student is engaged in construction, working in the field as a forest technician, embarking on a career in forest products, or interested in doing "do-it-yourself" projects about the home or farm.

Objective - The objective is to enable students (1) to appreciate the nature and value of the woods of the commercial tree species in British Columbia through a study of the structure, composition, properties, products, and uses of wood and (2) to become aware of growth factors and destructive agencies that affect wood and its use.

Outline - The subject-matter includes wood as a construction material, tree growth and natural characteristics, structure and identification of woods, properties of wood, wood deterioration, and wood utilization.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Unit:* 1.0

45.903 Forest Land Management

Purpose - To acquaint students with management techniques that are employed to solve problems inherent in the use of forest lands.

Objective - To integrate the four major aspects of forest land management into a comprehensive unit which will enable the student to understand management procedures. This is accomplished by (1) relating historical events with present management policies, (2) outlining the Government agencies responsible for forest land management, (3) determining the main uses of forest lands and examining the conflicts which arise, (4) examining land tenure disposition.

Outline - The sessions will be divided into lectures, discussions, and problem-solving, with the greatest emphasis on lectures.

Thursday: 6:45-9:45 p.m. — *Begins:* Jan. 12

Term II (18 weeks) — *Units:* 1.5

Note: For day school equivalency, adequate field work as prescribed by the instructor must be completed to an appropriate level.

Courses marked with * carry credit for Diplomas and provide day-time equivalent.

*45.106/206 Photo Interpretation and Mapping

Purpose - This course is designed primarily for forest technologists; however, it can be applied to any resource field such as geology, land use-analysis, agriculture, etc.

Objective - To provide students in forestry and other disciplines the practical use and application of aerial photographs through the study of forest types and land forms.

Outline - Fifty per cent of this course will deal with photo interpretation techniques and the identification of forest types and land forms: the other 50 per cent will show the student how to compile maps from aerial photos and the techniques of map measurements.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept.13

Term I (12 weeks) — *Units:* 2.5

Term II (18 weeks)

*45.226 Ecology

Purpose - To introduce students to the basic language and concepts of ecology. These principles are applied to consideration of various problems such as the nature and effects of the five fundamental ecological variables (matter, energy, space, time, diversity), self-regulation in ecological systems, etc. Various types of ecological systems are examined in detail with respect to the operation and application of these principles.

Objective - To impart an appreciation of basic language and principles of ecology so that the student may later proceed to more advanced study in various fields. Non-specialists and concerned citizens who do not intend to undertake further formal study, should also be better equipped to understand current environmental concerns.

Outline - A sequence of lecture- discussion sessions following rather closely the outline of the textbook *Principles of Environmental Science,* by K.E.F. Watt (McGraw-Hill, 1973). Films and other audio/visual aids are utilized when appropriate and useful. Testing will take the form of six short, equal-value, objective examinations at roughly equal intervals during the course.

Tuesday: 6:45-9:45 p.m. — *Begins:* Jan. 10
Term II (18 weeks) — *Units:* 1.5

*Courses marked with * carry credit for diplomas and provide day-time equivalence.

45.904 Principles and Practices in Wildlife Management

Purpose - To serve as a basic explanation and survey of the field for interested naturalists, sportsmen, and others, as well as for technical and professional graduates in forestry, agriculture, and other resource-based fields.

Objective - To impart an appreciation of the fundamental principles related to management and exploitation of natural animal populations. Central ecological concepts, principles of population biology, and habitat relationships are featured with study of the methods and techniques of this application in effective wildlife management.

Outline - A sequence of lecture-discussion sessions with practical laboratory exercises where applicable. No specific textbook is followed but *Wildlife Biology*, by R. Dasmann (Wiley, 1964) is highly recommended. Discussions progress from treatment of central concepts through techniques of census, evaluation, etc., to various special problems such as pesticides, wildlife damage, etc.

Tuesday: 6:46-9:45 p.m. — *Begins:* Sept. 13
Term I (12 weeks) — *Unit:* 1.0

45.120 Forest and Range Botany

Purpose - To introduce the whole flora of forest and range plants of British Columbia.

Objective - To identify important plants of our native flora; to appreciate plant classification, associating tendencies of plants and plant geography.

Outline - Basic structure and physiology of plants, plant taxonomy, plant geography, forest regions, biotic zones, and biogeoclimatic zones.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 14
Term I (12 weeks) — *Unit:* 1.0

45.326 Habitat Evaluation

Purpose - To provide knowledge for junior personnel in the renewable resource fields to recognize, describe, and appreciate productive capacities of homogenous land types in British Columbia.

Objective - To enable the students to recognize and evaluate for various uses a wide spectrum of wildland habitats; to appreciate the ecological factors and their functions in the formation of habitats.

Outline - A summary study of ecological factors, geology, climate, biotic condition, geographical history in the formation of habitats; formation and geography of soils; plant associations, biogeoclimatic classification of British Columbia.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11
Term II (18 weeks) *Units:* 1.5

45.905 Conservation, Outdoor, Recreation, Education

Purpose - The preliminary course will acquaint the outdoorsman with some of the recreational options associated with wildlife and provide instruction on safety and enjoyment of the outdoors.

Objective - Upon completion of the course the student will be able to improve hunting standards and promote safe and knowledgeable outdoor recreation and an appreciation of the value of wildlife and natural environments in our modern way of life. The student will be expected to write the CORE examination as a prerequisite to obtaining a hunting licence, which is mandatory under the *Wildlife Act*.

Outline - The following will be covered by lectures, slides, and displays: ecology-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, why we have regulations, animal identification, some birds of British Columbia, fish of British Columbia, survival and first aid, archery and canoeing, backpacking and mountaineering.

Monday 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

This course may be repeated in Term II, dependent on demand.

46.502/602.2 Pulp and Paper Manufacture

Purpose - To provide a detailed background relating to the pulp and paper industry of British Columbia for those presently engaged in manufacturing and service functions as well as allied industries.

Objectives - To impart an understanding of the processes employed in the manufacture of pulp and paper and to provide information on the mechanical equipment utilized.

Outline - Topics to be covered include wood structure and chemistry, water treatment, mechanical and chemical pulp manufacture, pulp bleaching, kraft recovery systems, chemical preparation and handling, pollution abatement, pulp-mill instrumentation, auxiliary mill equipment, materials of construction; paper and paperboard manufacture, mill hazards and safety, possible future developments.

Guest lecturers will be added for discussion in highly specific areas. Evening field trips to relating plants will be scheduled and students should be prepared to undertake occasional Saturday plant visits. Laboratory demonstrations of related equipment will be provided.

This course will not be offered in 1977/78.

46.503/603 Pulp and Paper Practicum

Purpose - To supplement the technical knowledge and practical skills of those who are directly or indirectly involved in the pulp and paper industry.

Objectives - To develop manipulative skills in laboratory procedures related to pulp and paper manufacture; to provide an understanding of many of the unit processes employed in the pulp and paper industry.

Outline - Enrollees will utilize the facilities of the pilot plant in the processing of whole logs through the unit processes of debarking, chipping, pulping, grinding, bleaching, and papermaking. Certain aspects of the technology will be covered in classroom sessions as required for an understanding of these processes. Concurrently, various of the control and quality tests relevant to these processes will be performed in the laboratory by the class to a suitable level of skill development.

Included in the laboratory phase will be such procedures as wood and chip testing, fibre identification, water and process liquor analysis, in-process and product quality testing. Pollution abatement testing methods may also be included.

Desirable prerequisite - Lab experience and (or) completion of 46.502/602.

Tuesday 6:30-10:30 p.m. — *Begins:* Sept. 13
Term I (12 weeks)
Term II (12 weeks) — *Units:* 2.0

46.504/604 Lumber and Plywood Manufacture

Purpose - To supplement the technical knowledge of those who are directly or indirectly involved in the wood products industry.

Objective - To cover many aspects of the manufacturing processes and services related to the production of lumber and plywood.

Outline - Topics to be covered include sawmill and planermill operation, saw technology, lumber seasoning, plywood manufacture, recovery, quality control, maintenance organization, accident and fire prevention, mobile equipment, and environmental control. Coastal operations will be compared with those located in the British Columbia Interior.

Classroom discussion will be encouraged and laboratory demonstrations of related equipment will be given.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13
Term I (12 weeks)
Term II (12 weeks) — *Units:* 2.0

45.911 B.C. Fish & Fisheries

Purpose - To provide basic knowledge of British Columbia fishes and their management. The course is designed as a survey course for interested naturalists, sportsmen and services to provide basic technical information for foresters, agriculturists and others in the resources field.

Objective - Students will learn the biology and characteristics of numerous species of B.C. fishes as well as gain insight into parameters of fisheries management. These include population, dynamics, fish physiology, survey techniques, pollution sampling, resource problems and B.C. fishing regulations and their effects.

Outline - Approximately six of the twelve sessions will involve a combination lecture-laboratory format and will entail examination of preserved specimens. These sessions will be supplemented with presentations related to the biology of the species under discussion. The remaining sessions will deal primarily with the management aspects of the resource.

This course will not be offered in 1977/78.

45.910 Wildland Recreation and Park Management

Objectives - (1) To make the student aware of the importance of both recreation, and the

wildland recreation manager, in the proper planning and administration of Canada's Wildlands.

(2) To provide the student with a working knowledge of recreational pursuits on public, and private, wildlands within B.C.

(3) To inform the student of specific criteria involved in the assessment and management of recreational wildland. Among topics to be covered are: introduction to recreation, wilderness management, winter oriented recreation, water oriented recreation, campsite design, wildlife in parks, interpretation, visual management, public input in decision making, trail design, etc.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13
Term I (12 weeks) *Unit:* 1.0

This course repeats in Term II beginning Tuesday, January 10, 1978.

ENGINEERING TECHNICIAN CERTIFICATE IN LANDSCAPE TECHNOLOGY

This programme is being offered in co-operation with the British Columbia Society of Landscape Architects. It has the full support of the British Columbia Nursery Trades Association.

Students seeking further information and guidance should contact the course co-ordinator, E. Ibsen Brodersen, telephone 437-3915.

Changes in required and elective courses to meet the students' objectives will be considered.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Draughting—Fundamental (49.900)	1.0	Draughting—Civil & Structural (49.905)	1.0		
Structural Material (53.901)	1.0	Soil Improvement (53.902)	1.5		
YEAR II					
Landscape Structurals (53.904)	1.0	Basic Horticulture (53.906)	1.5	Plant Introduction (53.911)	1.0
Grading and Drainage Plan Production (53.903)	1.0	Park and Recreation (53.905)	1.5		
YEAR III					
Management (53.908)	1.0	Cost Estimation (53.909)	1.5		
Plant Material Study (53.907)	1.0	Planting Plan (53.910)	1.5		

List of Suggested Electives

YEAR I	(Term I)	Units
32.901	Mathematics—Algebra II	1.0
30.902/903	Chemical Principles I & II	4.0
33.508/608	Physics I	2.0
40.901	Draughting and Design	2.0
*51.507/607	Survey Draughting	1.0
31.501	Technical Writing	1.0
51.540/640	Engineering Survey	2.5
YEAR I	(Term II)	
**40.902/903	Draughting and Design	4.0
**51.502	Survey Draughting	1.0
31.502	Technical Writing	1.0

* Pending previous experience, this course may be taken as an alternative to course 49.900.

** Pending previous experience, this course may be taken as an alternative to course 49.905.

YEAR II	(Term I)	Units
42.102	Hydrology	1.0
44.908	Alternatives in Plant Protection	1.0
YEAR II	(Term II)	
45.266	Ecology	1.5
YEAR III	(Term I)	
42.103	Statics	1.0
44.909	Landscape Irrigation	1.0
YEAR III	(Term II)	
45.326	Habitat Evaluation	1.5
42.205	Strength of Material	1.5

British Columbia Society of Landscape Architects may issue a Landscape Technician's Certificate to applicants who have obtained a minimum of 10 units upon successful completion of the courses 53.901 to 53.911, plus a minimum 10 units in technical education and practical training within the field of landscape technology. For further information on how to obtain credits, *see* the course co-ordinator, E. Ibsen Brodersen.

Students who require advice in this programme should read section 3 on "Programme Consultation" on page 15 of this calendar.

COURSES IN LANDSCAPE TECHNOLOGY

53.901 Structural Material

Structural material study for landscape developments (rock, concrete, brick, wood, asphalt, glass and plastic).

Purpose - Material introduction with specifications for students with little or no experience in landscape technology.

Objective - On completion of the course the student can expect to have the foundation knowledge of the origin, qualities, and use of the material in landscape design and management and to specify this material for specific jobs.

Outline - The lectures will provide a cross-section of above materials and lead to specification exercises. Topics include selection and location of materials in the landscape fabrics, expecially rock, cement, concrete, masonry (clay and concrete), wood, asphalt.

This is the first part of the Structural section in the Landscape Technology Program.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

53.902 Soil Improvement

(Soil technology for landscape developments.)

Purpose - To allow persons with little or no experience in soil and soil improvement to gain an understanding of soils and improvement of soil for plant growth, also to gain basic knowledge of water and forest influence on soils in horticulture as well as in soil mechanics.

Objective - On completion of the course a student can expect to - (1) have a basic knowledge of soils and soil biology and of soil mechanics: (b) be knowledgeable of soil improvements for plant growth and of drainage and irrigation; (c) have basic knowledge of soil compaction, permeability, and soil pressure.

Outline - A mixture of lectures and discussion. Topics include subsoils, topsoils; organic and inorganic soil improvement media; erosion control; surface and subsurface drainage; irrigation; earth pressure of concern for such as retaining-walls and foundations for structures in landscape projects.

This course also forms the first part of the Horticulture section within the Landscape Technology Programme (53.902, 53.906, 53.911, 53.907 and 53.910).

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (18 weeks) *Units:* 1.5

53.903 Grading and Drainage

(Grading and drainage plan production)

Purpose - This is a draughting course, introducing persons with some training in technical draughting and some knowledge of soil technology for landscape use to requirements and techniques concerning grading and drainage of land.

Objective - On successful completion of the course a student can expect to know sources of information concerning Governmental regulations covering grading and drainage of land, and be capable of producing detail plans showing grading and drainage of areas for landscape projects.

Outline - A mixture of lectures and discussion leading to practical draughting exercises in detail plan production. Before the last four nights of the course, the students are given a

special home assignment to present on the last night of the course.

This is also an integrated part of the three-year programme in Landscape Technology.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

53.904 Landscape Structurals

(Landscape structural detail drawing.)

Purpose - To introduce persons with basic knowledge of landscape materials and some training in technical draughting to the production of structural detail plans for use in the landscape industry. It is essential to know that design, selection, and use of structural materials in landscape projects usually differ from the use of such material in the building industry.

Objective - On successful completion of the course a student can expect to have a basic knowledge of what technical details a landscape working drawing consists of and be able to produce detail plans for structural items commonly used in landscape projects.

Outline - A mixture of lecture periods, short field trips, and draughting practice, i.e., draughting projects assigned weekly to be completed in class and as homework. The following areas will be covered: Access — driveways, walks, stairs, patios, plazas. Retention — walls, cribbing, piling, bulkheads, fencing. Water — ponds, streams, waterfalls, fountains. Miscellaneous — pergolas, seats, fireplaces, landscape lighting, and irrigation. Presentation drawing — sketching, preparation, method of presentation, etc. Site work — recording existing data.

This course is also the second part of the Structural section in the Landscape Technology Programme (53.901 and 53.904).

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

53.905 Park and Recreation

(A study of parks and recreation facilities.)

Purpose - To make it possible for persons with little or no experience in the maintenance and (or) basic design of parks and recreation facilities to gain working knowledge in this field.

Objectives - On completion of the course the student can expect to (a) have basic knowledge of what facilities are required for parks and recreation areas for public use: (b) be knowledgeable about layouts of areas for indoor or outdoor sports and other recreation facilities; (c) to know how and where to obtain information on regulations governing the layout of such areas; (d) have basic knowledge of maintenance requirements for recreation facilities.

Outline - A mixture of lectures and discussions on the provision of recreational facilities, planning principles, and space requirements for sports, art education, etc. Facilities to be discussed are swimming pools, ice arenas, lawn bowling, curling, golf, marinas, resorts, beaches, children's playground. General features - fences, walls, lights, parking, etc. General maintenance. Also the actual design and draughting of one major community park.

This course is also an integrated part of the three-year programme in Landscape Technology.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Units:* 1.5

53.906 Basic Horticulture

(Basic horticulture and plant protection for landscape use.)

Purpose - To introduce persons with no or little knowledge of horticulture to the study of plants and their value in landscape developments.

Objective - On completion of the course the student can expect to have a basic knowledge of botany: plant classification, identification, propagation, food requirements, hardiness; and handling and protection of plants from nursery to future site.

Outline - A mixture of lectures and discussions. The students will be introduced to ways of preparing plants for herbarium and will be required to start such herbarium for use in courses 53.911 and 53.907.

This course also forms the second part of the Horticulture section within the Landscape Technology Programme.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10

Term II (18 weeks) *Units:* 1.5

53.907 Plant Material Study

(Plant material studies for landscape use.)

Purpose - To allow persons with a limited knowledge of plant material to further study these materials with specific reference to their suitability for use in man-made landscapes and particular types of landscape projects.

Objective - On successful completion of the course the student can expect to have knowledge of the types and varieties of indigenous and exotic trees, shrubs and ground covers, with the characteristics and values which aid in the selection of these materials for use in landscape.

Outline - A series of lectures, discussions, and field trips on trees, shrubs, herbaceous and evergreen ground covers, and vines, including descriptions and characteristics, varieties, their landscape use and value, cultural conditions, size and spread in seven to ten years, hardiness zone, availability, and available sizes. Each student is expected to research specific varieties and species and include these along with the course material, presenting these in the form of a handbook, usable for future reference.

This course also forms the fourth part of the Horticulture section of the Landscape Technology Programme (53.902, 53.906, 53.907, 53.910 and 53.911).

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Unit:* 1.0

53.908 Management

(Management for landscape technicians.)

Purpose - To provide a background of management skills required in the area of landscape developments, including the legal requirements affecting land use contract documentation, ethics, and professional liability.

Objective - Upon completion of the course the student can expect to have basic knowledge of professional responsibilities in respect to (a) the consultant's relationship to client and contractor: (b) the contractor/client relationship; (c) the production of contract documents, legal liability, and contract supervision.

Outline - The course consists of lectures and discussion aimed to give an insight into the practical relationship between client contractor, and consultant which must exist to produce

acceptable development. Students will require some basic standard documents to be used during the course.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Unit:* 1.0

53.909 Cost Estimation

(Area take-off and cost estimation for landscape technicians.)

Purpose - To introduce persons with limited or no experience in cost estimation of landscape projects to (a) methods of area and volume survey; (b) study of work capacity; (c) administration and maintenance costs: (d) methods of journal and accounting.

Objective - On completion of the course the student can expect to do such area and volume survey from landscape plans as to establish quantity and capacity as bases for cost estimation.

Outline - Mathematics, area, volume, surface; weights and measures; cuts and fills; work capacity - man-hours, equipment; overhead expenses, journal, bookkeeping and introduction to the metric system.

This course also forms an integrated part of the three-year programme in Landscape Technology.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9
Term II (18 weeks) *Units:* 1.5

53.910 Planting Plan

(A draughting course in planting plan production.)

Purpose - To allow persons with some knowledge of horticulture, soil, and plants, and with some experience in technical draughting, to further study plant material for use in landscape projects, and to lay out detail planting areas.

Objectives - On successful completion of the course a student can expect to (a) be knowledgeable of climate and soil tolerance and plant behaviour in major populated areas in British Columbia and (b) be able to produce detail planting plans for a given master plan for land development in this Province.

Outline - A mixture of lectures, discussion, and practice sessions. Topics include climate and soil condition; solitary, group, and mass planting: plant size, quality and distance at planting; specification of material and planting procedure.

This course also forms the fifth part of the Horticulture section within the Landscape Technology Programme (53.902, 53.906, 53.907, 53.910 and 53.911).

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10
Term II (18 weeks) *Units:* 1.5

53.911 Plant Introduction

(Introduction of plant material for landscape use.)

This course consists mainly of field trips.

Purpose - To introduce students with limited knowledge of trees, shrubs, and herbaceous plants to such plant material as is used within the field of landscape developments.

Objective - On completion of the course the student can expect to have gained knowledge of such as size, form, colour, and growing habit of trees, shrubs, vines and climbers, perennials, annuals, and other herbaceous plants. The student will also be given

information as to the suitability of plants in this local climate zone.

Outline - Two classroom evenings. Two field trips to nursery. Eight field trips to introduce native trees, park trees, street trees, older park shrubs, herbaceous plants, turf.

This is also the third part of the Horticulture section of the Landscape Technology Programme (53,902, 53.906, 53,907, 53,910, 53,911). The students will be expected to collect leaves, twigs, etc., for the preparation of herbarium for use in course 53.907.

Tuesday: 6:45-9:45 p.m. *Begins:* June 6

Term III (12 weeks) *Unit:* 1.0

MECHANICAL TECHNOLOGY

Engineering Technician Certificate in Mechanical Technology.

The following is a suggested programme for the basic Certificate in Mechanical Technology.

Students in consultation with an advisor may amend this programme to meet their personal career requirements.

The three-year period is flexible. Fifteen units are required for this Certificate.

32.901	Mathematics — Algebra II	1.0
32.902	Mathematics — Logarithms	1.0
32.903	Mathematics — Trigonometry	1.0
41.502/602	Metallurgy I	2.0
49.915/6/7	Applied Mechanics	3.0
49.918	Mechanics of Materials I	1.5
49.920	Mechanics of Fluids	1.0
49.921	Applied Heat	1.0
49.543/643	Manufacturing Processes I	2.5
49.900	Draughting — Fundamental	1.0
		15.0

Students are advised to complete the Engineering Technician Certificate before advancing to other certificates or to the National Diploma programme.

Senior Engineering Certificate in Mechanical Technology.

32.505/605	Mathematics — Calculus I	2.0
31.503/603	Business & Technical Report Writing	
	Or	
31.505/605	Technical Writing	2.0
33.509/609	Physics II	2.0
49.919	Mechanics of Materials II	1.5
49.922	Engineering Economics	1.0
49.544/644	Manufacturing Processes II	2.5
49.903	Draughting Mechanical I	1.5
49.542/642	Fluid Power	2.5
		15.0

Students are advised to complete the Senior Engineering Technician Certificate before advancing to the National Diploma Programme.

National Diploma in Mechanical Technology.

Applicants will be required to submit the selection of electives required in this programme to the Programme Consultant.

Draughting — Mechanical	1.5
Electives in Mechanical Technology	10.0
Other approved electives	3.5
	15.0

Several specialty areas in Mechanical Technology are shown below in chart form so that students have the necessary background material and prerequisites to benefit from particular courses.

CHART NO. 1

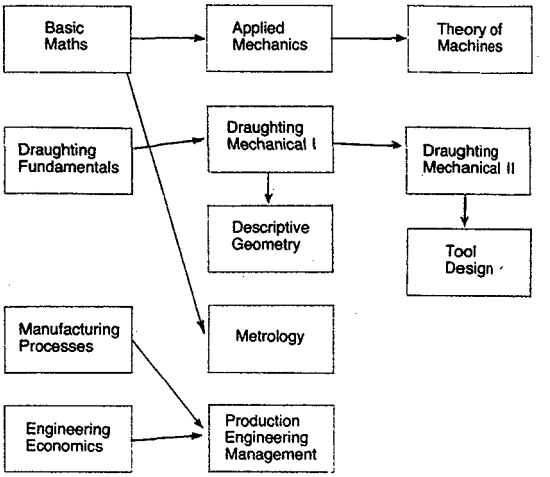
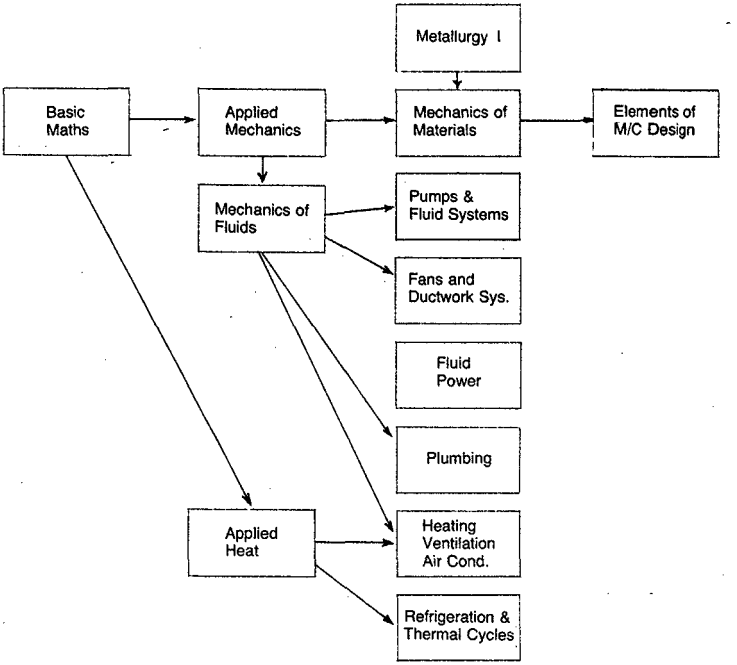


CHART NO. 2



COURSES IN MECHANICAL TECHNOLOGY

49.915/916/917 Applied Mechanics

Purpose – This course is intended to help persons understand how forces affect mechanical systems.

Objective – Students completing this course will be able to understand problems involving calculations of forces in mechanical design. Completion of the course is essential in order to handle more advanced engineering topics and is a prerequisite for many more advanced courses.

Outline – Vector algebra and applications to forces, moments, couples, displacement, velocity and acceleration. Free-body diagrams and force analysis of structures. Friction, centroid and moment of inertia of an area. Beams, types of loads, shear and moment diagrams. Hydrostatics, centre of pressure, and related topics. Kinematics and kinetics of particles and rigid bodies. Laws of motion. Definitions and calculations involving work, energy and power. Centrifugal force, balancing of rotating masses.

PART I

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12
49.915 Term I (12 weeks) — *Unit:* 1.0

PART II

Monday: 6:45-9:45 p.m. — *Begins:* Jan. 9
49.916 Term II (12 weeks) — *Unit:* 1.0

PART III

Monday: 6:45-9:45 p.m. — *Begins:* Apr. 3
49.917 Term III (12 weeks) — *Unit:* 1.0

Prerequisite – Algebra II, Trigonometry and Logarithms.

49.918 Mechanics of Materials I

Purpose – To provide understanding and basic skills in problem-solving in an important area for mechanical engineering design. This course is intended for designers, draughtsmen, technical sales personnel, etc. and is relevant to companies concerned with design and/or manufacture of products subject to loads or internal pressures.

Objective – To provide students with basic skills that help them to decide on the size of a part subject to static loading with safety, and is a prerequisite for Mechanics of Materials II.

Outline – Properties and testing of materials tension, compression, shear, torsion, bending and deflection. Statically indeterminate axial, torsional, and bending systems, combined loading and use of Mohr's Circle to determine principal stresses; columns, rivetted and welded connections.

Tuesday: 6:45-9:45 p.m. — *Begins:* Jan. 10
Term II (18 weeks) — *Units:* 1.5

Prerequisite – Applied Mechanics I, II and III.

49.919 Mechanics of Materials II

Purpose – To provide advanced study in Mechanics of Materials and as a prerequisite to Elements of Machine Design.

Objective – To provide students with advanced skills to aid in the design, specification and analysis of complicated structures and machine parts.

Outline – Fatigue and stress concentration, fatigue testing methods and equipment, S-N

curves, terminology; photoelastic, strain gauge methods of statically determinate and statically indeterminate type members by area moment propositions and double-integration methods; mechanical, physical and manufacturing properties of common engineering materials; columns, slender, intermediate and short columns; slenderness ratio, end conditions, design of columns and use of handbook formula; eccentric loading, combined stresses, principal stresses and strains due to combined torsional and bending stresses; theories of failure, thick-walled and compound cylinders stress distribution in wall thickness, shrinkage allowances.

Wednesday: 6:45-9:45 p.m. — *Begins:* Jan. 11
Term II (18 weeks) — *Units:* 1.5

49.920 Mechanics of Fluids

Purpose – This course is designed for students requiring a basic understanding of fluid properties and determination of energy losses involved in fluid systems.

Objective – To provide the students with the necessary skills so that any fluid process or system may be analyzed for fluid energy losses or power requirements. Students wishing to take more advanced practical engineering courses in fluid systems will benefit from understanding the principles.

Outline – Basic properties of fluids; Bernoulli's Equation, energy and power transfer; flow measurement and pipe flow characteristics for both liquids and gases; heat and energy losses; laminar and turbulent flow characteristics with an introduction to fluid lift and drag; forces due to change in fluid flow.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13
Term I (12 weeks) — *Unit:* 1.0

Prerequisite – Applied Mechanics I

49.921 Applied Heat

Purpose – To provide students with a basic understanding of the fundamentals of applied thermodynamics.

Objective – Would be helpful to students involved in the power and process fields and to those who intend to take more specialized courses in heating, ventilating, refrigeration and heat transfer.

Outline – Fundamental concepts, steady flow and non-flow systems. Carnot cycle, entropy, properties of liquids and gases, properties of steam and vapor processes, ideal gas processes, mixtures of gases, psychrometric chart, power cycles, refrigeration and heat transfer.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 14
Term I (12 weeks) — *Unit:* 1.0

Prerequisite – Algebra II, Trigonometry and Logarithms.

49.922 Engineering Economics

Purpose – This course is designed to emphasize the importance of making sound economical decisions when faced with alternative methods of solving technical problems. The course material will be useful to engineers, technologists, technicians and designers in all areas both in their work and personal finances.

Objective – To provide the basic skills and concepts required to analyze comparative costs. To understand the time value of money (interest), inflation, depreciation, running costs, salvage value and tax considerations.

Outline – Cash flow diagrams and equivalence, interest formulae, annual cost, present

worth, dealing with uncertainties and inflation, taxes, economic lot sizes, replacement of equipment.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Unit:* 1.0

49.923 Pumps and Fluid Systems

Purpose – To provide an understanding of the various types of pumps and their application in different systems.

Objective – To distribute desired liquid flow quantities throughout pipe systems and to properly select the type of pump and understand its operating conditions.

Outline – Classification of pumps, centrifugal pump theory, pump construction; pump drives, variable speed couplings, characteristics of pumping systems, special industrial pump applications and controls; pump installation and maintenance.

Tuesday: 6:45-9:45 p.m. *Begins:* Jan. 10
Term II (12 weeks) *Unit:* 1.0

Prerequisite – Mechanics of Fluids.

49.924 Fans and Ductwork Systems

Purpose – This course is intended to provide an understanding of the types of fans and their application together with an approach for sizing duct supply, exhaust and conveying systems.

Objective – To lay out a duct system to deliver the required air quantities in various systems and to select the proper equipment to suit each system.

Outline – Air distribution in heating and air conditioning systems; capture velocity and design of exhaust systems; ventilation in industry with applications to suit class personnel; pneumatic conveying, laboratory tests on types of fans will be included in the course.

Tuesday: 6:45-9:45 p.m. *Begins:* Apr. 4
Term III (12 weeks) *Unit:* 1.0

Prerequisite – Mechanics of Fluids.

COURSES IN MECHANICAL TECHNOLOGY

49.900 Draughting Fundamentals

Purpose - To provide a working knowledge of the basic graphical language. This course will be of value to management personnel and others involved in "reading drawings". No previous draughting experience is required since the course starts from the ground up. Purchase of draughting equipment is required.

Objective - This course will enable the student to produce and to read drawings.

Outline - Scales, geometric constructions, method for basic orthographics, detail interpretation, line visibility, dimensioning, auxiliary views, true shape, inclined and skew surfaces, sections, pictorials, working drawings and freehand sketches.

Tuesday: 6:45-9:45 p.m. or *Begins:* Sept. 13
Thursday: 6:45-9:45 p.m. Sept. 15

Term I (12 weeks) *Unit:* 1.0

This course will be repeated in Term II beginning Tuesday, January 10 or Thursday, January 12, 1978.

49.903 Mechanical Draughting I

Purpose - To provide an adequate degree of skill, proficiency and understanding of mechanical engineering drawing.

Objective - To enable students to handle effectively graphical design situations and problem solving using basic skills and to handle information in more technical applications as would be expected of a mechanical technician.

Outline - Introduction to descriptive geometry, developments, threads and fasteners, weld symbols, limits and fits, surface roughness symbology, piping (iso and ortho), single line diagrams, assembly drawings, geometric tolerances, bill of materials and catalogue specifications.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) 1 *Units:* 1.5

Prerequisite: Draughting Fundamentals

49.904 Draughting - Electrical & Electronics

Purpose - To provide a general insight into the various aspects of electrical and electronic draughting; to give circuit and/or PCB designers and manufacturers a better understanding of the mechanical problems of installation. For all personnel involved in electrical and electronic device manufacturing.

Objective - The student should become reasonably proficient in understanding and applying various skills and techniques and be able to complete electrical and electronic drawings to a technologist level of competence.

Outline - Covers descriptive geometry, mechanical hardware, electronic device symbols, production drawings, block schematic and wiring diagrams, PCB's, wiring and industrial controls.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (12 weeks) *Unit:* 1.0

Prerequisite: Draughting Fundamentals.

49.905 Draughting — Civil and Structural

Purpose - To provide a general insight into the graphical aspects of civil and structural problems.

It will be of benefit to management, construction workers, foremen, planners and estimators.

Objective - To provide a good understanding and reasonable proficiency in applying skills and techniques for solving civil and structural engineering problems at a technologist level.

Outline - Covers topographical draughting, intersections and developments, descriptive geometry, contours, sections, profiles, cuts and fills with civil and structural problems and projects.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (12 weeks) *Unit:* 1.0

Prerequisite: Draughting Fundamentals

49.906 Descriptive Geometry

Purpose - To provide for an increase in orthographic draughting skills. This course will help draftsmen, designers and technicians to solve problems in engineering as encountered in piping, production engineering, mining and mechanical design.

Objective - To develop graphic skills that enable students to solve problems more advanced than those generally encountered.

Outline - Skew lines and planes, angle between planes; parallelism, perpendicularity, least distance between skew lines, angle between line and oblique plane, cutting plane, intersections, three dimensional forces and engineering problems.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Unit:* 1.0

49.907 Mechanical Draughting II

Purpose - This course will be of interest to those presently engaged in draughting positions who desire to further their knowledge in the drawing and design field.

Objective - To provide challenge and experience in the mechanical draughting area.

Outline - Cam profiles, displacement diagrams, graphical solutions for engineering problems, deflection of stepped shafts, graphical calculus methods, design of mechanical assemblies to suit manufacturing methods.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (18 weeks) *Units:* 1.5

Prerequisite: Mechanical Draughting I

49.520/620 Sizing of Heating, Ventilation, Refrigeration & Air Conditioning Systems

Purpose - To provide a design course for technical people involved with heating, ventilation, refrigeration and air conditioning systems.

Objective - To understand the principles of load estimating and energy requirements and to select the proper equipment to suit the application. To control the equipment to suit the needs of the occupants.

Outline - Energy costs for oil, gas and electricity; to suit design conditions, head load, cooling load, air psychometrics; air conditioning systems and applications; equipment for heating; refrigeration equipment; introduction to duct layout; air balancing methods in air systems; control of systems.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Units:* 2.5
Term II(18 weeks)

Prerequisite: Applied Heat and Mechanics of Fluids.

49.542/642 Fluid Power

Purpose – To provide an understanding of pneumatic, fluidic and hydraulic control systems including circuit components. This course should be of value to people in industries where control and powering of mechanical equipment and processes is needed.

Objective - Understanding of pneumatic circuits and air valve operations; introduction of fluidic devices; specification of hydraulic components including capacity and power requirements. To represent circuits with correct ANSI symbols.

Outline - Fluid power circuits will be set up during class to familiarize the student with components and systems. The course will include topics of interest depending upon student requirements as well as valve operation, compressed air systems, fluid logic, hydraulic actuators and pumps, etc.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12
Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

49.929 Refrigeration, Heat Transfer & Thermal Power Systems

Purpose - To treat in greater depth, refrigeration systems and equipment introduced in Applied Heat, to give students experience in solving heat exchange problems and to study modern thermal power generating systems.

Objective - To give students a greater understanding of refrigeration systems by solving problems and undertaking practical lab investigations; to understand the principles of heat transfer and be able to solve simple problems in the design of heat exchangers; to become more familiar with modern power generating systems and equipment.

Outline - Vapor compression refrigeration cycles, multi-stage and cascade systems, absorption systems of refrigeration, the heat pump, steam-jet chiller. Heat transfer theory, conduction, convection, radiation. Problems in heat exchanger design, experimental investigations of heat transfer. Modern power generating cycles, reheat, regenerative feed water heating, fossil fuel fired Rankine cycles, gas turbine intercooled, regenerative cycles.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11
Term II (18 weeks) *Units:* 1.5

Prerequisite: Applied Heat.

49.531/631 Elements of Machine Design

Purpose – For persons associated with mechanical design which is an integral and important part of industrial activity that incorporates mechanisms, machines and their functions into industrial processes.

Objectives - To review and consolidate the theory of prerequisite courses by application to the design of machine elements. To provide practice in the process of breaking down general design problems into components that a student can cope with. To provide some additional theory for the design of machine elements.

Outline - A course in which the design principles of machine elements are considered and calculations are made in determining the size and shape of various machine parts. It includes factors which influence the selection of materials, the geometry of the element, and it considers the environment of application of any particular machine element. Attention is given to economy, various loading conditions, stresses, and deformations which must be considered in arriving at a satisfactory design.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

Prerequisite: Applied Mechanics and Mechanics of Materials.

Engineering Technician Certificate in Draughting

Course No.	Subject	Units	Weeks
49.900	Draughting—Fundamentals	1.0	12
49.903	Mechanical Draughting I	1.5	18
49.906	Descriptive Geometry	1.0	12
	Approved Electives	11.5	
		15.0	

49.927 Plumbing Systems Design I

Purpose - Instruction for persons involved in engineering, design, sales supervision or inspection of plumbing systems located in commercial and industrial buildings.

Objective - Persons graduating will be able to determine the selection, location and installation requirements of piping, fixtures and appliances for compliance with respective codes, regulations, manufacturers' specifications and engineering practice.

Outline - Codes, basic engineering principles and graphic presentations related to plumbing systems designs. Load calculations, piping methods, sizing of pipes and equipment selection for storm, sanitary drainage and water distribution. Fixtures and materials. There will be homework assignments each week, some requiring drawing. The course outline is based on a 12 week course of 3 hours class time per week.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Unit:* 1.0

49.928 Plumbing Systems Design II

Purpose - Advanced instruction for persons involved in engineering, design, sales, supervision or inspection of plumbing and gas piping systems of commercial and industrial projects.

Objective - Graduates will be able to design, apply and adopt various plumbing systems to commercial and industrial premises in compliance with regulations and specifications compatible with the requirements of the occupant.

Outline - Topics include: load calculations, piping methods, approved materials, pipe sizing for storm and sanitary drainage plus hot and cold water distribution, septic tank systems, gas piping and appliance installation, pumps and field inspection techniques.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (18 weeks) *Units:* 1.5

Prerequisite: Plumbing Systems Design I.

49.543/643 Manufacturing Processes I

Purpose - To provide a general insight into the various aspects of production engineering related to manufacturing. Designed for persons entering or presently engaged in the mechanical field.

Objective - To become reasonably proficient in understanding the problems of manufacturing. For persons basically involved in manufacturing, its methods will be of value in upgrading to management levels.

Outline – Through lectures, demonstrations, assigned problems and practical experience. The course content is presented in two parts.

Part I

The study of modern manufacturing processes, casting, welding, hot and cold forming, extruding, forging, die casting, stamping and pressing. Field trips to appropriate local industries are arranged.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

49.544/644 Manufacturing Processes II

Purpose - To provide a general insight into the various aspects of production engineering related to manufacturing. Designed for persons entering or presently engaged in the mechanical field.

Objective - To become reasonably proficient in understanding the problems of manufacturing. For persons involved in manufacturing, its methods will be of value in upgrading to management levels.

Outline – Through lectures, demonstrations, assigned problems and practical experience. The course content is presented in two parts.

Part II

The study of modern machine tools, machinability of materials, practical experience on all of the basic machine tools, engine lathe, turret lathe, vertical and horizontal milling, shaping, planing, surface and cylindrical grinding, band sawing and drilling machines.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

49.925 Metrology

Purpose - To familiarize people with inspection methods and equipment as used in industry.

Objective - To understand the principles of various measuring methods and their practical uses in industry.

Outline - Interferometers, optical comparators, measurement of surface texture and surface flatness. Air and electronic gauging procedures. Metrology of angles and screw threads. Use of precision measuring instruments. Mass production gauging.

Monday: 6:45-9:45 p.m. *Begins:* Jan. 9

Term II (18 weeks) *Units:* 1.5

Prerequisite: Algebra II, Trigonometry and Logarithms

49.926 Analysis of Machining Techniques

Purpose - To familiarize people with operations done on machine tools such as tape control drill, jig borer, milling machine, cylindrical grinding, etc.

Objective - To provide an in-depth study of the operations carried out on the above machine tools.

Outline - Through a series of projects which emphasize practical work in small groups, the student is involved in such laboratory exercises as programming for a numerical control machine, jig boring operations, milling machine operations and a turret lathe process. Each of these projects includes organizing the sequence of operations, processing, programming, time and cost estimating, machine and tool set-up, manufacture, inspection and quality control.

Wednesday: 6:45-9:45 p.m. — *Begins:* Jan. 11

Term II (18 weeks) — *Units:* 1.5

49.545/645 Tool Design

Purpose - This course is intended to help those working in industry who could benefit by a broadening of their activities into the field of special purpose tooling in the subjects mentioned in the outline.

Objective - To enable students, upon completion of course, to handle problems in the area of design, as related to special purpose tooling.

Outline - Introduction to special purpose tooling, process planning, design considerations of various types of jigs, fixtures, gauges, metal cutting dies, feed mechanisms, presses, scrap strip layout, standard parts. Some design assignments may be worked on by students away from the classroom, as time permits.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13

Term I (12 weeks) — *Units:* 2.0

Term II (12 weeks)

49.585/685 Production Engineering Management

Purpose - To provide an insight into aspects of management and the engineering planning functions of a manufacturing plant. This course is intended for technicians, designers, draftsmen, technical sales personnel, etc. who wish to have a clearer perception of the kinds of decisions that are made continuously in a manufacturing organization and who wish to upgrade themselves to management levels.

Objective - To provide an understanding of manufacturing problems. To provide some basic skills in process planning, supervision and labour-management relations.

Outline - Management and plant organization, plant locations and layouts, production control, tool engineering, process planning, economics in manufacturing methods, supervision, labour relations, case studies.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Units:* 2.5

Term II (18 weeks)

MINING TECHNOLOGY

Engineering Technician Certificate in Mining Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)	Units	*January (Term II)*	Units	*April (Term III)*	Units
YEAR I					
Mathematics—Algebra II (32.901)	1.0	Mathematics—Logarithms (32.902)	1.0	Mathematics Trigonometry (32.903)	1.0
Geology (50.502)	1.0	Geology (50.602)	1.0		
YEAR II					
Physics I (33.508)	1.0	Physics I (33.608)	1.0	Elective	1.0
Mining (50.503)	1.0	Mining (50.603)	1.0		
YEAR II					
Business and Technical Report Writing (31.503) *Or* Technical Writing (31.505)	1.0	Business and Technical Report Writing (31.603) *Or* Technical Writing (31.605)	1.0	Elective	1.0
Elective	1.0	Elective	1.0		

List of Suggested Electives

		Units
41.505/605	Mineral Analysis	4.0
42.103	Statics	1.0
51.540/640	Engineering Surveying	2.5
42.205	Strength of Materials	1.5
49.900	Draughting — Fundamental	1.0
33.404	Mining Geophysics	1.5

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in Mining Technology

50.502/602 Geology

Purpose - To allow people in the mining industry who have had no formal training in geology an opportunity to obtain a framework on which previous and future geological experience can be organized. Suitable for anyone with an interest in general geology.

Objectives - In addition to gaining an outline of geology as related primarily to mining, the student will be competent in identifying the common economic and rock forming minerals and in classifying the more common rock types. Additionally, he will have some appreciation of the economic value of minerals, and an insight into the structural problems associated with orebodies.

Outline - Definition, basic concepts, earth's crust, geologic time; atomic structure of minerals, crystal forms, and symmetry systems, properties of common minerals; sedimentary rock types; clastic and chemical sedimentaries; igneous rock types; classification; deformation of earth's crust, folds, faults, metamorphic rocks; weathering erosion and glaciation; economic geology, mineral fuels, nonmetallics, ore deposits and their controls; geological history, precambrian, paleozoic, mesozoic, tertiary, pleistocene, geologic maps.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Units:* 2.0
Term II (12 weeks)

A full day field trip will be included during the term.

50.503/603 Mining

Purpose - For people in the mining industry who have had no formal mining training an opportunity to obtain an outline on which previous and future mining experience can be organized. Suitable for anyone with an interest in a broad picture of mining.

Objectives - To familiarize the student with all phases of the mining industry and introduce him to some elementary calculations for determining ore reserves.

Outline - Nature of the mineral industry, search for economic mineral deposits; exploration of a mineral deposit, sampling methods, weighting and averaging assay values, calculation of ore reserves; acquisition of title to mining property, the claim system; exploitation of deposits, choice between surface and underground methods, development patterns for underground mining, planned systematic extraction, classification of surface and underground mining methods, description of common methods using actual examples, reclamation methods.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14

Term I (12 weeks) *Units:* 2.0
Term II (12 weeks)

50.901 General Interest Geology and Prospecting

Purpose - To give an introduction to the basic principles of geology and how these are applied to prospecting. At the same time some of the methods and equipment used in prospecting will be discussed. Designed for the part-time prospector and full-time prospectors.

Objectives - The student will be capable of identifying the common rock-forming minerals, rocks, and ore minerals; will have an appreciation of geological structures and what constitutes an ore deposit; will be able to read topographic and geological maps and

understand the procedure for staking claims; will have some proficiency in the use of the magnetic compass, dip needle, scintillometer, mineral lamp, gold pan, and geochemical soil-sampling kit; will understand the application of diamond drilling.

Outline - The topics indicated in the above objectives will be studied in a very practical "hands-on" approach. Lectures and films will be used to assist in giving the student practical prospecting techniques.

Wednesday: 6:45-9:45 p.m. *Begins:* Jan. 11

Term II (14 weeks)

A full day field trip will be included during the term.

NATURAL GAS AND PETROLEUM TECHNOLOGY

Engineering Technician Certificate in Natural Gas and Petroleum Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Mathematics—Algebra II (32.901)	1.0	Mathematics—Logarithms (32.902)	1.0	Mathematics Trigonometry (32.903)	1.0
Distribution and Utilization—Gas (47.521)	1.0	Distribution and Utilization—Gas (47.621)	1.0		
YEAR II					
Chemical Principles I (30.902)	2.0	Chemical Principles II (30.903)	2.0	Elective	1.0
Gas and Oil Production and Transmission (47.501)	1.0	Gas and Oil Production and Transmission (47.601)	1.0		
YEAR III					
Elective	1.0	Elective	1.0	Elective	1.0

List of Suggested Electives

		Units
51.540/640	Engineering Surveying	2.5
41.502/602	Metallurgy I	2.0
48.901	Process Instruments I	1.0
48.902	Process Instruments II	1.0
33.508/608	Physics I	2.0
31.503/603	Business & Technical Report Writing	2.0
31.505/605	Technical Writing	2.0

Students who require advice in this programme should read Section 3 of "Programme Consultation" on page 15 of this calendar.

Courses in Natural Gas and Petroleum Product Technology

The courses Distribution and Utilization-Gas, Gas and Oil Production and Transmission, and Refining and Utilization-Oil are offered to present and potential employees in the natural gas and petroleum industries. The student can expect to learn the general technology applicable to his field and to related areas of industry. He will work with instruments and equipment in the laboratory similar to that which might be experienced in employment.

The knowledge gained will be directly applicable for a fuller understanding of any present position and may allow transfer or promotion to other areas of speciality.

Each course consists of alternate weeks of lecture and laboratory with field trips arranged as feasible.

47.521/621 Distribution and Utilization - Gas

City gas stations; regulation and colorization; high, medium, and low-pressure distribution systems; network analysis; service regulations; meters; conbustion stoichiometry; furnaces, boilers, installation codes; industrial and power utilization; corrosion control; peak shaving; storage.

Tuesday: 6:45-9:34 p.m. — *Begins:* Sept. 13

Term I (12 weeks) — *Units:* 2.0
Term II(12 weeks)

47.531/631 Refining and Utilization - Oil

Crude Oil, distillation, cracking, thermal and catalytic, reforming, hydrogenation;oil products, product testing, storage, loading, combustion stoichiometry; oil and gas engines, oil burners.

Monday & Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 12

Term I (12 weeks) — *Units:* 5.0
Term II (18 weeks)

47.501/601 Gas and Oil Production and Transmission

Petroleum geology, reservoirs, exploration, well-drilling, field production and treatment, conservation, gathering and transmission systems, pipe-line construction and maintenance, corrosion protection, compressor and pumping stations, flow computations, economics of design, measurements, laws and regulations.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Units:* 2.0
Term II (12 weeks)

47.502/602 Introduction to Petroleum Product Utilization

This course is intended for persons involved in the sales and use of petroleum products. While all petroleum products will be covered, particular attention will be given to lubricants and power transmission by hydraulic fluids.

Course content - Petroleum hydrocarbons, crude oils, reservoirs and wells, refinery operations, production of lubricants, special properties and additives, internal-combustion engines, fuel and lubrication, design of gear power-transmissions and gear lubrication, design of hydraulic fluids, product tests and specifications, metallurgical aspects of wear and failure preventive maintenance by lubricant analysis.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Units:* 2.0

Term II (12 weeks)

SURVEYING TECHNOLOGY

Engineering Technician Certificate in Surveying Technology

The following is a suggested certificate programme attainable over three years.

Students may amend this programme to suit their personal career requirements with the approval of a Programme Consultant.

The three-year period is flexible. Fifteen units are required for this certificate.

September (Term I)		*January (Term II)*		*April (Term III)*	
YEAR I	Units		Units		Units
Field Survey I (51.502)	1.0	Field Survey I (51.602)	1.5		
Survey Computations I (51.501)	1.0	Survey Computations I (51.601)	1.5		
YEAR II					
Mathematics Algebra II (32.901)	1.0	Mathematics Logarithms (32.902)	1.0	Elective	1.0
Field Survey II (51.512)	1.0	Field Survey II (51.612)	1.5		
YEAR III					
Survey Computations (51.511)	1.0	Survey Computations II (51.611)	1.5		
		Elective	1.0		
Plane & Spherical Trigonometry for Surveyors	1.0				

List of Suggested Electives

		Units
51.505/605	Photogrammetry	2.5
51.504/604	Astronomy	2.0
51.507/607	Survey Draughting	2.0
49.903	Mechanical Draughting I	1.5
49.900	Draughting—Fundamentals	1.0
51.502/602	Geology	2.0
45.120	Forest and Range Botany	1.0
42.102	Hydrology	1.0
14.901	Data Processing—Introduction	1.0
33.508/608	Physics I	2.0
31.503/603	Business and Technical Report Writing	2.0

Students who require advice on this programme should read Section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in Surveying Technology

Purposes and Objectives for Survey Computations I, II, and III

Purpose - To train persons with little or no knowledge or experience in surveying computations. Survey computations would be of value to field personnel; instrument men, chainmen, rodmen, etc., at present employed within the surveying industry or taken together with Field Survey courses for those who wish to enter this field.

Objective - On completion of the three courses the student should have reached the standard required to write the computations examinations of the Corporation of B.C. Land Surveyors.

51.501/601 Survey Computations I

Use of logarithms and hand calculators: trigonometric functions; solution of right and oblique triangles; chainage corrections; traverse calculations; missing parts, adjustments of traverses; subdivision of areas; areas of D.M.D.s and co-ordinates; simple circular curves.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

51.511/611 Survey Computations II

Use of electronic calculators and programmed computers: compound and reverse curves; vertical curves; spiral curves; terminal curves; volumes and quantities; subdivision of areas; adjustments of traverse and levelling nets; intersection; resection (three-point problem); eccentric observations (reduction to centre), height of towers, reduction to sea-level, curvature and refraction.

Tuesday: 6:45-9:45 p.m. *Begins:* Sept. 13

Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

51.521/621 Survey Computations III

Shape of earth, spherical excess, Legrendre's theorem, method of additaments, convergence of meridians, geodetic co-ordinates, map projections, theory of errors and their adjustment (lease square adjustment), reliability of observations.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15

Term I (12 weeks) *Units:* 2.5
Term II (18 weeks)

51.502/602 Field Survey I

Purpose - This course is offered to train persons in the field operations of survey work. It is basic surveying designed for persons who intend to make a living at surveying, or for those wishing to upgrade their ability at surveying. This course should be taken in conjunction with Survey Computations I and leads into Field Survey II, III, and IV.

Outline - Fundamental definitions and concepts, fundamentals of field work, fundamentals of field notes, errors, linear measurements, errors in linear measurements, basic problem in chaining, use of compass in surveying, use of level and level rod (theory, field work), errors in levelling, reading transit angles, use of the transit, error in transit work; transit surveying - method of running traverses; stadia surveying - methods of locating detail, plane table, simple curves.

Saturday: 9:00 a.m.-12 noon
Term I (12 weeks)
Term II (18 weeks)

Begins: Sept. 17
Units: 2.5

51.512/612 Field Survey II

Purpose - The course is designed for students who progress from Field Survey I or for students who have had similar field experience in industry. The student should have knowledge of theodolite and level operations and chaining, i.e., the basic techniques which are taught in Field Survey I. It is also assumed that the student will have knowledge of survey computations similar to that acquired in Survey Computations I.

Outline - Horizontal and vertical control by triangulation and trigonometric leveling computing and laying out circular curves and spirals, topography by self-reducing tachometers, highway surveying involving laying out centre line and vertical curves, cross-sections and slope stakes, precise levelling, electronic distance measurement and instrument adjustments.

Saturday: 9:00 a.m.-12 noon
Term I (12 weeks)
Term II (18 weeks)

Begins: Sept. 17
Units: 2.5

51.522/622 Field Survey III

Location of a transportation-line; preliminary considerations; reconnaissance; preliminary survey; projecting the location; the location survey; location of curves - simple, compound, reverse, spiral; cross-section; slope staking; construction; levelling under unusual conditions; field work for monthly estimates; field work for final payments; use of EDM equipment.

Saturday: 9:00 a.m.-12 noon
Term I (12 weeks)
Term II (18 weeks)

Begins: Sept. 17
Units: 2.5

51.532/632 Field Survey IV

Standard surveys, geodetic control surveys, setting landmarks and monuments, surveys for evidence, procedure for resurvey of boundary-lines, resurveys of subdivided lands, restoration of lost corners, right-of-way surveys, limits of errors, subdivision surveys, surveys for photogrammetric control, use of aerial photographs in survey, errors.

Saturday: 9:00 a.m.-12 noon
Term I (12 weeks)
Term II (18 weeks)

Begins: Sept. 17
Units: 2.5

51.540/640 Engineering Surveying

Purpose - This 30-week survey course has been designed to cover a wide range of field techniques and office procedures. The types of learning situations during the course are such that for both field and office work greater emphasis is placed on engineering and construction practices. These practices in general mean that, by adroit uses of methods and instruments, we can make maps, charts, profiles, measure land boundaries, and determine precise sizes, shapes, and locations. A further purpose is to lay out or mark the desired position and elevation of objects to be built or placed as directed by a completed plan.

Objective - On completion of the course the student can expect to be reasonably confident

in the manipulation of a variety of survey instruments and the application of survey methods and skills as used in industry today.

Outline - We expect to have students with varying backgrounds of education and industrial experience and must, therefore, provide a good deal of course flexibility for the student to choose what he feels will be of greater interest and benefit to him personally. Prospective students do not need to feel that the following list of subjects and topics is going to be too difficult to cope with because they are short on formal schooling. Feed-back from former students indicates that in the main they have achieved the level of learning they needed or wanted. The course of studies is so arranged that most of the 30 weeks is spent out of doors learning field methods and the use of instruments by a series of field projects. A shorter length of time is spent in the classroom (usually during inclement weather) calculating and plotting a variety of exercises and information from the student's own field data.

The more important areas of learning will be as follows: Measurements of distances and determination of direction; use of transits, levels, chains, stadia (including tachometers); route survey and earth work, site surveys, construction surveys (layout and control), topographic surveys, introduction to photogrammetry; computations relating to traverses, triangulation and adjustments, areas and volumes, horizontal curves, grades and slopestaking; preparation of topographic plans, plan-profile plates and cross-section plotting. Interpretation of legal plans and survey note-keeping.

Saturday: 9:00 a.m.-12 noon — *Begins:* Sept. 17

Term I (12 weeks) — *Units:* 2.5
Term II (18 weeks)

51.903 Field Course In Electronic Measuring

Objective - To enable persons involved in surveying to understand and operate E.D.M. machines.

Outline - Basic principles of electronic measuring-devices, field operation of tellurometer, field operation of geodimeter, field operation of gyrotheodolite, more recent electronic instruments, trouble-shooting.

Saturday: 9:00 a.m.-12 noon — *Begins:* Sept. 17

Term I (12 weeks) — *Unit:* 1.0

51.504/604 Astronomy I

Purpose - This course is offered as an introductory course into astronomy as used by surveyors. This course should be of particular interest to persons sitting the professional land surveyor examinations.

Objective - Through the use of the BCIT planetarium facilities, students should gain a good grounding in star identification.

Outline - The course includes an introduction to practical astronomy, the celestial sphere, the astronomical triangle; universal time, mean solar time, sidereal time; the emphemeris and star almanacs; instruments used in solar and stellar observations; star identification, observations for latitude; observations for time and longitude; observations for azimuth; observations for position.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12

Term I (12 weeks) — *Units:* 2.0
Term II (12 weeks)

51.505/605 Photogrammetry I

Objective - To introduce interested students to the mechanics of photogrammetry through a combination of theory and practical work. This course should be particularly of interest to persons sitting the professional land surveyor examinations.

Outline - Introduction to photogrammetry; photo interpretation, aerial photographs; cameras; flight-planning for vertical photography; determination of scale; mapping from aerial photographs; mosaics, principle of stereovision; determination of height from aerial photos; route reconnaissance; radial line-plotting; oblique photos, plotting instruments, stereoscopes, sketchmasters, Wild A8, B9. Photographic laboratory procedures.

Wednesday: 6:45-&;45 p.m. — *Begins:* Sept. 14

Term I (12 weeks) — *Units:* 2.5
Term II (18 weeks)

51.906 Plane and Spherical Trigonometry for Surveyors

Purpose - This course is offered as an introductory and a refresher course for any one who has to do any surveying or astronomy calculations. The course should be of special interest to persons intending to write the preliminary examinations for B.C.L.S. articles or for persons wishing to continue into astronomy.

Outline - Trigonometric functions of acute angles; solution of triangles, use of calculating machines; logarithms, trigonometric functions of any angle; trigonometric formulas and identities; radian measure; inverse trigonometric equations; introduction to spherical trigonometry; solution of right spherical triangles; solution of oblique spherical triangles; applications of spherical trigonometry to the terrestrial sphere, celestial sphere, astronomical triangle.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Unit:* 1.0

51.507/607 Survey Draughting

Lettering, technical sketching, scribing, use of ink and various draughting materials. Preparation of preliminary plans, topographical plans; subdivision plans; right-of-way plans in accordance to General Survey Instructions of British Columbia Land Surveryors.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12

Term I (12 weeks) — *Units:*2.0
Term II (12 weeks)

51.908 Description of Deeds

Basic course in writing legal land descriptions for British Columbia. Aimed at helping those preparing for B.C.L.S. final examinations.

Thursday: 6:45-9:45 p.m. — *Begins:* Jan. 12

Term II (12 weeks) — *Unit:* 1.0

MATHEMATICS DEPARTMENT

Students who require programme consultation should read section 3 on "Programme Consultation" on page 15 of this calendar

32.950 Mathematics - Pre-Entry

A review of appropriate mathematical topics for students lacking a Math 12 prerequisite, this course is designed especially as a preparation for first term or quarter B.C.I.T. mathematics courses.

Mathematics - Pre-Entry, 32.950, is offered only to those students who are recommended by the Technology to which they are applying for admission. (The student must have passed Mathematics 11 as a minimum). The procedure is to apply to the B.C.I.T. Registrar for the two-year day program for admission to a Technology, pointing out the deficiency in the Mathematics prerequisite and asking for permission to take the Pre-Entry Mathematics.

Tuesday & Thursday: 6:45-9:45 p.m. — *Begins:* May 16, 1978

Term III (15 weeks)

or

Monday through Friday:
9:00 a.m. to 12 Noon — *Begins:* July 18, 1977
Term IV (6 weeks)

TEXT—"Introduction to Techncial Mathematics" A. J. Washington (Cummings).

Prerequisite: Math 11 or equivalent.

32.951 Mathematics - Preparatory Refresher

A review of appropriate mathematical topics designed especially as a preparation for Basic technical Mathematics. This course is offered only to those students who are recommended by the technology of their choice.

Monday through Friday:
9:00 a.m. to 1:00 p.m. — *Begins:* Aug. 2, 1977

Term IV (4 weeks)

TEXT—"Introduction to Technical Mathematics" A.J. Washington (Cummings).

Prerequisite: Math 12 or equivalent.

32.900 Mathematics—Algebra I

A review of appropriate mathematical topics designed especially as a preparation for Mathematics—Algebra II. The course is tailored to meet the individual needs of the students in the class.

Monday: 6:45-9:45 p.m. *or* — *Begins:* Sept. 12 *or*
Tuesday: 6:45-9:45 p.m. — Sept. 13

Term I (12 weeks)

TEXT—"Introduction to Technical Mathematics" A.J. Washington (Cummings).

This course will be repeated in Term II beginning Monday, January 9, and in Term III beginning Monday, April 3rd.

To assist in the correct placement of students in either 32.900 or 32.901, a diagnostic test based on the content 32.900 will be given to all students in the first meeting of 32.900 and 32.901.

32.901 Mathematics—Algebra II

A course in the application and theory of algebraic functions as used in engineering technologies. Such equations and functions will be considered from an analytical as well as a graphical viewpoint. The programme will include an introduction to right triangle trigonometry and analytic geometry.

Monday: 6:45-9:45 p.m. *or*	*Begins:* Sept. 12 *or*
Tuesday: 6:45-9:45 p.m. *or*	Sept. 13 *or*
Saturday: 9:00-12:00 noon	Sept. 17
Term I (12 weeks)	*Unit: 1.0*

TEXT — "Basic Technical Mathematics with Calculus" A. J. Washington (Cummings).

This course will be repeated in Term II beginning Monday, January 9 or Tuesday, January 10 and in Term III beginning Monday, April 3, 1978.

Prerequisite: 32.900 Mathematics - Algebra I or recent Math 12.

32.902 Mathematics—Logarithms

A study of the theory and application of common and natural logarithms. Topics to be considered include the use of logarithm and antilogarithm tables, the solution of logarithmic and exponential equations, log-log and semi-log graphing.

Monday: 6:45-9:45 p.m.	*Begins:* Sept. 12
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II beginning Monday, January 9 and in Term III beginning Monday, April 3, 1978.

Prerequisite: 32.901 Mathematics - Algebra II.

32.903 Mathematics—Trigonometry

A course for students in Engineering Technologies (except Surveying) in the application and theory of functions. The role of trigonometry in the solution of vector and triangle problems is emphasized. In addition, special consideration is given to the use of trigonometric identities in the solving of trigonometric equations.

Wednesday: 6:45-9:45 p.m.	*Begins:* Sept. 14
Term I (12 weeks)	*Unit:* 1.0

This course will be repeated in Term II beginning Wednesday, January 11 and in Term III beginning Wednesday, April 5, 1978.

Prerequisite: 32.901 Mathematics - Algebra II.

32.505/605 Mathematics (Calculus I)

An introductory course in calculus and its technical applications involving the differentiation and integration of algebraic functions. Some of the topics included are related rates, curve sketching, applied maxima and minima, areas, volumes, centroids, and moments of inertia.

Monday: 6:45-9:45 p.m. or	*Begins:* Sept. 12
Saturday: 9:00 a.m. to 12:00 noon	Sept. 17
Term I (12 weeks)	
Term II (12 weeks)	*Units:* 2.0

Please indicate a preference of day you wish to attend.

Text: "Basic Technical Mathematics with Calculus" A. J. Washington (Cummings).

This course will be repeated in Term II, held every Tuesday and Thursday evenings beginning January 10, 1978 and in Term III, every Monday and Wednesday evening beginning April 3, 1978.

Prerequisites: 32.901, 32.902 and 32.903.

32.506/606 Mathematics (Calculus II)

Further calculus and technical applications involving differentiation and integration of trigonometric, logarithmic, and exponential functions. Included in the course are the conics, power series, partial differentiation, and an introduction to differential equations.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Units:* 2.0
Term II (12 weeks)

Text: Basic Technical Mathematics with Calculus A.J. Washington (Cummings).

Prerequisite: 32.505/605 or equivalent.

32.516/616 Mathematics (Calculus III)

A course in differential equations, with emphasis on technical applications throughout. First order differential equations; variables separable homogeneous, linear, and Bernouilli's. Second order differential equations with constant coefficients; complementary functions and particular integrals. The D operator. Miscellaneous methods of solving differential equations.

Thursday: 6:45-9:45 p.m. *Begins:* Sept. 15
Term I (12 weeks) *Units:* 2.0
Term II (12 weeks)

Prerequisite: 32.506/606 or equivalent.

This course will be offered in odd-numbered years only.

32.507/607 Mathematics (Introduction to Statistics)

This course consists of two units of study presenting an introduction to statistical methods and their application to technological problems. Topics studied are organization and graphical representation of data; frequency distributions, measures of central tendency; the arithmetic mean, coding, the median, the mode, quartiles, deciles, percentiles; measures of variation, the mean deviation, the standard deviation, quartile deviation, standard scores; introduction to probability; the rules of addition and multiplication; mathematical expectation; theoretical distributions; the binomial distribution; the normal curve, and use of tables to obtain normal curve areas; populations and samples, sampling techniques, sampling distributions; problems of estimation; small samples, and student's t-distribution; confidence intervals, tests of hypotheses, types of hypotheses, types of error, significance; the chi-square distribution, goodness of fit; quality control, control chart, linear regression, method of least squares; correlations, the coefficient of correlation and its determination.

Wednesday: 6:45-9:45 p.m. *Begins:* Sept. 14
Term I (12 weeks) *Units:* 2.0
Term II (12 weeks)

This course requires a working knowledge of mathematics at the Grade XII level.

32.509/609 Mathematics (Introductory Numerical Methods and Computer Programming)

These units cover a course on introductory numerical methods, together with computer programming techniques. The topics included are the nature of numerical methods algorithms; iterative-methods in the solution of algebraic and transcendental equations: matrix methods, systems of linear equations and their solutions; the Gauss-Jordan method; numerican integration trapezoidal and Simpson's rules; Taylor's series and the numerical solution of elementary differential equations. The emphasis is on the technical problem and computer programming methods are presented which allow the numerical solutions to be processed on the IBM 370 system.

This course will not be offered in the 1977/78 term. It will be offered in even-numbers years only.

32.522/622 Mathematics (for Electrical & Electronics Technology)

A course on the theory and application in the Electrical and Electronics fields of the following topics: Solution of systems of linear equations by the methods of elimination, substitution, determinants and matrices, the trigonometry necessary for solving steady state a.c. circuit problems, radian measure, trigonometric functions, graphing of $y=A \sin (2\pi ft+\phi)$, and complex numbers.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Units:* 2.0

Term II (12 weeks)

TEXT — "Electrical Circuits" by Edminister.

This course will be repeated in Term II held every Tuesday and Thursday evenings beginning January 10, 1978.

32.524/624 Mathematics (for Electrical and Electronic Technology)

A course on the theory and application in the Electrical and Electronics fields of the following topics: A continuation of trigonometric functions and complex numbers applied to solving a.c. circuit problems. The use of the complex conjugate, Sine Law, Cosine Law, trigonometric identities, technical mathematics of logarithms and exponential functions and their use in transient circuit and signal power problems; introductory calculus dealing with differentiation and integration of basic algebraic functions.

Thursday: 6:45-9:45 p.m. — *Begins:* Sept. 15

Term I (12 weeks) — *Units:* 2.0

Term II (12 weeks)

Prerequisite: 32.522/622 or equivalent.

32.526/626 Mathematics (for Electrical and Electronic Technologies)

A course in calculus and its application in the electrical and electronic fields, covering the following topics: Functions and graphs; rates of change and the derivative; higher derivatives; maxima and minima; the differential and small changes; the differentiation of algebraic products, quotients, and composite functions; integrations, the indefinite and definite intergrals involving algebraic functions; the differentiation and integration of trigonometric, exponential, and logarithmic functions.

Monday: 6:45-9:45 p.m. — *Begins:* Sept. 12

Term I (12 weeks) — *Units:* 2.0

Term II (12 weeks)

Prerequisite: 32.524/624 or equivalent.

32.528/628 Mathematics (for Electrical and Electronic Technologies)

A course in further calculus and its application in the electrical and electronic fields, covering the following topics: Brief review of essential calculus items offered in courses 32.526/626; calculus of hyperbolic functions; special integration techniques; partial derivatives; first and second order differential equations.

This course will not be offered in the 1977/78 term. It will be offered on even-numbered years only.

32.530/630 Laplace Transform Methods for Electrical, Electronic, and Control Engineering.

Development of table of Laplace transform pairs for functions and operations. Finding inverse transforms, tables of transforms, partial fractions, simple order, double order, and complex poles; poles and zeros; circuit problems; single loops with d.c. inputs; R-L R-C, and R-L-C; initial condition voltage generators; s-domain circuit diagram; analysis of circuits in the s-domain (a.c. and d.c.); review of determinants and Cramer's Rule; self and mutual impedances; driving point and transfer impedances; transients in multimesh circuits; transfer functions and frequency responses; as well as selected topics from control engineering.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13

Term I (12 weeks — *Units:* 2.0

Term II (12 weeks)

This course will be offered only on odd-numbered years.

TEXT—"Transform Circuit Analysis for Engineering and Technology" by Stanley.

32.540/640 Mathematics (for Electrical and Electronics Technology)

An accelerated course (presupposing a strong Mathematics background) based on the material covered in 32.522/622 and 32.524/624, and open only to students currently registered in 43.529/629 (Electrical Circuits AC/DC).

Wednesday: 6:45-9:45 p.m. — *Begins:* Oct. 26, 1977

Term I (12 weeks) — *Units:* 2.0

Term II (12 weeks)

32.557/657 Statistical Quality Control With Industrial Applications

Applications of statistical methods to quality control of industrial product, especially through quality control charts. Selections from topics in experimental design, nonparametric statistics, and regression.

This course will not be offered in the 1977/78 term The course will be offered in September, 1978 and even-numbered years thereafter.

Prerequisite: 32.507/607 or equivalent.

Text — "ASTM Manual on Quality Control of Materials," "ASTM Military Standard 105D-Sampling Procedures and Tables for Inspection by Attributes" (U.S. Government Printing Office).

32.958 Celestial Navigation

Approximation of measurements on geographic co-ordinate system; adjustment and use of sextant; celestial triangle with definitions of time and reference; noon positioning for latitude and longitude; Polaris and sun at any time; and position line-fixing by sun, moon, planets, and stars.

Approximately one-third of classes will be spent in field taking stellar observations.

Designed for yachtsmen and pilots of small aircraft.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (16 weeks)

This course will be repeated in Term II beginning Monday, January 9, 1978.

PHYSICS DEPARTMENT

Students who require advice on this programme should read section 3 on "Programme Consultation" on page 15 of this calendar.

Courses in Physics Department

33.508/608 Physics I

Objective - This course, along with 33.509/609, is designed to satisfy the background knowledge required in the various engineering and related technologies.

Outline - Course content includes kinematics, linear and rotational dynamics, statics, properties of matter, heat, thermodynamics, and waves. Mathematical treatment requires only algebra and trigonometry.

Course presentation is arranged to fit into the Career Programmes Division Technology Certificate Programme schedules.

TEXT — Smith & Cooper, *Elements of Physics,* 8th Edition, McGraw-Hill, 1972.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Units:* 2.0

Term II (12 weeks)

33.509/609 Physics II

Objective - This course completes the sequence designed to satisfy the background knowledge required in the various engineering and related technologies.

Outline - Course content includes waves, sound, light and optics, basic electricity and magnetism, & atomic & nuclear phenomena.

Mathematical treatment requires algebra and trigonometry and possibly some calculus.

Course presentation is arranged to fit into the Career Programmes Division Technology Certificate Programme schedules.

Text – Smith & Cooper *Elements of Physics,* 8th Edition, McGraw-Hill, 1972.

Monday: 6:45-9:45 p.m. *Begins:* Sept. 12

Term I (12 weeks) *Units:* 2.0

Term II (12 weeks)

Note— Courses 33.508/608, 33.509/609 Physics I & II may be taken for credit in any of the following BCIT physics courses:

33.102/202	Physics for Biological Science Technology.
33.219/319	Physics for Building Technology.
33.107/207	Physics for Civil and Structural Technology.
22.A10/B10/C10	Physics for Medical Laboratory Technology.
33.111/211	Physics for Instrumentation Technology.
33.B12	Physics for Environmental Technology.
33.114/214	Physics for Chemical and Metallurgical Technology.
33.216	Physics for Mechanical Technology.
33.117/217	Physics for Operations Management Technology.
33.118/218	Physics for Forestry Products Technology.

33.404 Mining Geophysics

Objective - This course is designed to give a broad understanding of the use of geophysics in mineral exploration to prospectors, geologists and other mining company personnel. The subject is presented from the following viewpoints: (a) the theory behind and uses of each geophysical method; (b) instrumentation and field procedures; (c) interpretation.

Outline – The various topics covered are general survey planning; S.P. resistivity and I.P. methods; magnetic and gravity methods; electromagnetic methods; radiometric methods; seismic methods; and down-hole methods.

Thursday: 6:45-9:45 p.m. *Begins:* Jan. 12

Term II (15 weeks, plus four three hour Saturday field sessions) *Units:* 1.5

Prerequisite: First year university physics and geology desirable but not essential.

HEALTH DIVISION

CONTINUING EDUCATION AND CERTIFICATES IN HEALTH TECHNOLOGIES

●

B.C.I.T. Health Care Certificate

BCHA Certificate in Health Care Management

B.C.I.T. HEALTH CARE CERTIFICATE PROGRAMME

This Programme is designed to build upon the BCHA Certificate Programme in Health Care Management, and the continuing education courses of the health care technologist's particular health-science specialty* or courses in administration. The certificate will be identified by adding to the title the technology suffix, e.g., Health Care Certificate in Nuclear Medicine, Health Care Certificate in Nursing Sciences, or, if the specialty is administration, Health Care Certificate in Administration.

For example a programme for a Health Care Certificate in Medical Radiography could be planned as follows:

	Units
A. BCHA Certificate in Health Care Management	8.0
B. (Some or all of the following)—	
Radiographic Technique for A.C.	1.5
Anatomy and Physiology for A.C.	1.5
Physics of Medical Radiography for A.C.	1.5
Image Recording for A.C.	1.0
Radiobiology and Protection for A.C.	1.0
*C. Electives from other BCIT programmes .....(balance)	
Total	15.0

* Recognition of advanced training through the professional societies can also be considered.

HEALTH CARE MANAGEMENT

BCHA Certificate Programme

This programme is offered in co-operation with the British Columbia Health Association (formerly B.C. Hospitals' Association).

Purpose - To develop and to improve the management skills of department heads, supervisors, head nurses, and assistant head nurses in hospitals and other health care facilities.

Objectives-

(a) To understand the concept of total health care.

(b) To apply basic managerial principles to the health care situations;

(c) to employ the decision-making process to the solution of supervisory problems.

Outline–The programme essentially consists of three parts, which may be taken in any sequence. The parts are:

Supervisory Methods	2.0
Fundamental of Health Care Management	2.0
Courses from the following list of electives and (or) Optional Methods Study Project	4.0
Total	8.0

List of Suggested Electives*

Management Psychology I	1.0
Management Psychology II	1.0
Accounting I	1.0
Accounting II	1.5
Accounting for the Manager	1.0
Public Relations	1.0
Organizational Behaviour	1.0
Personnel Management	1.0
Labour Relation I and II	2.0
Counselling I and II	2.0
Work Study I and II	2.5
Aptitude Testing	1.0
Project Planning and Scheduling	1.0
Data Processing—Introduction	1.0
Mathematics (Introduction to Statistics)	2.0
Systems Analysis	1.0
Business and Technical Report Writing	2.0

*Recognition of training from other institutions or professional associations may be considered.

Note – Some professional associations recognize the BCHA Certificate Programme in Health Care Management for advancement to higher qualifications, for example, the Canadian Society of Radiological Technicians has accredited this programme for part of the requirements for Registered Technician (R.T.) to achieve Advanced Certificate (A.C.) Status.

86.501/601 Fundamentals of Health Care Management

Purpose - To introduce the student to the fundamental principles of supervision and management.

Objectives - The educational objectives of this course are (a) to develop a knowledge and understanding of hospital organization; (b) to understand the basic principles of cost control and budgeting; (c) to develop a knowledge of the process of employee selection; (d) to perform an employee evaluation; (e) to know the development of labour relations in the health care environment; (f) to understand the basic principles of union practices and the collective bargaining process.

Outline - This course will use a variety of instructional techniques such as lectures, buzz groups, group discussion, case studies, and projects under supervision. The subjects examined will be total health care environment, labour relations, financial management, basic management principles, and total hospital organization.

Tuesday: 6:45-9:45 p.m. — *Begins:* Sept. 13
76.501 Term I (12 weeks) — *Units:* 2.0
76.501 Term II (12 weeks)

86.502/602 Supervisory Methods

Purpose - To introduce the student to the fundamental principles of staffing and problem solving.

Objectives - The educational objectives of this course are (a) to develop an understanding of some of the basic principles of human behaviour; (b) to understand and apply the principles of leadership and motivation; (c) to apply the principles of methods study in the discovery of better ways of performing assigned tasks.

Outline - This course will use a variety of instructional techniques such as lectures, buzz groups, group discussion, case studies, and projects under supervision. The subjects examined are communications, leadership, groups, motivation, authority, and methods study.

Wednesday: 6:45-9:45 p.m. — *Begins:* Sept. 14
76.502 Term I (12 weeks) — *Units:* 2.0
76.602 Term II (12 weeks)

86.903 Optional Methods Study Report

Purpose - To allow the student to solve a problem in his or her own department under the guidance of a preceptor.

Objective - The student will apply the principles of methods study to reach, if possible, the solution on a relevant problem.

Outline - Ideally, this project will be carried out upon completion of the Supervisory Methods Course to enable the student to apply newly learned skills to the solution of the problem.

Courses in Medical Laboratory Sciences

70.X01 Advanced Haematology

Purpose - Prepares Registered Technologists to write the Advanced Registered Technologist examinations. Credits will be granted for this course by the Canadian Society of Laboratory Technologists (CSLT).

Objective - To acquaint the student with some of the new and advanced theories of haematology.

Outline - This is a correspondence course. The subjects examined will be haem synthesis, globin synthesis, thalassemia, normal red cell production and destruction, B^{12} and folic acid synthesis, megaloblastic anaemias, glucose metabolism of the red cell, haemolytic anaemias, red cell overproduction and underproduction.

The course is designed in conjunction with B.C. Society of Medical Technologists (BCMST).

Courses in Radiological Sciences

72.901 Tutorial for CSRT Registration Examination

Purpose - This is a refresher course to help students prepare for CSRT Registration examinations of the Canadian Society of Radiological Technicians (CSRT).

Outline - A concise review of radiological physics, radiographic techniques, anatomy and physiology, and radiobiology and protection.

72.902 Medical Radiography Continuing Education Lecture Series

The lecture series will be conducted by the British Columbia Division of the CSRT, with assistance from the Department of Health and the British Columbia Institute of Technology.

This one-week course is designed for graduate radiographers. It will cover advances in many aspects of radiographic technique.

72.903 Radiography and Physics for Radiologists

This two-week course will be presented to physicians studying radiology.

It will introduce the fundamentals involved in the production of radiographs, the physics of radiology, X ray apparatus, image recording, and radiological safety.

72.904 Anatomy and Physiology — Preparatory Course for Advanced Certification of Radiological Technicians

This course is designed in conjuction with the B.C. Division of the CSRT. It prepares the Registered Technician to write the Advanced Certification examination.

72.905 Image Recording - Preparatory Course for Advanced Certification of Radiological Technicians

Designed in conjunction with the B.C. Division of the CSRT, this advanced-level course covers all aspects of the recording and radiographic images. It includes photographic, TV, and VT recording, and the equipment and processes associated with each.

This course will not be offered as a lecture series in 77/78, but it may be offered as a directed reading course. Interested applicants should contact the Co-ordinator at 434-5734 (local 649).

72.906 Radiographic Technique—Preparatory Course for Advanced Certification of Radiological Technicians

This course is designed in conjunction with the B.C. Division of the CSRT to prepare Registered Technicians to write the Advanced Certification examination.

72.907 Radiobiology and Protection - Preparatory Course for Advanced Certification of Radiological Technicians

Designed in conjunction with the B.C. Division of the CSRT, this course is offered in the form of directed reading, to prepare Registered Technicians to write the Advanced Certification examination.

Apply to Sonia L. Williams, Health Division (Continuing Education) B.C.I.T. for application forms.

72.909 Physics of Medical Radiography - Preparatory Course for advanced Certification of Radiological Technicians

The purpose of this course, designed in conjunction with the B.C. Division of the CSRT, is to prepare Registered Technicians to write the Advanced Certification examination.

Courses in Nuclear Medicine Sciences

74.901 Radiopharmaceuticals in Nuclear Medicine - Preparatory Course for Advanced Certification of Nuclear Medicine Technologists

This course is designed to provide the graduate Nuclear Medicine Technologist with continuing education in radiopharmaceuticals and postgraduate instruction in preparation for Advanced Certificate. Not offered in 1977/78.

Other courses in Nuclear Medicine, in preparation for A.C. are being planned for 1977/78. Direct all inquiries to Sonia L. Williams, Health Division (Continuing Education.)

Courses in Preventive Health Science and Fitness

New courses in Preventive Health Science and Fitness will be designed and conducted as the need arises. Ultimately all of these courses may be used toward a Certificate Programme in Physical Activity Management, and toward a BCIT Health Care Certificate.

86.901 Introduction to Physical Activity Management

The course is designed for people engaged in or planning to engage in leadership roles in such areas as industrial and recreational fitness programmes and sport coaching. Topics include: planning and designing training programmes; basic fitness testing (including safeguards); fitness counselling and programming; essential first aid and life support techniques. Practical application is discussed in the light of contemporary theory.

Length of course: 72 hours *Units:* 2.0

86.902 Coaching and Training Systems I

Course material includes detailed analysis of methods and systems employed for competitive and for general fitness training. Emphasis is on the technical aspects of the training programme design, conduction and monitoring. Systems include: aerobic; anaerobic; strength; flexibility; skill training.

Length of course: 36 hours *Unit:* 1.0

86.903 Training System Management I

The purpose of the course is to provide the management tools necessary for implementing training systems. Establishment of objectives/priorities, management of time, cost effectiveness/efficiency, personnel selection, interpersonal relations and group dynamics will be considered.

Length of course: 36 hours *Unit:* 1.0

86.904 Fitness Evaluation Methods I

An examination of the theory and development of practical fitness testing methods. Topics include: test procedures and analysis; specifics of interpreting and counselling based on test results and interview data. Emphasis is placed on the use of basic descriptive statistics in health and physical performance.

*Length of course:*36 hours *Unit:* 1.0

86.905 Technology of Play

The management of physical activity programmes for young children. Theories of play, growth and development are related to providing environments which emphasize vigorous activity and preventive health concepts.

Length of course: 36 hours *Unit:* 1.0

86.906 Anatomy and Physiology for Fitness Instructors and Coaches

Emphasis is on musculo-skeletal anatomy and on physiological systems that relate most directly to sport and fitness training. This course is an intensive introduction to kinesiology-related anatomy and physiology required for practical application.

Length of course: 72 hours *Units:* 2.0

Courses in Environmental Health

82.901 Basic Sound Measurement

An examination of the principles underlying the reduction and control of noise or sound producing equipment. This course is designed to prepare people working in the fields of Environmental Health and Public Health to operate the equipment used in enforcing municipal noise by-laws.

Courses in Continuing Nursing Education

Continuing education courses and programmes for nursing personnel are offered periodically; information may be obtained, or special applications submitted, by writing to:

Coordinator, Health Division (Continuing Education)
B.C.I.T., 3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2

or by telephoning 434-5734 (local 659)

76.901 Refresher Course for Graduate Nurses

This full-time course is designed to assist the inactive nurse to regain confidence in the role of practicing nurse, to acquire current knowledge in the theory pertinent to nursing of the adult medical-surgical patient, to regain former skills and acquire new skills in nursing care of the adult medical-surgical patient and to meet other personal objectives for nursing education and practice. Apply as above to be placed on the waiting list.

Length of course: 10 weeks *Units:* 5.0

76.902 Basic Mental Health Nursing

Graduate nurses trained in other countries may be directed to this course by the RNABC, to prepare for Registered Nurse (R.N.) examinations.

Length of course: 10 weeks *Units:* 5.0

76.903 Basic Obstetrical Nursing

Graduate nurses training in other countries may be directed to this course by the RNABC, to prepare for Registered Nurse (R.N.) examinations.

Length of course: 8 weeks *Units:* 5.0

76.905 Operating Room Nursing

This full-time course prepares the R.N. for staff duties in hospital operating rooms. Beginning level of skills are developed, primarily for graduates of two-year diploma programmes, however it is also of value as a refresher for former O.R. nurses. Apply as above to be placed on the waiting list.

Length of course: 10 weeks *Units:* 5.0

NURSING UPDATE PROGRAM

As continuing education needs of nursing personnel are identified, BCIT will reach decisions to design and conduct appropriate courses.

Recent successful short courses were:

"Enterostomal Therapy - The Role of the Nurse"; and
"Caring for the Elderly".

Watch for course announcements in the RNABC Continuing Education Bulletin posted on hospital notice boards, or have your name placed on our mailing list by writing to:

Planner - Nursing Update
Health Division (Continuing Education)
B.C.I.T., 3700 Willingdon Avenue
Burnaby, B.C. V5G 3H2

or by telephoning 434-5734 (local 414).

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The purpose of this Committee is to present the student point of view necessary to planning and maintaining Continuing Education services by:

- — making themselves known to the part-time student population and soliciting their input
- — advising on general curriculum (for existing and proposed programmes and courses)
- — advising on the Division of Continuing Education administrative practices and procedures
- — representing the student viewpoint in long range planning for the Division of Continuing Education services
- — acting as a sounding board for proposed Division of Continuing Education policy changes.

Membership:

STUDENT ADVISORY COMMITTEE

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Mr. J. E. LEECH, C.E.T., Registrar, Society of Engineering Technologists, 2991 West 41st Avenue, Vancouver, B.C.

EX-OFFICIO

Mr. D. A. HUME, British Columbia Institute of Technology

Mr. B. D. YEOELL, British Columbia Institute of Technology

PROFESSIONAL AGENCIES OF INTEREST

TO PART-TIME STUDENTS

THE SOCIETY OF ENGINEERING TECHNOLOGISTS OF BRITISH COLUMBIA

The Society of Engineering Technologists of British Columbia is a professional Society registering and certifying engineering technicians, senior engineering technicians and engineering technologists. Certification with the Society is dependent primarily on academic qualifications in accord with national standards, however, some credit may be granted for extensive experience. A minimum of two years technological experience is required for certification.

Engineering technology courses offered through the British Columbia Institute of Technology Division of Continuing Education & Industry, and many of those offered by the Directed Studies Centre, have been accredited by the Society. To assist students in their career development, BCIT has developed the three certificates, Engineering Technician, Senior Engineering Technician and Diploma of Technology to coincide with the academic requirements of the Society.

The Board of Examiners of the Society, comprising Certified Engineering Technologists and Professional Engineers, in evaluating an application for membership and certification, also take into consideration career training other than BCIT, including foreign qualifications. The Board of Examiners is responsible for recommending certification levels and for providing the applicant with a programme of studies required to progress to the next certification level. The Board recommends, therefore, to ensure the fullest credit toward certification, that an application be submitted to the Society prior to commencing studies. Please note that applications generally take four months to process.

The Society is incorporated under the Societies Act of British Columbia. Briefly, the objectives of the Society are:

To provide formal recognition in the form of certification for Engineering Technologists and Engineering Technicians.

To provide a controlled, qualified and responsible body of Engineering Technologists and Engineering Technicians, thus obtaining recognition of our profession in industry.

To act as the vehicle whereby its members may increase their knowledge and skill or respective technologies.

To offer placement and educational services, technical literature, special group insurance and other group benefits inherent in all such organizations.

In accordance with these general objectives, the Society is actively representing all engineering technicians and technologists in British Columbia. Some of the activities include the promotion of the Division of Continuing Education & Industry Services courses at BCIT and at other educational training institutes; presentation of briefs leading to the development of directed studies courses in engineering technology, including courses to aid the technician to become a technologist, and others to aid the technologist become an engineer; development of an accreditation program to aid in the maintenance of the highest possible standard in education; and most recently the Society has been working toward appropriate recognition in law for its members.

Any person interested in the Society of Engineering Technologists should contact:

The Registrar
Society of Engineering Technologists of B.C.
2991 West 41st Avenue. Vancouver, B.C.
V6N 3C8 Phone: 261-4271

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 programme of Association examinations is not an easy way to qualify academically as a professional engineer. The programme comprises about 20 examinations, which cover approximately the same material as a four-year engineering course at a university. To complete the whole programme a candidate would require years of home study.

The Association does not offer courses to prepare candidates for these examinations. Some courses offered at the British Columbia Institute of Technology 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 programme should seek advice from counsellors at BCIT and 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.

INQUIRIES:

The Association of Professional Engineers of British Columbia,
2210 West 12th Avenue, Vancouver, B.C. V6K 2N6.
Telephone: 736-9808.

ASSOCIATION OF BRITISH COLUMBIA PROFESSIONAL FORESTERS

Arrangements exist whereby students may prepare themselves to become Professional Foresters, in part through courses at B.C.I.T. Interested students are advised to contact the:

Association of B.C. Professional Foresters
Suite 406, 837 West Hastings Street
Vancouver, B.C. V6C 1B6
Telephone: 687-8027

The Association of British Columbia Professional Foresters was founded in 1947 under enabling legislation entitled the British Columbia Foresters Act, April 3, 1947. The act was revised subsequently and the Association now operates under authority of the British Columbia Professional Foresters Act — 1970 and the Association's by-laws which were amended in January, 1975 and again in January, 1977.

The governing body of the Association is a 9-man Council. Each member of Council is the Chairman of one of the principal standing committees. One of the most important of these is the Board of Examiners. This committee must review the qualifications and eligibility of all prospective members.

Procedures by which candidates who are BCIT forestry graduates (but not university graduates) may become Registered Professional Foresters are described in the Association's booklet, "The Profession of Forestry in British Columbia", page 27. They are required to enroll initially as pupils. Normally, they will receive credits for several of the pupil courses listed in Appendix III, page 35, of the booklet. Enrollment, examination and annual fees payable by those in each membership category are shown on page 26.

Some of the requirements for registration include appropriate academic qualifications, a minimum of four years of acceptable forestry experience in the opinion of the Board of Examiners, Canadian citizenship or landed immigrant status, and references from at least three Registered Professional Foresters. Also, pupils are required to submit the name of one R.P.F. as a sponsor. All applicants for registration are required to write a special examination on the "Policy and Administration of B.C. Forest Resources". Pupils are also required to submit a "Professional Report" as described in Appendix IV.

Briefly, the objectives of the Association are as follows:

To ensure that the forests of British Columbia are managed by professionally qualified foresters.

To promote those policies of integrated use of forest land for timber production, recreation, wildlife, and water management which ultimately provide the greatest social and economic returns to society.

To advise the public and government of the implications of policies affecting uses of forest land.

To date, the Association's objectives have been implemented in various ways, including the submission of recommendations to appropriate authorities on numerous topics such as inventories, protection, timber management, water management, fish and wildlife management, range management, forest research, forest taxation, and forest education.

The Association's Code of Ethics appears on page 40 of the booklet and all members are expected to govern themselves in accordance therewith.

As to the end of 1976 the membership consisted of approximately 900 Registered Professional Foresters, 150 Foresters-in-Training and 30 Forestry Pupils.

THE CANADIAN INSTITUTE OF QUANTITY SURVEYORS

The CIQS has an academic programme comprising 16 separate subjects. Graduates from the full-time day school Building Technology Course at B.C.I.T. receive credit for 10 of the 16 subjects. The remaining six will be offered at night through the Division of Continuing Education & Industry Services.

Candidates for the CIQS professional examinations can make arrangements to attend B.C.I.T. day school where there is available space in the regular day school programme, to take any of the 10 subjects for which credit may be granted by the CIQS. Before signing up for any subjects at B.C.I.T., candidates should obtain approval of prospective credit from

The Chairman, Education Committee
Canadian Institute of Quantity Surveyors
Suite 401
8 Colborne Street
Toronto, Ontario M5E 1E1

THE ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA

The Architectural Institute of British Columbia has an apprenticeship system generally referred to as the Minimum Syllabus Programme. This programme lists some 22 examinations or submissions for completion, and day school graduates receive credit for 12 of these when entering the programme.

As a result, other Minimum Syllabus students may claim credit for any of the same 12 subjects, and take them through the Division of Continuing Education & Industry Services in either day or night school classes. The minimum syllabus programme is currently being reviewed but at the time of this writing had not been finalized.

Before signing up for any subjects, students should obtain approval of prospective credit from

Chairman, Examining Board,
Architectural Institute of British Columbia
970 Richards Street,
Vancouver, B.C. V6B 3C1.

THE CERTIFIED GENERAL ACCOUNTANTS' ASSOCIATION OF BRITISH COLUMBIA

The Certified General Accountants' Association of British Columbia offers a programme of studies leading to the professional designation, "Certified General Accountant" (C.G.A.).

The Association will recognize for credit toward completion of the C.G.A. programme day courses at BCIT which have a content substantially similar to courses in the C.G.A. programme. Students must obtain a grade of 65 per cent or better before exemptions will be granted.

Courses offered in the evening by the Division of Continuing Education & Industry Services will also be considered for exemption where they are essentially equivalent to the day courses listed below.

The following courses have been accepted for transfer credit:

B.C.I.T. EXEMPTION SCHEDULE

C.G.A. Course	BCIT Day	BCIT Div. of Continuing Education and Industry Services
Accounting 101	16.140/240	16.900/901 16.905/906
Communications 110	31.102/202	31.503/603 31.504/604 31.505/605
Accounting 221	16.347/447	16.504/604
Math of Finance 202	22.110 22.116 22.118 22.120	22.936
Statistics 203	22.210 22.214 22.216 22.220	22.535/635
Accounting 311	16.341/441	16.902/903
Economics 304	10.135/235 10.137/237 10.138/238 10.139/239 10.234/334	10.135/235
I.C.S. 325	14.050/052/270	14.901/922/505/605
Finance 516 Grade of 65% Required	16.361/461	16.507/607

Students who wish to present courses other than those listed above should consult the Association. Applicants for registration must meet all requirements of the Association in order to be accepted into the C.G.A. programme.

For further information, please contact:

The Certified General Accountants' Association of British Columbia
1555 West 8th Avenue
Vancouver, B.C. V6J 1T5
Telephone: 732-1211

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF BRITISH COLUMBIA

The Institute of Chartered Accountants of British Columbia has advised the British Columbia Institute of Technology that it will accept certain courses given by the British Columbia Institute of Technology, as noted below, as meeting the course requirements as indicated, provided a student meets the other prerequisites and requirements and is acceptable to the Institute of Chartered Accountants.

Students who are interested in the Institute of Chartered Accountants of British Columbia should contact the Registrar, 562 Burrard Street, Vancouver, B.C. V6C 2K8.

C.A. Course	BCIT Day	BCIT Div. of Continuing Education and Industry Services
Financial Accounting (to Int. Level)	16.140/240+	16.900/901+
	16.347/447	16.504/604
Economics	10.135+	10.135+
	10.235	10.235
Computers in Business	14.050+	14.901+
	14.052	14.922
Statistics	22.216	22.535+
Business Application of Mathematics		22.635
	14.409 *or*	
	22.300 *or*	22.963
	22.314	
Management and Cost Accounting	16.341+	16.902+
	16.441	16.903
Financial Management	16.361+	16.507+
	16.461	16.607
Commercial Law	16.360+	10.360+
	16.460	10.460
Organizational Behaviour	10.380	10.906
Policy and Administration	10.434	

THE SOCIETY OF INDUSTRIAL ACCOUNTANTS OF BRITISH COLUMBIA

The Society of Industrial Accountants of British Columbia has advised the British Columbia Institute of Technology that it will accept certain courses given by the British Columbia Institute of Technology, noted below, as meeting the course requirements as indicated, provided a student meets the other prerequisites and requirements and is acceptable to the Society of Industrial Accountants.

Students who are interested in the R.I.A. programme should contact the Association for full particulars at 687-5891.

BCIT/R.I.A. COURSE EXEMPTIONS

R.I.A. Course No. Description	BCIT Day	Div. of Continuing Education and Industry Services
11. Principles of Accounting ..	16.140/240	16.900/901 *or* 16.905 IL 16.906 IIs
12. Economics	10.135/235 *or* 10.137/237 *or* 10.138/238 *or* 10.139/239	10.135/235
13. Report Writing	31.102/202	31.504/604 *or* 31.503/603 *or* 31.505/605
14. Data Processing	14.050/052 *or* 14.160/170/260/270	14.901/922 *or* 923
15. Business Mathematics	22.110 *or* 22.114 *or* 22.116 *or* 22.118 *or* 22.120 *or* 22.100	22.936
21. Accounting Theory	16.347/447	16.504/604
22. Commercial Law	10.360/460	10.360/460
23. Organizational Behaviour .	10.221/321 *or* 20.381, 10.321 *or* 20.483, 10.321	10.221/321
24. Taxation	no exemption	no exemption
31. Cost Accounting	16.341/441	16.902/903
32. Quantitative Methods I ...	22.220 *or* 22.210 *or* 22.214 *or* 22.216 *or* 22.218	22.535/635
33. Quantitative Methods II ...	22.300, 22.400 *or* 14.306/409	22.535/635 *and* 22.963
41. Management Accounting ..	no exemption	no exemption
42. Finance	16.361/461	16.507/607
43. Selected Topics	no exemption	no exemption
51. Information Systems	Graduation in Systems Option	no exemption
52. Operational Auditing	no exemption	no exemption
53. Management Processes ...	no exemption	no exemption

THE CANADIAN INSTITUTE OF MANAGEMENT

Students meeting the admission requirements of, and becoming members of, the Canadian Institute of Management may complete all four years of the C.I.M. certificate course in Management and Administration through courses offered in cooperation with the Division of Continuing Education & Industry Services. This course is suited to men & women for whom a University degree is not feasible. The C.I.M. course provides participants with a broad understanding of the major disciplines of management science and how they inter-relate. The personal contact with other practicing managers having a variety of business backgrounds will be of value in developing solutions for some of the student's own business situations.

The method of instruction employs both lectures and case discussions, thus affording the student the valuable experience of expressing his opinions to other class members through open discussion of assigned problems. The third year allows the student to select from a range of C.I.M. approved courses offered by B.C.I.T. and other educational institutions. Entry into year 4 is permitted only after completion of the requirements for years 1, 2, and 3.

As the identical course is offered in twenty-three course centres across Canada, students may transfer, either temporarily or permanently, to another course centre at no additional charge for the current year. Student members of C.I.M. are encouraged to take part in various Vancouver branch activities and will receive our National publication "The Canadian Manager" as well as local newsletters.

Admission requirements for student members: Generally speaking the following criteria will fulfill C.I.M. admission requirements:

1. Candidates must have Grade 12 education (or equivalent) with a minimum age of 24 years and a minimum of 2 years supervisory experience or 4 years staff experience.

   OR

2. Higher than Grade 12 level of formal education — be at least 23 years old — have a minimum of at least 2 years of supervisory experience or 4 years of staff experience.

   OR

3. Community College Graduate in Management Sciences, be at least 22 years old and no supervisory experience required.

   OR

4. University Graduate, immediately upon graduation with no experience required.

For further information please contact:

The Canadian Institute of Management
Suite 315
470 Granville Street
Vancouver, B.C. V6C 1V5
Phone: 689-9819

"IN-HOUSE" TRAINING FOR CREDITS TOWARD BCIT CAREER PROGRAMMES CERTIFICATES

BCIT Division of Continuing Education & Industry Services Certificates are awarded to students acquiring 15 units of credit. A unit normally consists of three classroom hours per week for 12 weeks, a total of 36 hours.

Transfer credits toward BCIT Certificates may be granted for work completed at other post-secondary institutions and accepted training organizations.

In accumulating 15 units of credit for a BCIT Certificate, at least 7½ must be for BCIT courses, in Day School, and the Division of Continuing Education & Industry Services and the remainder may be transfer credits.

Our proposal is to enable BCIT students to obtain transfer credits for approved courses taken within, or sponsored by a Company, Government body or organization associating with BCIT in a joint development programme for the student-employee.

This latter is an additional service to students and recognition that many worthwhile "in-house" training courses are carried on either through internal resources or by hiring reputable outside agencies. Yet these same organizations may lack the depth and volume to present a totally well-rounded programme such as is available at BCIT.

Any company, etc., wishing to have credit granted to employees for "in-house" training should submit details to the Director, Division of Continuing Education & Industry Services, BCIT, for approval before making a commitment to employees. Such information should include course content, length of course, qualification of 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 Programmes (see those within the Calendar) and will 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 labour agreement would not. On-the-job training or a skill or technique unique to the Company would also not be appropriate for recognition. Credit will not be granted for less than half a unit.

Requests for transfer credits may be submitted by individual employees to the Programme Consultant, Division of Continuing Education & Industry Services, at any time after completion of one BCIT course. Such submissions should be supported by the employer indicating 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.

Inquiries should be directed to: D. J. Svetic, Director, Division of Continuing Education & Industry Services.

THE CORPORATION OF LAND SURVEYORS OF THE PROVINCE OF BRITISH COLUMBIA

The corporation is the controlling body for Professional Land Surveyors within the Province and has a board of examiners who set their own formal examinations for entry into the profession.

Basically there are three main ways to become a land surveyor all of which require Grade 12 standard as a prerequisite.

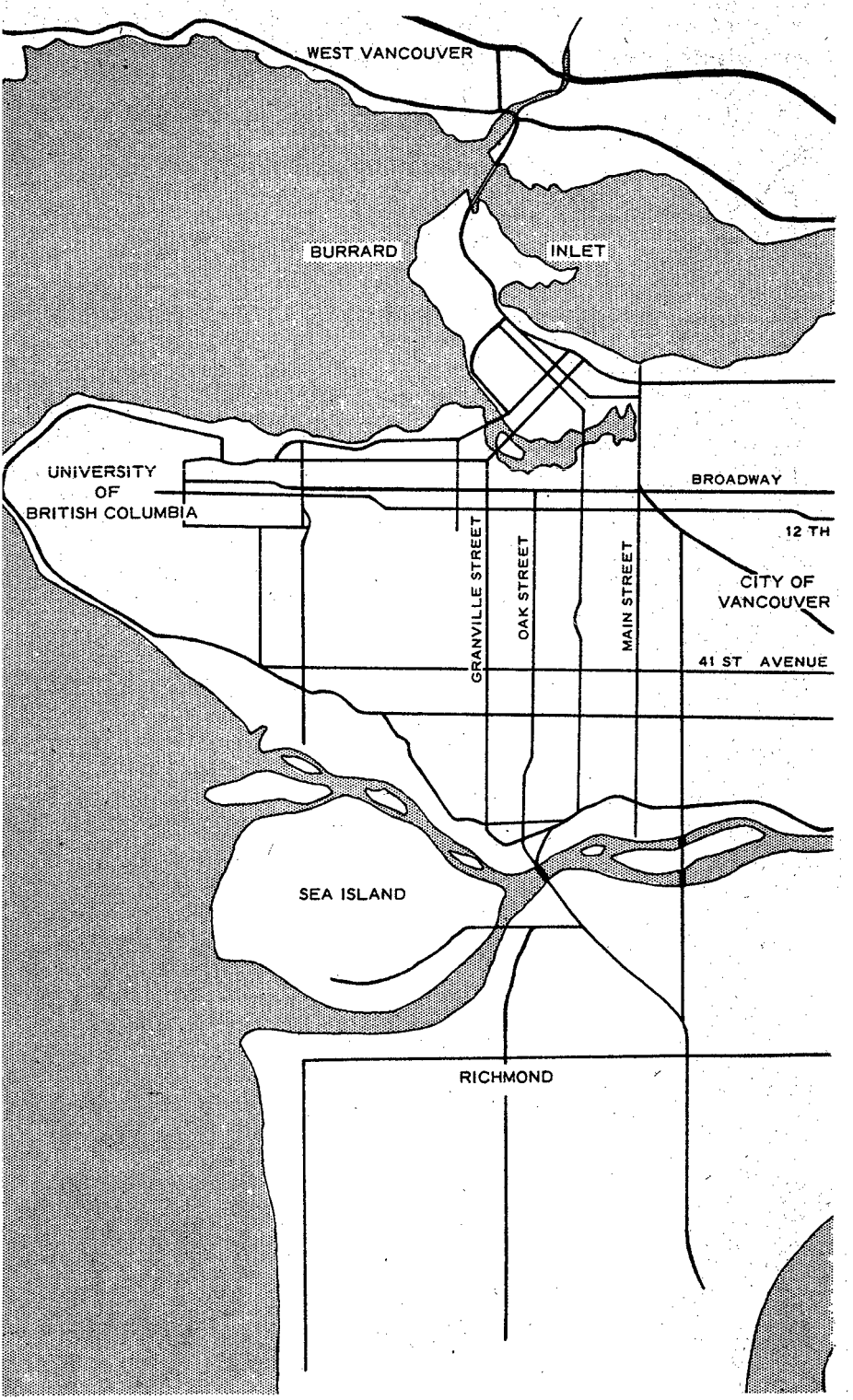
1. Pass the corporation's preliminary exams, then become articled to a B.C.L.S. for four years and pass the corporation's intermediate and final exams.
2. Graduate from B.C.I.T. or equivalent, then become articled to a B.C.L.S. for three years and pass the corporation's intermediate and final exams.
3. Graduate with a Bachelor's Degree in Civil Engineering or equivalent from a recognized university and then become articled for 2 years and pass the corporation's intermediate and final exams.

The corporation does not offer courses to prepare candidates for these examinations.

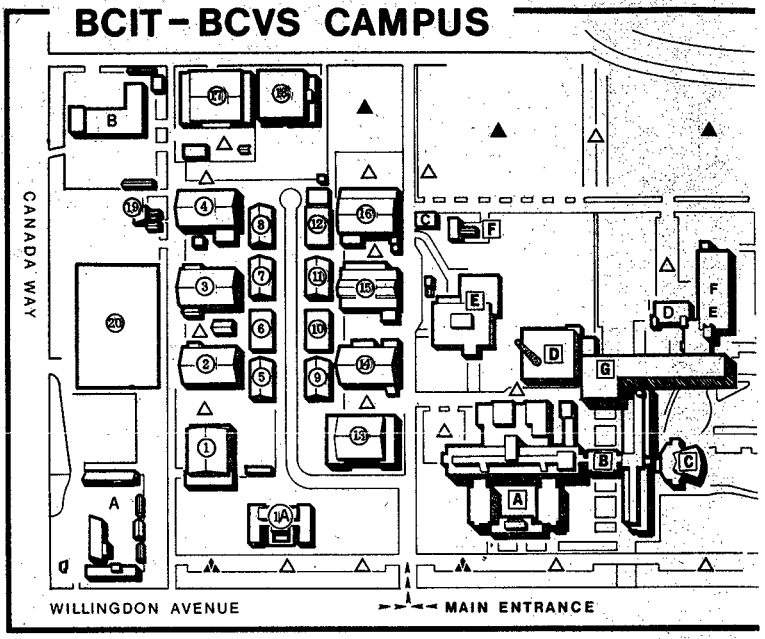
Some of these courses offered at B.C.I.T. are aimed specifically at helping candidates for these exams, and some other courses will assist in preparing candidates.

Inquiries about B.C.L.S. exams and course outlines should be made to:

The Corporation of Land Surveyors of the Province of B.C.
1005 Government Street
Victoria, B.C. V8W 1X7
Telephone: 382-4323


WEST VANCOUVER
BURRARD
INLET
UNIVERSITY
OF
BRITISH COLUMBIA
BROADWAY
12 TH
CITY OF
VANCOUVER
GRANVILLE STREET
OAK STREET
MAIN STREET
41 ST AVENUE
SEA ISLAND
RICHMOND

NORTH VANCOUVER
HASTINGS ST.
PORT MOODY
SIMON FRASER UNIVERSITY
BRENTWOOD
THROUGHWAY
AVENUE
GRANDVIEW HWY.
LOUGHEED HWY.
COQUITLAM
BOUNDARY ROAD
WILLINGDON AVE.
TRANS CANADA HWY.
BURNABY
KINGSWAY
NEW WESTMINSTER
MARINE DRIVE
WILLINGDON AVENUE
STUDENT ENTRANCE
PARKING
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
LIBRARY
STUDENT PARKING
PLAYING FIELD

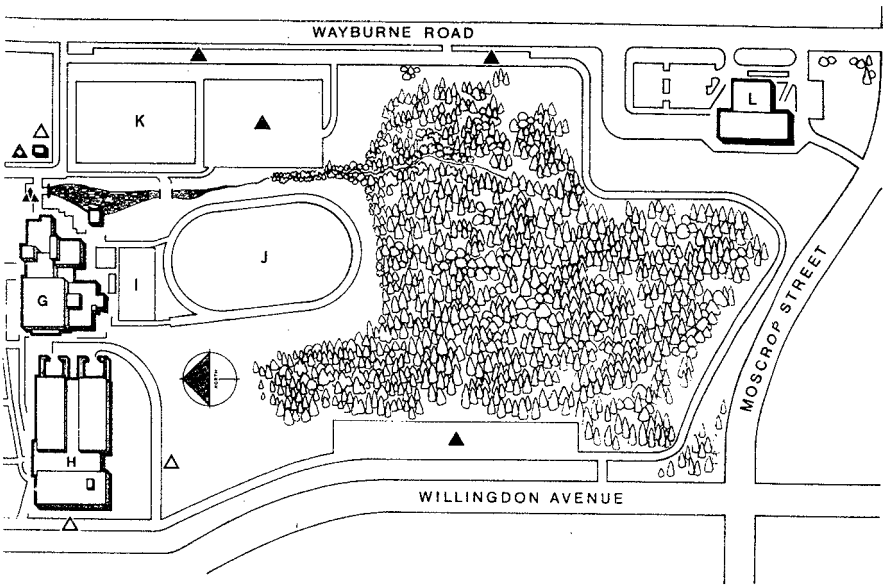


BCVS CAMPUS

1A Vocational Administration

Building No.
- **1** Aircraft Maintenance
- **2** Boat Building/Benchwork & Joinery
- **3** Carpentry/Glaziers
- **4** Plumbing/Sheet Metal Steamfitting
- **5** Classrooms
- **6** Classroom
- **7** Classroom
- **8** Industrial Instrumentation
- **9** Classroom
- **10** Classrooms
- **11** Classrooms
- **12** Classrooms
- **13** Machine Shop
- **14** Welding
- **15** Automotive Mechanics
- **16** Heavy Duty Mechanics
- **17** Trowel Trades/Painting/Decorating/Sign Painting
- **18** Ironworkers/Steel Fabrication/Boilermakers
- **19** Practical Horticulture
- **20** Multi-Discipline

BTSD Electronics Sheet Metal Millwright
Drafting Business Careers Appliance Repair Building Service Work



- [A] BCIT
- [B] BCIT Extension
- [C] Theatre
- [D] Boiler House and Mechanical
- [E] Food Training Centre & Cafeteria
- [F] Greenhouse & Animal Holding Building
- [G] BCIT 1976 Building

PARKING

- △ Paid Staff
- ▲ Free Scramble
- ▲ Free Visitor
- ▲ Free Motorcycl

MISCELLANEOUS

A Department of Highways Yards
B Public Workers Maintenance Building
C Traffic Office
D Provincial Department of Education/Print Services Branch
E Library
F Provincial Educational Media Centre
G Student Activity Centre (SAC)
H Industrial Education Teacher Training
I Tennis, Basketball
J Track Oval
K Playing Field
L Motor Vehicle Testing Station

1977

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NOVEMBER						
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CERTIFICATE OF TECHNOLOGY

APPLICATION FORM

Mr.
Miss
Mrs.
Ms. _____
(First Name) (Initial) (Surname)

Social Insurance No. _____ Age _____
Home
address _____ Phone _____

City _____ Zone _____

I wish to apply for a Certificate of Technology in _____

- ☐ *Certificate*
- ☐ *Senior Certificate*
- ☐ *Diploma of Technology*
- ☐ *Special Certificate*

Name of firm _____

Address _____ Phone _____

City _____ Zone _____

Your department _____

Your position _____

Highest high school grade completed _____

Please check which of the following you have attended:

☐ *Vocational School* ☐ *Other (specify)* _____

☐ *College* _____

☐ *Institute of Technology* _____

☐ *University* _____

For _____ years

Name of programme _____

I graduated ☐ Yes ☐ No

IMPORTANT
This form is continued overleaf.

Courses completed toward this certificate:

List Courses	Units	Year Completed	Grade	Institutions*

* If not BCIT, this application must be accompanied by some evidence of credit — documents, diplomas, etc.

At least half of the work toward each certificate must be completed at BCIT.

A student applying for Senior Certificate or Diploma of Technology must have completed a certificate through the Division of Continuing Education & Industry Services or provide evidence of an equivalent level of related work done through another institution.

Date _____ APPROVED _____
Department Head

(Signed) _____ _____
Director, Division of Continuing Education and Industry Services

APPLICANTS SHOULD NOTE THE FOLLOWING:

1) Register early. Watch for registration deadlines.
2) Course fees must accompany this Registration form. Registration Forms not accompanied by fee payment will not be processed.
3) Mailing this Registration Form and payment of fees does not insure a seat in the class.
4) If you are not able to be registered in the class of your choice, your money will be refunded.
5) Programme planning assistance is available throughout the year.

REGISTRATION FORM
FOR
THE DIVISION OF
CONTINUING EDUCATION
& INDUSTRY SERVICES
COURSES

PLEASE SUBMIT TO:

Division of Continuing Education & Industry Services
British Columbia Institute of Technology
3700 Willingdon Avenue,
Burnaby, British Columbia
V5G 3H2

BCIT

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
3700 WILLINGDON AVENUE, BURNABY, BRITISH COLUMBIA, CANADA
V5G 3H2 Area Code 604-434-5734

REGISTRATION FOR THE DIVISION OF CONTINUING EDUCATION & INDUSTRY SERVICES

Social Insurance

Application Date Day Month Year

Title: **Mr.**, **Miss**, **Mrs.**, **Ms.**,
(CIRCLE)

Surname

Date of Birth Day Month Year

First Name

First & Middle Initials

Home Phone Number –

Home Address

Postal Code

	Yes	No
Full-time B.C.I.T. Day School Student?		
B.C.I.T. Staff Member?		

If working towards a B.C.I.T. Certificate, state name of Certificate Programme

Name of Employer

Business Address

Postal Code

Department

Business Phone Number – Local

Position

No. of years experience in this field of work

If previously B.C.I.T. Student, check whether Day School ☐ Evening &/or Extension (Career Programmes) ☐

Country where attended Secondary School

Date of final year at Secondary School 19

Last Grade completed

Type of Post-Secondary Institution	Name of Institution	No. of years attended	Graduated Yes	Graduated No
Vocational			☐	☐
College			☐	☐
Institute of Technology			☐	☐
University			☐	☐
Other			☐	☐

Reason for taking courses listed below:

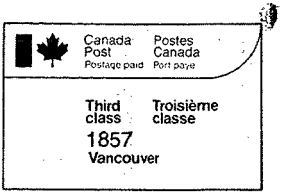
- Related to current work ☐
- Preparation for advancement with current employer ☐
- Preparation for completely new vocation ☐
- General interest ☐

Payment of fees:

- Full fees to be paid by you ☐
- Paid jointly by you and employer ☐
- Full fees to be paid by employer ☐
- Payment of fees not applicable ☐

Name of Proposed Course	Course No.	Day of Week	Cost	FOR OFFICE USE ONLY

RETURN TO
British Columbia
Institute of Technology,
3700 Willingdon Avenue,
Burnaby, B.C.
V5G 3H2



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