1969/70

Fanshawe College

THE CREST

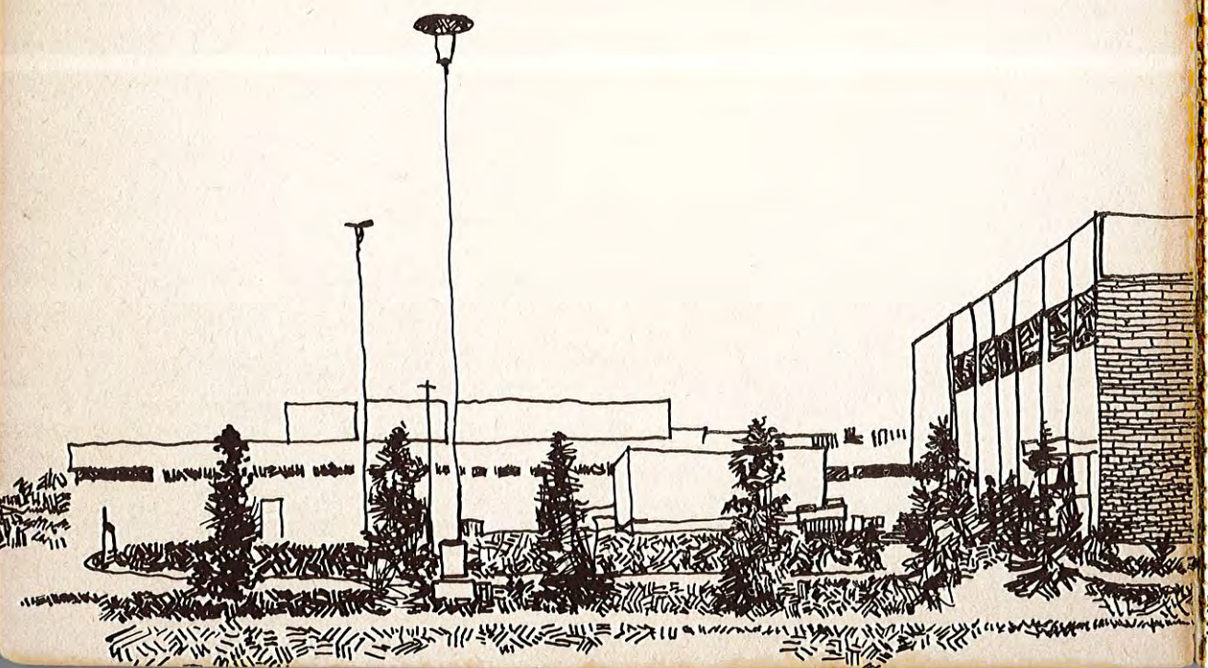
"A temple in the woods" (from the name Fanshawe meaning in Old English **fane,** a temple, and **shaw,** a wood).

THE MOTTO

Integrity:

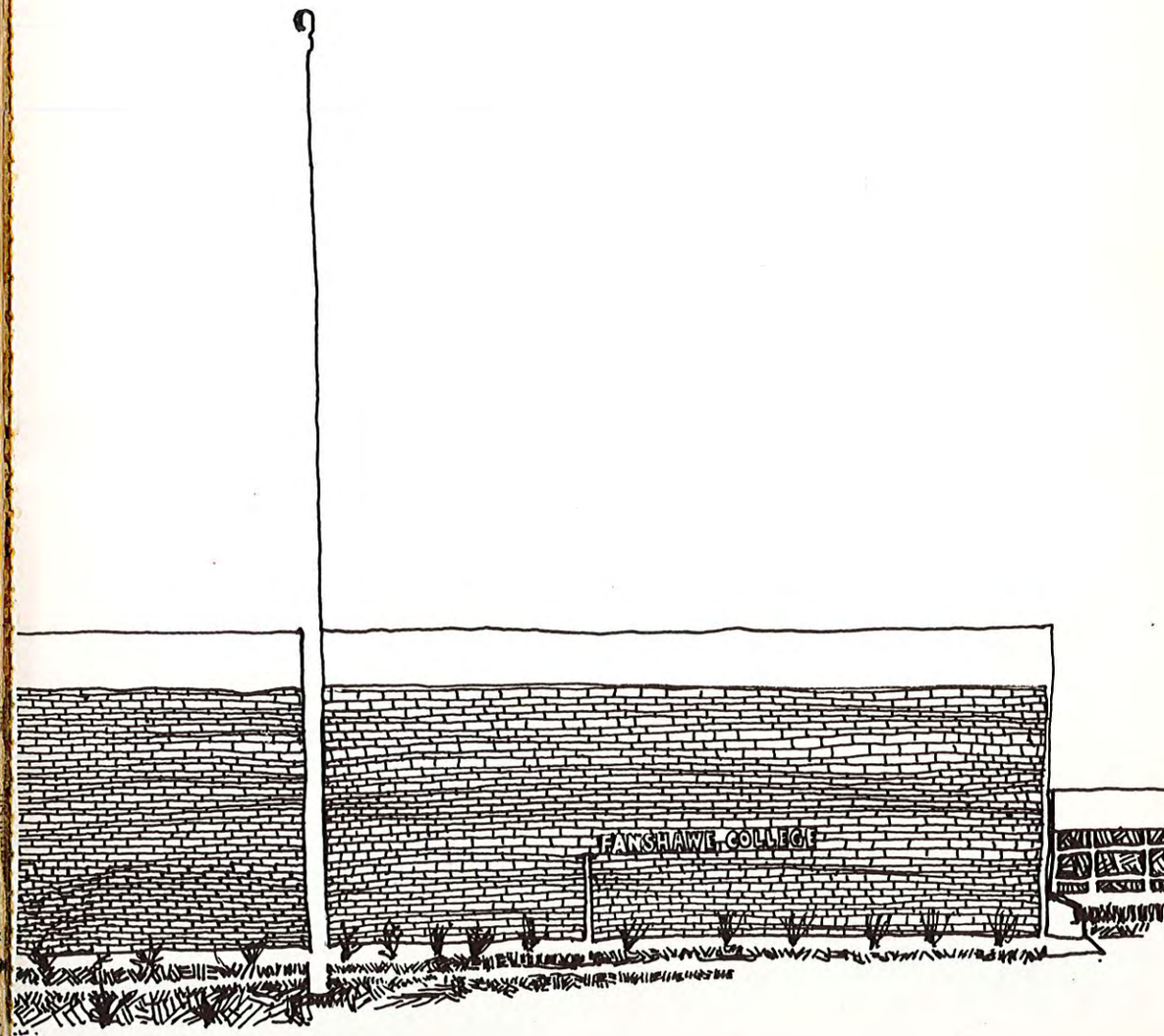
"Integrity without knowledge is weak and useless, and knowledge without integrity is dangerous and dreadful".

Samuel Johnson
1709 - 1784



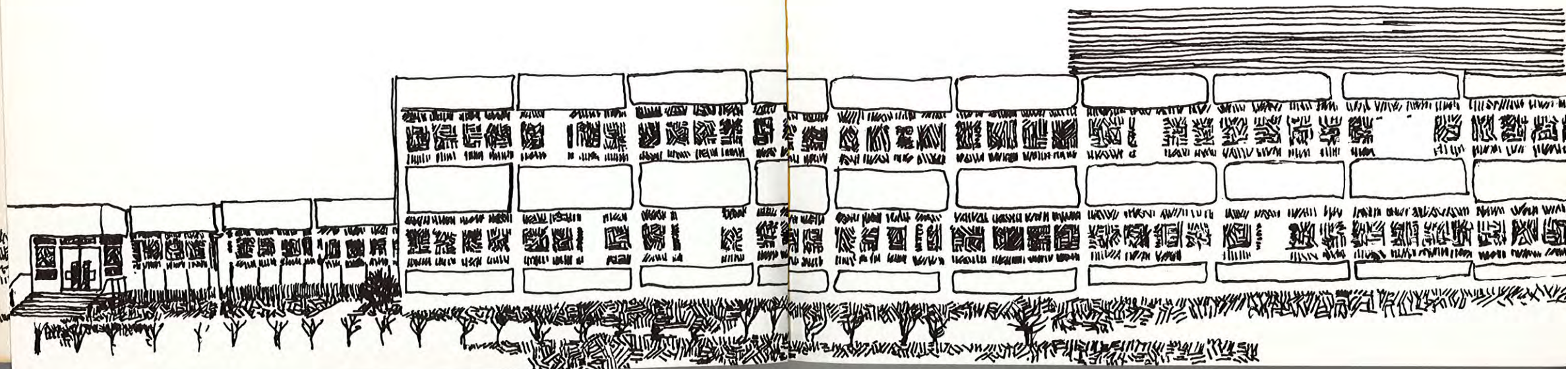
1969 97

FANSHAWE COLLEGE

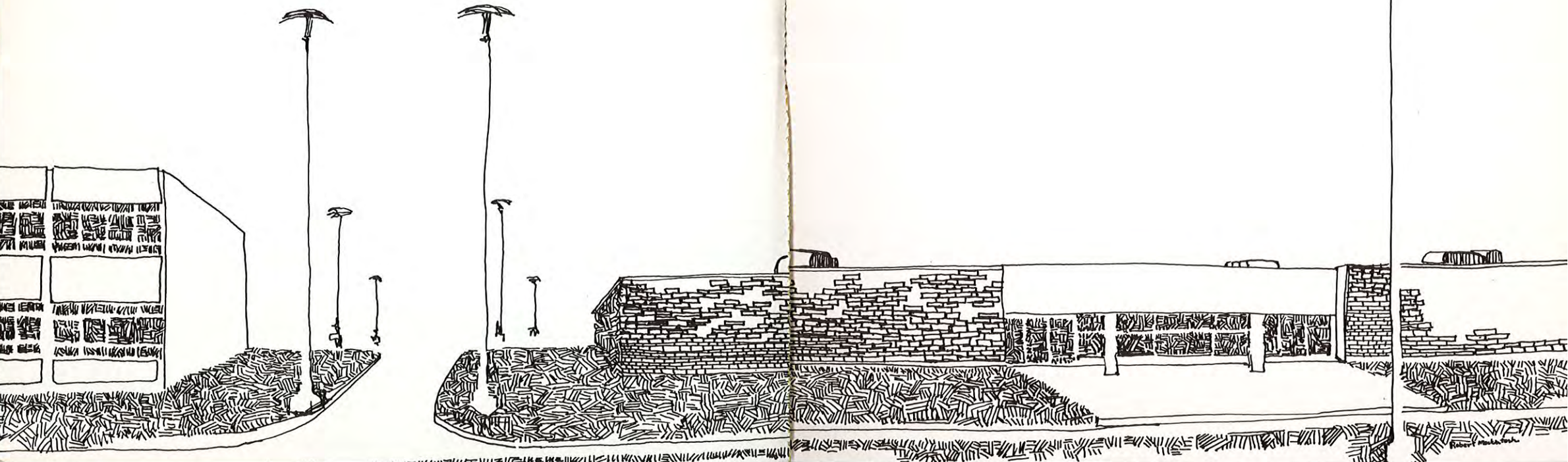


Fanshawe College Calendar

1969/1970



1460 Oxford Street East, London, Ontario · Telephone 451·7270



CONTENTS

CONTENTS

* Courses marked with an asterisk have not previously been offered at the college and will be introduced in September, 1969, if facilities and staff can be made available and if the number of applicants justifies the step. Applicants for such courses will be given provisional acceptance, and be further informed as soon as possible.

PRESIDENT'S MESSAGE

This Calendar pertains to our third year of operation.

During the past two years the function and role of the community college, and of Fanshawe, has remained obscure to many people notwithstanding a persistent effort to proclaim it. A calendar should help to dispel such obscurity, and I hope the present one will.

Basically, the purpose of Fanshawe College remains to offer students opportunity for development to the utmost extent possible along their own chosen lines of endeavour.

This does not mean that the college has unlimited resources, but that the resources it has are there for the student and it rests with the student to use them well. To do so, he should realize that he is regarded as a mature and responsible citizen, and that his college will be able to do for him as he does for it.

If he helps to uphold the standards and to build the future of the college, he will be recognized on graduation as a qualified representative of Fanshawe College; and his Fanshawe diploma will, through his efforts, be an effective passport to business, industry and society.

A Fanshawe student who applies his energy negatively, will hurt both his college and himself. He should, therefore, realize that his courses are but part of his work and life as a student, and he should be prepared to work with the faculty and the administration as a colleague in a great program of college and individual development.

ADMINISTRATION

President	Dr. J. A. Colvin
Dean	H. Rawson
Comptroller	A. D. White, C.A.
Bursar	W. G. Stout
Administrative Officer	Mrs. A. Smither
Registrar	W. T. McHugh
Assistant Registrar	R. Cummins
Awards Officer	S. Mole, B.A.
Counsellors	Miss F. M. Kidd, B.A.
	D. Klinger, M.A.
Librarian	Miss R. Hoyle, B.A., B.L.S.
Nurse	Mrs. L. Burns, R.N.

FACULTY

Agriculture Division

T. France, B.Sc., M.S.A., Coordinator Chairman	
H. B. Barrett, B.S.A.	Administrator Norfolk County School
T. Cowley, N.D.A.	Farm Business Management
H. Virtue, B.Sc.	Farm Business Management

Applied Arts Division

P. L. Williams, M.A., Chairman	
M. Boundy	Music
M. Chambers, A.O.C.A.	Architectural Art
C. R. Corey	Interior Design
W. N. Dickie	Industrial Design
Miss D. Ellis, B.F.A.	Fine Art
G. Hayward, M.F.A.	Communication Arts
B. Moss	Photography
A. Nicholson, B.Sc.	Communication Arts
Mrs. P. Sugden, B.A.	Advertising Sales Promotion
W. A. Walker	Printing Management
C. Wallis	Architectural Art
A. Walter, M.A.	Photography

Business Division

D. R. Brown, B.A., Chairman	
E. M. Day, B.A.	Assistant Chairman Data Processing
G. DeMetra, B.A., C.A.	Assistant Chairman Business Administration
L. A. Anstey, B.Sc.	Data Processing

D. B. Brown, F.L.M.I.	Data Processing
G. M. Bullen, B.Sc.	Data Processing
J. Frohlick, B.A.	Retail Marketing
K. Lindsay, M.B.A.	Business Administration
Mrs. S. McKellar, B.A.	Secretarial
J. H. Murray, B.A.	Accounting
Mrs. M. Salter, B.A.	Secretarial
J. Schleihauf, B.A.	Secretarial
A. Shamas, B.A.	Accounting
Miss A. Small, F.S.C.T., F.S.P.A.	Secretarial
J. W. Whitton, C.A.	Accounting

Extension Division

W. J. Pillsworth, M.A., Chairman	
A. K. Heggie, A.M.I.Mech.E.	Assistant Chairman
C. W. McCoomb, B.A.Sc., C.E.	Coordinator ATEC classes
D. A. Grimes, M.A.	Liaison Officer Oxford and Norfolk Counties
W. J. Watson, B.Sc., M.Ed.	Liaison Officer Middlesex and Elgin Counties
D. D. Rice, B.A.	Information Officer

Health and Welfare Division

M. Orris, M.A., Chairman	
D. J. Anderson, R.T.	Radiological
J. M. Anguish, B.A.	Social Service
T. C. Chattington	Child Care
J. S. Flanagan, R.T., R.R.T.	Radiological
Mrs. A. Fulop	Child Care
Miss J. Martin, B.A., R.T.	Radiological
Merry	Inhalation Therapy

Mathematics/Science Division

H. B. Loft, B.A., Chairman	
G. E. Ball, B.A.Sc., P.Eng.	Mathematics
H. W. Collard, B.A.	Mathematics
R. S. Etches, B.A.	Physics
H. D. Forrest, B.Sc., M.A.	Mathematics
H. Griffith, M.Sc.	Material Science Metallurgy
R. C. Hamilton, B.A.	Mathematics
R. E. Hansen, B.Sc., P.Eng.	Physics
W. H. vanderVelde, M.A.	Mathematics
J. Wilkinson, B.A.Sc., M.A.Sc.	Mathematics Science
R. Zimmer, M.A.	Mathematics

Social Science and Humanities Division

J. R. Harris, M.A., Chairman	
Miss M. Brock, M.A.	Assistant Chairman
S. Andrews, M.A.	English
M. W. Black, B.A.	English
W. R. Bolger, B.S.A., M.S.	Economics
R. R. Canon, M.A.	Economics
T. L. Christie, M.A.	Sociology
J. Cleary, B.A.	English
R. H. Destun, B.A.	English
Miss D. Duff, M.A.	Sociology
Miss P. Elliott, M.A.	Psychology
Mrs. M. J. Hale, B.A.	English
C. A. M. Hellyer, B.A.	English, Economics
Mrs. B. Jones, B.Sc.	Economics, Geography
P. C. Jones, B.A.	English
M. J. Kay, B.A.	English
Mrs. S. Lancaster, B.A.	English, Economics
E. J. Milne, B.A.	English
H. A. Mitchell, B.A.	Sociology
L. Monteyne, B.A.	English
K. D. Muir	Public Administration
Mrs. L. J. McClellan, B.A.	English
Mrs. S. Pardy, B.A.	Sociology
B. Seville, B.A., B.Com.	Economics, Politics
A. Spiller, B. of P.Ed.	Recreation Leadership
C. L. Stott, M.A.	Politics, Economics, History
Mrs. E. Watson, B.P.H.E.	Recreation Leadership

Technical Division

H. Rawson, Dean	
P. V. Arnsby	Chairman
J. Crook	Assistant Chairman, Drafting
B. G. Gloin, B.S.A., B.A.Sc., P.Eng.	Assistant Chairman, Mechanical
J. R. Sunseth, B.A.Sc., P.Eng.	Assistant Chairman, Electrical/Electronics
G. Gedies	Assistant Chairman, Motor Vehicle Repair
P. H. Atkinson	Electrical
F. C. Bennett	Automotive
T. Bevan, B.S.A.A.E.	Electronics
A. Blokker	Electronics, Mathematics
J. Bode, M.Sc.	Mechanical
J. D. Brodie, B.Sc., P.Eng.	Surveying
R. Cavallin	Architectural Drafting
J. F. Clark	Plumbing
M. H. Cody, B.A.	Refrigeration and Air Conditioning
J. Coghill	Electronics
J. Coryell	Electronics, Drafting
K. C. Daly	Hairdressing
W. Denbok	Automotive
A. Dimitrick, B.Sc.	Electrical Fundamentals
H. Faulkner, B.A.	Electronics

Mrs. B. Fleming	Hairdressing
H. Goldt	Mechanical Drafting
M. Grunwell, B.Sc.	Electrical/Electronics
T. Hagerty	Auto Body
H. W. Haindl	Hairdressing
W. S. Haygarth	Automotive
G. Heggarty	Auto Body
J. Higgins	Electronics
A. Hubert	Sheet Metal
K. C. Hulley	Welding
F. H. Jurchuk	Electrical
H. Kanter	Building Construction
K. T. Kennedy	Tool Making
D. A. Kidd	Automotive
G. Lancaster, B.Sc., P.Eng.	Structural
R. Lankin, C.E.T.	Architectural Drafting
D. O. Liska	Electrical
H. J. MacDonald	Automotive
R. Majoor	Mechanical Drafting
J. W. Maks	Electronics
R. McKibbon	Electrical
P. J. Melles	Automotive
F. R. Newport	Tool Design
W. L. Oliver, B.A.	Electronics
W. Peddie	Automotive
H. Peper	Electrical, A C Machines
R. O. Pinnance	Plumbing
M. H. Porter	Automotive
A. M. Powell	Electronics
J. Raine, B.Sc., P.Eng.	Mechanical
W. H. Rice	Hairdressing
J. C. Roberts, B.A.	Automotive
John C. Roberts, B.Sc., P.Eng.	Structural
J. S. Rowe	Automotive, Mathematics
C. R. Schiegel	Tool Making
R. St. Peter	Automotive
E. Stammler	Tool & Die
W. Stichhaller	Electrical
G. Suzuki	Building Construction
F. R. Taylor, B.Sc.	Mechanical Technology
M. Tindale	Building Construction
K. H. Trumper	Welding
N. Veenhof	Mechanical Drafting
V. Vitols, B.Sc.	Air Pollution
T. J. S. Wakfer	Building Construction
C. W. Wight	Automotive

Physical Education

K. Mancari, B.P.Ed., M.Ed.
Mrs. M. Whyte
L. Zoltai, LL.B.,. B.A., P.H.R.

CALENDAR YEAR

Interviewing, Counselling and Testing	—	May 20 - June 20, 1969
Graduation Ceremonies	—	May 30, 1969
Registration	—	September 2 - 5, 1969
First day of classes	—	September 8, 1969
Fanshawe Day	—	September 12, 1969
Thanksgiving Day	—	October 13, 1969
Last day of classes, first term	—	December 19, 1969
First day of classes, second term	—	January 5, 1970
Good Friday	—	March 27, 1970
New fiscal year begins	—	April 1, 1970

MAY 1969

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AUGUST 1969

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MARCH 1970

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OCTOBER 1970

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NOVEMBER 1970

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DECEMBER 1970

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ADMISSION REQUIREMENTS

General

Admission requirements generally are Grade XII with modification for certain courses as specified.

All students entering the first year of two or three year courses involving Mathematics will be required to write a Mathematics Inventory Test during registration week.

Three Year Diploma Courses

The minimum educational requirement for admission to the first year is:

Secretarial Science

(a) The Ontario Secondary School Graduation Diploma obtained after four years of successful study in the Five-Year Program, from Arts and Science, Science, Technology and Trades, or Business and Commerce Branches, with a 60% average.

(b) Equivalent standing from other provinces or from other countries.

(c) Applicants from the Four-Year programs who have obtained at least 70% average over Grades 11 and 12 may be considered.

Business Administration and Engineering Technology

(a) The Ontario Secondary School Graduation Diploma obtained after four years of successful study in the Five-Year Program from Arts and Science, or Science, Technology, and Trades Branches. Applicants for the engineering technology courses should have passed the English, Mathematics, Physics and Chemistry subjects of Grade 11 and 12 with an over-all average of at least 60 per cent. Applicants for Business Administration may substitute another option for the Science subjects.

OR

(b) Equivalent standing from other provinces or from other countries.

(c) Applicants from the Four-Year program of Arts and Science, or Science, Technology and Trades branches who have obtained at least 70% average over Grades 11 and 12 may be considered.

Engineering Technology - Direct Entry to Second Year

Applicants with an educational background equivalent to, or higher than the College common first-year course of studies may be approved for direct entry into the second year of a course, provided that, in the opinion of the Board of Admissions, the applicant's previous academic record of the following qualifications will, at the discretion of the Board of Admissions be admitted to the second year of the appropriate course.

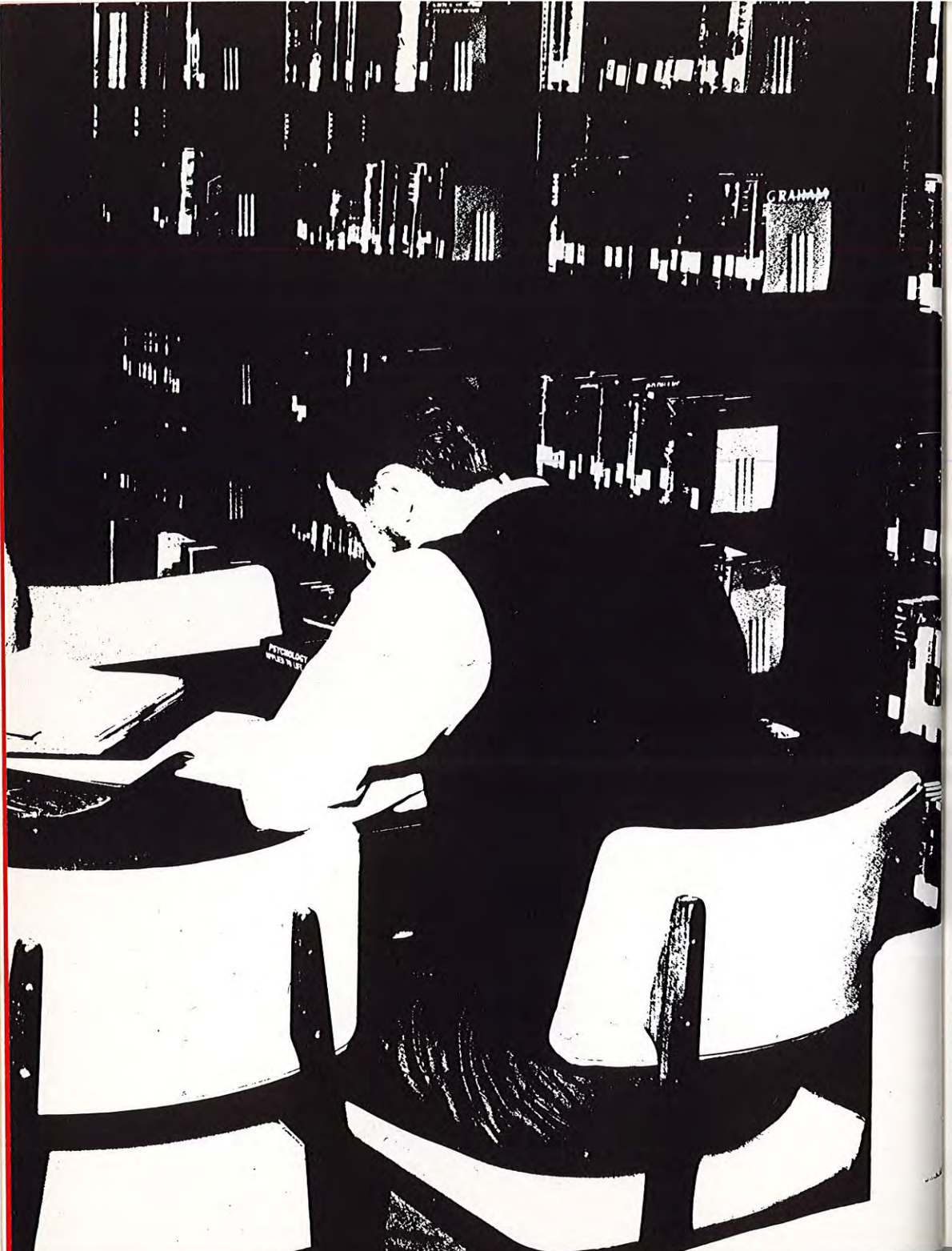
(a) The graduation diploma of a special Grade 13 engineering technology course offered in certain secondary schools, with an overall average of at least 60%;

(b) Certificates showing successful completion of the following subjects: Grade 13 English (composition and literature), trigonometry and statics, algebra, geometry, physics, and chemistry, and preferably one year of electricity and mechanical drafting, each at the Grade 11 level.

(c) Advanced Technical Evening Class Grade I Certificate consisting of nine required subjects, namely: English, mathematics I and II, physics I, mechanics I, electrical fundamentals, electronic fundamentals, general chemistry and technical drawing, with an overall average of at least 60%.

(d) Graduation from an Ontario Vocational Centre, or College of Applied Arts and Technology in cognate engineering technician courses, with an overall average of at least 60%;

(e) Other qualifications considered equivalent by the Board of Admissions.



Two Year Diploma Courses

Engineering Technicians

The minimum educational requirement for admission to any course in this program is:

(a) The Ontario Secondary School Graduation Diploma obtained after four years of successful study in either the Four or Five-Year program, in the Arts and Science, Technology and Trades branches. Applicants must have obtained Grade XII standing in English, Mathematics, Chemistry or another Science, and have obtained Grade II standing in Physics.

OR

(b) Equivalent standing from other provinces or from other countries.

Other Two Year Courses

As above, except that the Ontario Secondary School Graduation Diploma from any Four or Five-Year program is acceptable.

Summer Preparatory Course

A special technician preparatory course is normally offered at the College between July 21 and August 21, 1969. Students who have not specialized in a corresponding vocational course at Secondary School should be prepared to attend.

It has been our experience that students in the following technician courses, without the appropriate background of technical training, have found themselves to be at a disadvantage when compared with technical graduates.

Architectural Drafting Technician Course (Drafting-Architectural)

Mechanical Drafting Technician Course (Drafting-Mechanical)

Electrical Technician Course (Applied Electricity)

Electronic Technician Course (Applied Electronics)

Toolmaking Technician Course (Machine Shop Practice)

Tool Design Technician Course (Machine Shop Practice or Drafting-Mechanical)

Students should indicate when applying for admission whether or not they are willing to attend the preparatory course.

The fee for this course will be $10.00, payable on entry.

One Year Certificate Courses

Secondary School Graduation Diploma from any four or five-year program.

Medical Records Technician

Dental Assistant

Secondary School Graduation Diploma from any branch of the five-year program.

Two Year Legal & Medical Secretarial Courses

Admission to First Year

Grade XII from any branch of the four or five-year program.

Direct entry to Second Year

(a) Secondary School Graduation Diploma in the Business and Commerce Branch, designated Secretarial.

(b) Successful completion of Grade XII, Special Commercial.

In all cases a minimum of 80 words per minute Pitman Shorthand and 40 w.p.m. in typewriting is required.

Students who successfully complete the First year of the Business Secretarial course may transfer to second year of the Legal or Medical Secretarial program or continue in the Business Secretarial program.

Equivalent Standing

Equivalent standing from other provinces or other countries will be accepted. Generally, these are as follows:

Alberta Manitoba Newfoundland Nova Scotia Saskatchewan	Grade 11
British Columbia New Brunswick	Grade 12
Prince Edward Island	First Class License or Second Year Certificate - Prince of Wales College
Quebec	Quebec High School or McGill Junior Matriculation

Mature Applicants

Applications may be considered from mature students who do not satisfy the full requirements for admission. A mature applicant is a person of at least nineteen years of age who has been out of school for at least one year. Equivalent credits may be given in such cases for suitable work experience.

Mature applicants should arrange for a personal interview with the Registrar.

Applications

Applicants must complete the Application for Admission form issued by the college. Pages one and two only should be completed by the applicant and sent, together with a $10.00 application fee, to the College Registrar.

The application fee must be in the form of cash, money order or CERTIFIED CHEQUE, payable at par to Fanshawe College, London.

Page three is a confidential report to be completed by an official of a Secondary School last attended by the applicant. All questions should be answered and a record given of the marks obtained by the student through Grades 9 to 11 and those obtained at Easter in Grade XII. It should be forwarded by the school official direct to the College Registrar.

Applications will be reviewed by an Admissions Committee which is empowered to reject or defer the admission of any candidate.

Preliminary selection in many cases may be made on the strength of Easter marks. In some cases, selection may be delayed until final marks have been received.

Applications are then:

(a) approved for registration, or

(b) placed on a waiting list, or

(c) rejected.

The applicant who is approved for registration will be requested to send a confirmation fee of $25.00. This must be received within ten days of date of mailing if the applicant is to be retained on the approved list.

Since accommodation in most classes is limited, it should be understood that all qualified applicants may not be accepted.

Applicants approved for admission must be prepared to furnish their final marks on registration.

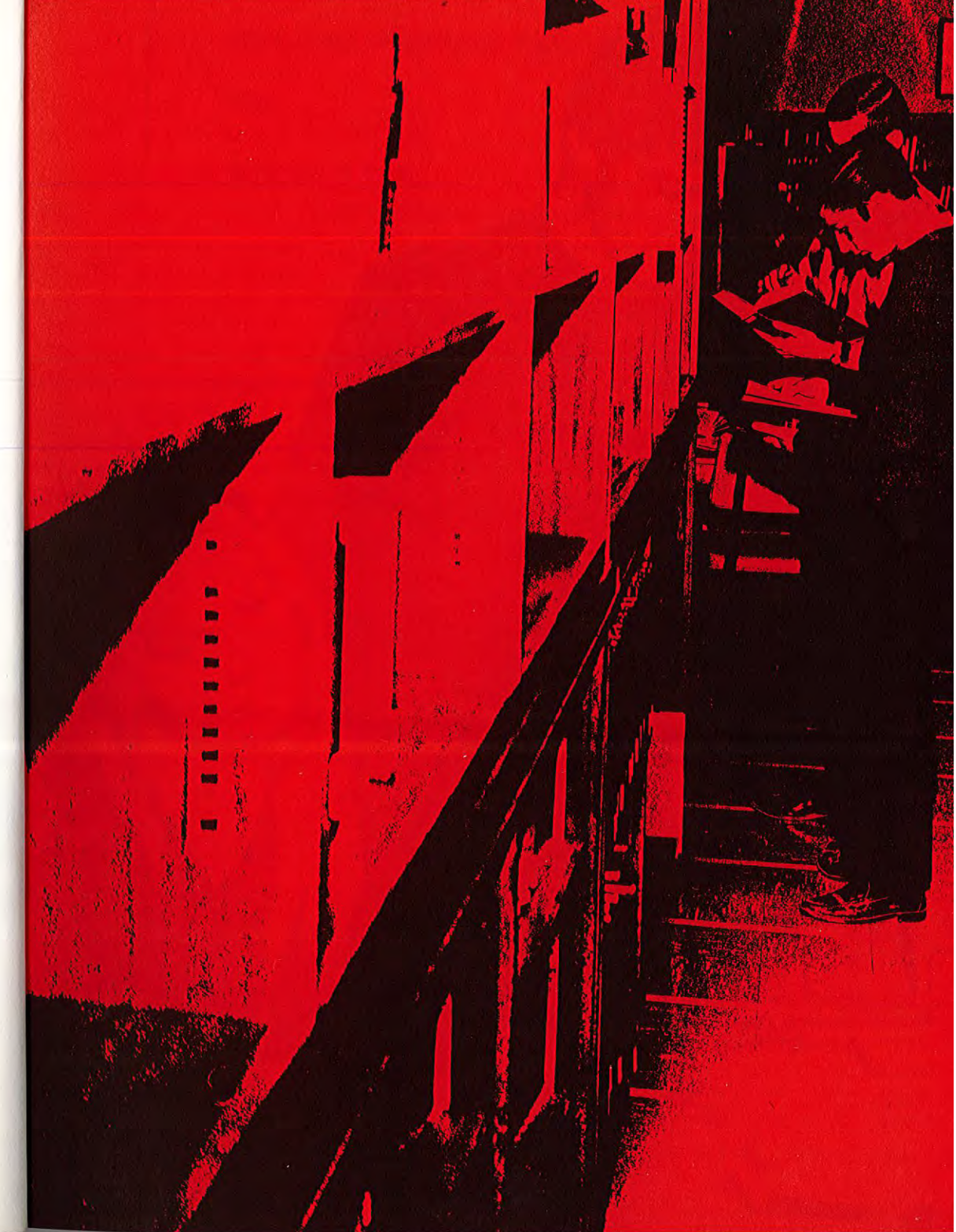
Registration

Registration may be completed by mail prior to the registration dates by writing to the Registrar. Otherwise a student must register in person and on the appropriate day at the College.

Tuesday, September 2, 1969	— Apprentices and Applied Arts Division
Wednesday, September 3, 1969	— Technical Division
Thursday, September 4, 1969	— Business and Mathematics & Physics Divisions
Friday, September 5, 1969	— Health & Welfare and Social Science & Humanities Divisions

All fees must be paid by time of registration.

Students registering after the above dates will be charged a late registration fee of $10.00 and no student will be allowed to register after September 30, 1969.



FEES AND FINANCIAL AID

FEES

Schedule of Fees

Fees which must have been paid by the time of registration are as follows:

Application Fee	$ 10.00	
Confirmation Fee	25.00	
Balance of Tuition	115.00	
Total Tuition		$150.00
Student Activity Fee		25.00
Insurance, etc.		5.00
Total Fee:		$180.00

The application fee of $10.00 must accompany every application for each year of every course. It is refunded only when an application is rejected.

The confirmation fee is payable upon notice of acceptance. Its payment guarantees the student a place in the course and is not refundable.

Some courses incorporate extensive field trips for which students are expected to pay their share. One example of this is Recreation Leadership where the cost of field trips for the year is approximately $200.00. Students should also be prepared to purchase books, supplies and incidentals at the time of registration.

All fees must be paid in cash, or by money order, or CERTIFIED cheque payable, at par, to Fanshawe College, London.

Special Fees

Special or occasional charges are as follows:

Transcript of Marks	$ 2.00 each
Mailing of Graduation Certificate or Diploma	5.00
Late Registration	10.00
Supplemental Examinations	2.00

Refund of Fees

1. As previously stated, the application fee of $10.00 will be refunded only if the application is not approved for registration. The confirmation fee of $25.00 is not refunded.

2. Tuition fees will be refundable to student who:
   withdraw before October 19, 1969 ..... $115.00
   withdraw within one week of release of First Term marks 75.00

3. There will be no refunds for withdrawals later than one week after release of First Term marks.

FINANCIAL AID

Ontario Student Award Program

The Ontario Student Awards Program applies to all students in full time day courses.

All student residents of Ontario may apply for an award under this Program. To receive an award, a student must register in the appropriate course at the College in the year of the award. An award, under this Program, will be made to the extent of established need in a combination of non-repayable grant and a Canada Student Loan. Application forms and information pamphlets pertaining to this program are available at Secondary Schools and all post Secondary eligible Institutions. Full information regarding submission of the application is given on the application.

Emergency Loan Fund

Through the generosity of McCormick's Limited of London, and two local Chapters of the I.O.D.E., a modest fund has been established from which loans may be made to students in temporary financial difficulties.

Awards - Bursaries - Scholarships

The President's Award — The first scholarship offered to Fanshawe College is the President's Award, presented by Dr. Colvin.

It is awarded on an annual basis for general proficiency to the man or woman student considered to have achieved the best overall record, including academic, athletic and other college interests.

The Northern Life Assurance Company of Canada Scholarship — This is a $100.00 scholarship offered annually to the student having the highest standing in courses relating to business and insurance. Special preference will be given to students pursuing a course which bears a relation to the insurance business.

The Atkinson Charitable Foundation Bursaries — Bursaries ranging up to a maximum of $500.00 for the second or third school year are made on the basis of merit and need.

The American Society of Tool and Manufacturing Engineers Award — This award is presented annually to the student obtaining the highest standing in Tool Making, Tool Design or Mechanical Drafting. It is a condition that this student is a member of the Student Chapter No. 69.

Rotary Club of London — Loans of up to $500.00 repayable at 5% interest are available to students in their final year, through the Rotary Club of London.

Royal Canadian Engineers — Scholarships of up to $500.00 awarded on the basis of merit and need to students in any course whose parent or grandparent has served with the Royal Canadian Engineers or the Military Engineers Branch of the Canadian Armed Forces.

Further Information

Further information and application forms for any of the above assistance programs bay be obtained from the Student Awards Office.

ACADEMIC REGULATIONS

EVALUATION and REPORTS

Evaluation

Term assignments, tests, projects and class participation are the basis of student evaluation at Fanshawe.

Reports

A report based on the First Term work is issued to each student early in January. A final report is mailed to the student's home address. Mid-term marks are issued by November 1 and March 1 of each year. Some courses or Divisions may issue more frequent progress reports.

Marks

Fanshawe uses a system of letter grades which are interpreted as follows:
A - Excellent; B - Proficient; C - Satisfactory;
D - Deficient; F - Failure

Grade Point Average

For purposes of computing grade point averages, the above marks are assigned a numerical equivalent as follows:

A = 4; B = 3; C = 2; D = 1; F = 0

These values are then applied to the units of credit assigned to each subject.

PROMOTION

Requirements

1. The minimum standard for unconditional promotion is a grade point average of 2.0 together with a grade of at least a D in each subject.

2. A student who has failed one or more subjects normally will fail the year.

3. A student who has achieved a 2.2+ grade point average but who has failed one subject, may be allowed to proceed to next year (or next term) of study in that program.

INFORMATION

Further information of a general nature or on any of the specific courses may be obtained by writing to

Fanshawe College,
P.O. Box 4005,
Terminal C,
London, Ontario,

or by contacting officers of the college at any of the following locations:

— 1460 Oxford St. East, London, Ontario.
— 549 First Street, London, Ontario.
— Suite one, Lower Mall, Wellington Square, London, Ontario.
— YMCA, Woodstock, Ontario.
— Woolworth Building, Simcoe, Ontario.

STUDENT LIFE

SERVICES and FACILITIES

Housing Registry

The College does not have on-campus living accommodations but the Registrar's office maintains a registry of rooming or boarding facilities in an area accessible to the College. Rates vary, according to the location and type of accommodation, from $18.00 to $25.00 per week for room and board.

Cafeteria

The cafeteria provides a hot, reasonable priced meal at noon, Mondays to Fridays. At other times, sandwiches, pastries, and hot or cold drinks are available from vending machines.

Health Center

A Health Center, under the supervision of a registered nurse, is open during school hours and is available for first-aid, minor illnesses and referrals. Two doctors are in attendance, two mornings a week and are available in emergencies.

Insurance

Every full-time student is covered by a basic Student Accident Insurance Plan. Premiums are included in the fee schedule. Extended coverage is available with the payment of an additional premium. Further information will be provided at registration.

Students over the age of 21, or married students under that age, are responsible for maintaining their own Ontario Hospital Insurance. Students under the age of 21 are automatically covered if their parents are participants in the Plan. It is advisable that students have their Ontario Hospital Insurance number readily available at all times. Students from outside Ontario are advised to protect themselves by registering with the Ontario Hospital Services Commission.

All accidents must be reported to the nurse as soon as possible.

This insurance plan, however, does not cover Emergency treatment of an accident within the first 24 hours, since this coverage is provided only by Ontario Hospital Insurance.

Under certain conditions, Ontario Medical Services Insurance Plan (OMSIP) is available to students at a reduced rate.

Information regarding any of the above Insurance Plans may be obtained at the Health Center.

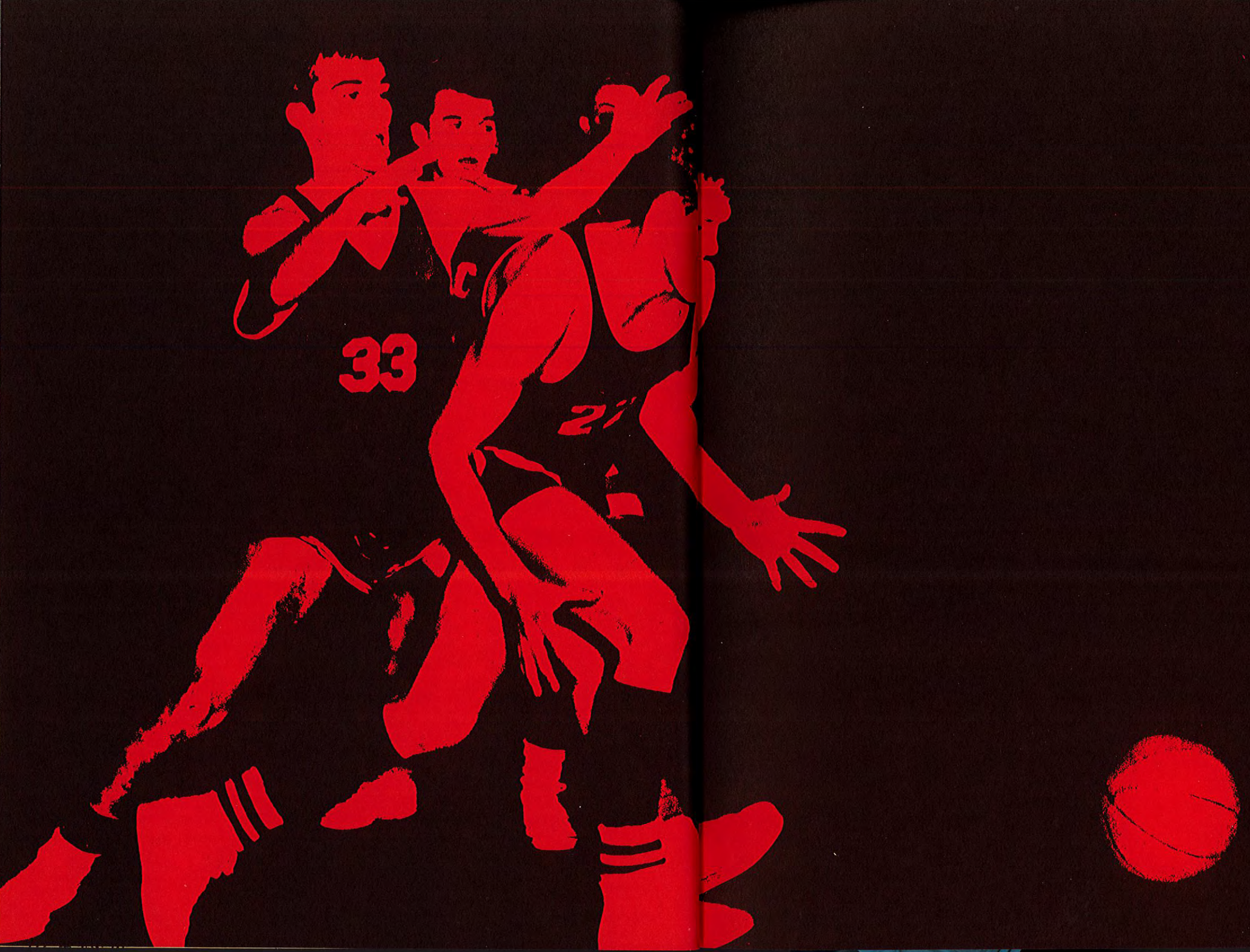
Student Counselling Services

The counselling program is to make available to the individual student the services of counsellors from the time of registration through to his graduation and placement. Educational, vocational and personal problems may be discussed with a counsellor who will try to assist the student in forming realistic goals and making sound decisions. Further details are available in a pamphlet issued by the Counselling Office.

Student Placement Service

The student placement officer is available to assist students desiring either part-time or full-time employment.

An on-campus recruiting program is conducted in the spring. Employers from appropriate businesses and industries are invited to interview students. Information on careers and industries is available in the Placement Office.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Library

Students are invited to make the Library the center of their academic life at Fanshawe College. A large number of books and reference works relating to each of the college courses is available.

Bookstore

The bookstore is intended to provide a convenient source of required textbooks for Fanshawe courses. Binders, paper, pencils and other materials and equipment are also available.

Lockers

Lockers are allotted to students without charge. Combination padlocks are available from the bookstore.

Transportation

Adequate public transportation is available. Limited facilities are available, however, for student parking on campus although spaces are not permanently allotted.

Physical Education

Physical education is an important part of the program at Fanshawe College.

Each student may select a physical program to meet his individual needs and interests. The program includes regular physical education classes, intramurals, physical recreation clubs and intercollegiate athletics.

In addition to body building activities and games a program of recreational sports such as badminton, table tennis, golf and softball is offered.

The program will be offered in the following four phases:

(a) Regular physical education classes. These are conducted to teach students the skills of various activities.

(b) Intramurals. The College offers an intramural program in the following sports: soccer, basketball, volleyball, ice hockey, badminton, and track and field. All students are eligible for intramurals.

(c) Physical Recreation Clubs. Emphasis is placed on sports which have a carry-over value, for example: fencing, golf, judo, tennis, curling, etc. The Student Council conducts the program by forming clubs in each activity under the direction and supervision of the Physical Education Department.

(d) Intercollegiate Athletics. The College conducts a program of Intercollegiate athletics for men and women in soccer, golf, ice hockey, basketball, volleyball and possibly others. Fee paying students with acceptable academic standings are eligible for intercollegiate sports.

AGRICULTURE DIVISION

Fanshawe College works in close co-operation with the Ontario Department of Agriculture and Food to bring education on agricultural topics within the reach of those people unable to get away from their farm business to attend residential programs outside their community.

FARM BUSINESS MANAGEMENT

In 1967-68, at the request of the farm community in Oxford County, a pilot course in Farm Business Management was established in **Woodstock.** A second course was established in **Simcoe** for 1968-69 at the request of the Norfolk County farm community.

The purpose of the course is to provide the student with a background in business management and to develop the managerial skills needed to run a modern and progressive farm business. Problems of acquiring and combining resources are examined as well as the problems and challenges of marketing. Particular attention is paid to the most up to date technology and developments in research.

Fanshawe College works closely in cooperation with the Ontario Department of Agriculture and Food in providing this course. The course brings education on agricultural topics within the reach of those people unable to leave their farm business to attend residential programs outside of their community.

Admission

Secondary School graduation diploma from either of the four or five year programs, OR equivalent standing from another province or another country, OR applications will be considered from mature students over nineteen years of age who may not have the complete requirements listed above.

Duration: Two Years

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Crop Husbandry	AA001A	6	2.5	2.5	5.0
Animal Husbandry	AA002A	6	2.5	2.5	5.0
Agricultural Engineering	AA003A	6	2.5	2.5	5.0
Farm Business Management	AA004A	15	5.0	5.0	10.0
10 field trips per year					
					25.0
YEAR 2					
Crop Husbandry	AA001B	6	2.5	2.5	5.0
Animal Husbandry	AA002B	6	2.5	2.5	5.0
Agricultural Engineering	AA003B	6	2.5	2.5	5.0
Farm Business Management	AA004B	15	5.0	5.0	10.0
10 field trips per year					
					25.0

Subject Details

Crop Husbandry AA001A and B

Basic agronomy, pH, soil properties, plant requirements, nutrients, sunlight, fertilizer, irrigation, cultivation, seeding, weed control, disease control, harvest, storage, marketing, recording and management.

Animal Husbandry AA002A and B

Breeds, breeding systems of production. Housing, ventilation, water and feed requirements, rations, hormones and synthetics. Disease and pest control, practical skills, marketing, recording and management.

Agricultural Engineering AA003A and B

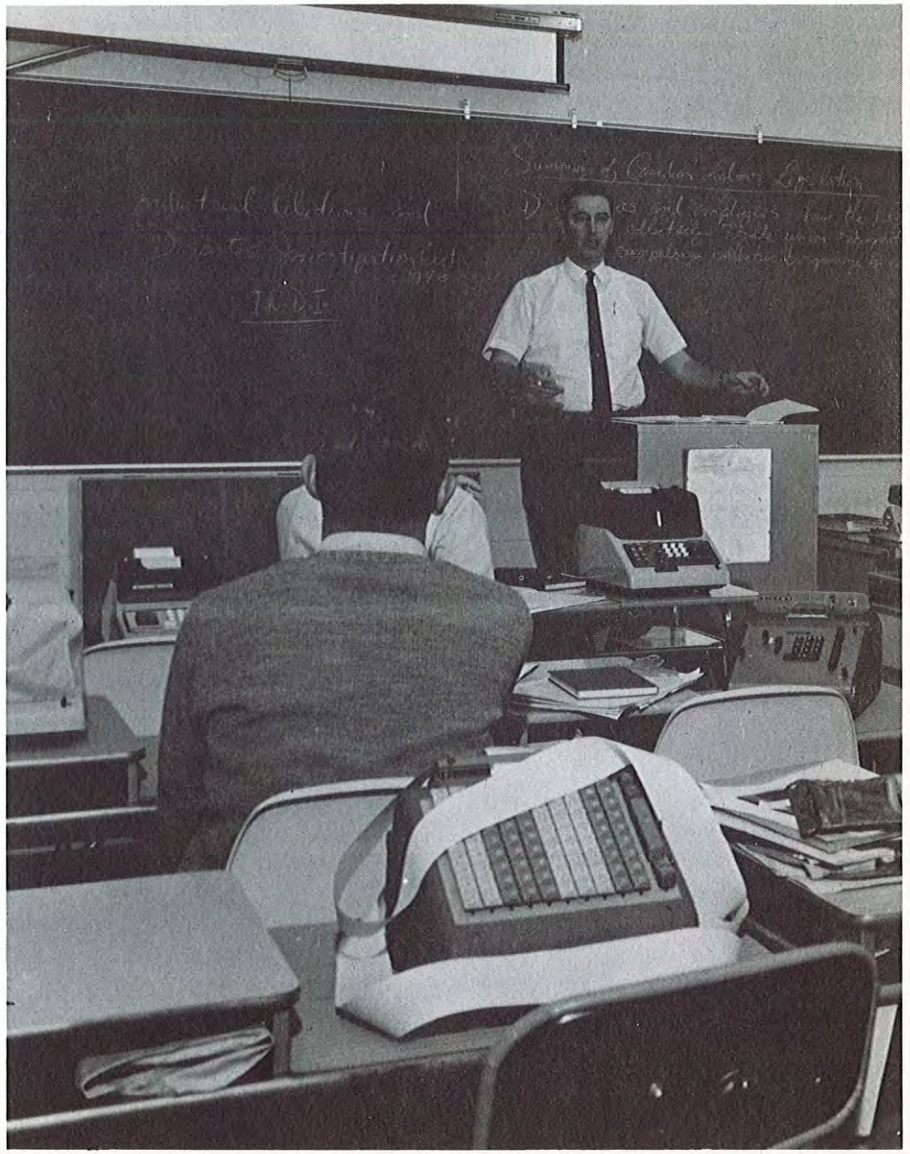
Workshop principles; maintenance, operation and safety of farm machines. Construction principles. Work study, systems planning, material handling principles. Specifications, Contracts and Legislation.

Farm Business Management

Records and record analysis. Enterprise costings and comparison of various farm enterprises. Budgeting — complete, partial and capital. Forward planning. Economic Theory part 1. Fixed and variable costs, depreciation, substitution, diminishing returns, diversification and specialization.

Farm Business Management

Credit and financing —to obtain, control and repay. Business organization — partnerships agreements, estate planning, father and son agreements. Insurance, risk, security, necessity. Political — taxation, trade balances, effect of tariffs, subsidies, grants. Economic Theory part II. Marketing, supply and demand, contracts, horizontal and vertical integration.



APPLIED ARTS DIVISION

The Applied Arts Division provides courses for a variety of occupations in the visual arts, communication and catering services. Extensive facilities are being developed for painting, sculpture, ceramics, printmaking, photography, film, television, radio, interior design, industrial design, advertising, printing, catering. Instructors either have recent experience in industry or are themselves practising professionals. All courses include field work.

ARCHITECTURAL ART

This course is concerned with the use of art on an architectural scale as an integral part of building design. Students are trained as creative designers, consultants and advisers. Employment opportunities are available in studios, glass factories, manufacturers and architects' offices.

Course Numbers, First Year 2011, Second Year 2012

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program and have completed the one year college Basic Design Course. Special arrangements are made for mature candidates.

Duration

Two years following completion of the one year Basic Design Course.

Content

The course provides practical training in all relevant media: stained glass, ceramics, plaster, metals, wood, plastics, photography. The college is developing extensive facilities for work in these fields. The course also includes the study of English, Architectural Practice, Presentation and Business Practice.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Stained Glass	BB003A	5	2.5	2.5	5
Ceramics	BB004A	5	2.5	2.5	5
Sculpture	BB005A	5	2.5	2.5	5
Photography	BB006A	2	1.0	1.0	2
Presentation	BB007A	2	1.0	1.0	2
English	BF025A	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Stained Glass	BB003B	5	2.5	2.5	5
Ceramics	BB004B	5	2.5	2.5	5
Sculpture	BB005B	5	2.5	2.5	5
Photography	BB006B	2	1.0	1.0	2
Architecture	BB008A	3	1.5	1.5	3
Introduction to Business	BC020	3	1.5	1.5	3
English	BF025B	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Subject Details

Stained Glass BB003A and B

Design and execution of stained glass projects with thorough training in all techniques.

Ceramics BB004A and B

Design and production of wall, relief and free standing objects in ceramics — training in all aspects of ceramics techniques.

Sculpture BB005A and B

Design of three dimensional objects which are then executed in plaster, stone, wood, metals, plastics.

Photography BB006A and B

Basic photography techniques and use of the medium for architectural features.

Presentation BB007A

Training in the methods of presenting design projects.

English BF025A and B

Practical communication in speech and writing, together with the study of selected works.

Architectural BB008A

A study of the environmental and structural factors affecting the use of art in architecture.

Introduction to Business BC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations, office services and management; financial control; kinds of financial and Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Elective

To be selected by each student.

COMMUNICATION ARTS

This course prepares students for employment in the rapidly expanding fields of Television, Radio, Film, Photography, Journalism, Advertising and Public Relations. The first year provides a basic training in all these fields, followed by specialization in one of them during the second year.

Course Numbers, First Year 2021, Second Year 2022

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration

Two years with optional third year.

Content

The course provides practical training in all aspects of the communication arts field. Instructors are professional practitioners in their subjects and the facilities being developed include a television studio, radio studio, film and photography studios, scenery workshop, graphics and advertising studios. Background studies are provided in Drama and Speech, Music, English, The History of Mass Media, Typewriting, Business and Accounting. A special feature of the course is the extensive provision for project work in agencies outside the college.

Hours and Credits

YEAR 1		Hours	Units of Credit		
Subject	Number	per Week	1st Term	2nd Term	Total
Photo and Film	BB009A	6	3.0	3.0	6
TV and Radio	BB010A	6	3.0	3.0	6
Journalism	BB011A	3	1.5	1.5	3
Advertising	BB012A	3	1.5	1.5	3
Drama, Speech, Music	BB013A	3	1.5	1.5	3
Mass Media	BB014A	2	1.0	1.0	2
English	BF026A	2	1.0	1.0	2
Typewriting	BC010	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
(a) Major Study - one of the following					
Photo and Cinematography	BB009B)				
TV and Radio	BB010B)				
Journalism	BB011B)	18	9.0	9.0	18
Advertising	BB012B)				
Speech and Drama	BB013B)				
(b) Supporting Subjects					
Mass Media	BB014B	3	1.5	1.5	3
English	BF026B	3	1.5	1.5	3
Business and Accounting	BC020	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Photography and Cinematography BB009A and B

A comprehensive training in all the photographic processes with extensive practical assignments in the fields of industrial, portrait and public relations photography together with documentary and feature cinematography.

TV and Radio BB010A and B

A highly practical training in all aspects of TV and Radio Studio work, including production .

Journalism BB011A and B

A general introduction to Journalism followed by project work.

Advertising BB012A and B

A comprehensive introduction to advertising, sales promotion techniques and careers in public relations.

Speech, Drama and Music BB013A and B

Practical work designed to equip students for work in the communication fields.

Mass Media BB014A and B

A study of the development of the Mass Media and their sociological significance.

English BF026A and B

Practical communication in speech and writing, together with the study of selected works.

Typewriting BC010

Parts of typewriter; letters and characters of keyboard; centering; tabulation; letter style and punctuation; addressing envelopes, folding and inserting letters; carbon copy exercises; office standards; office organization; postal and banking services; filing procedures.

Business and Accounting BC020

Forms of business ownership; functions of management; personnel department, wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Elective

To be selected by each student.

INDUSTRIAL DESIGN

This course provides training in environmental design, transportation and the design of all types of industrial and consumer products. There are excellent employment opportunities in product and package design, sales, advertising, exhibition work, the design of architectural components and consulting practice.

Course Numbers, First Year 2031, Second Year 2032

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program and have completed the one year college Basic Design Course. Special arrangements are made for mature candidates.

Duration

Two years following completion of the one year Basic Design Course.

Content

The course provides a sound practical training in the materials and techniques of industrial design, in Ergonomics, Environmental Planning, Graphical Representation, Display, Marketing and Packaging. In addition to realistic projects in these subjects the course includes such background subjects as English, Sociology, Art and Society, Psychology and Economics.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Industrial Design	BB023A	5	2.5	2.5	5
Materials and Processes	BB024A	3	1.5	1.5	3
Ergonomics	BB025A	2	1.0	1.0	2
Graphical Representation	BB026A	3	1.5	1.5	3
Art and Society	BB027A	2	1.0	1.0	2
Architectural Elements	BB028A	2	1.0	1.0	2
English	BF027A	3	1.5	1.5	3
Sociology	BF668A	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Industrial Design	BB023B	6	3.0	3.0	6
Materials and Processes	BB024B	3	1.5	1.5	3
Ergonomics and Process of Analysis	BB025A	2	1.0	1.0	2
Audio-Visual Communication	BB029A	1	.5	.5	1
Display, Advertising	BB030A	1	.5	.5	1
Packaging Professional Practice	BB031A	2	1.0	1.0	2
Lettering and Typography	BB032A	2	1.0		1
Economics	BF412B	2		1.0	1
English	BF027B	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Subject Details

Industrial Design BB023A and B

Realistic projects in the analysis of function and the design of industrial and domestic products and in environmental planning.

Materials and Processes BB024A and B

A study of the properties of materials and of manufacturing processes.

Ergonomics BB025A and B

A study of human anatomy and biological functions and the way they affect the design of industrial products and human environment.

Graphical Representation BB026A

Exercises to develop the students' skill in the representation of product designs.

Art and Society BB027A

A study of key developments in the history of art and design with biographical studies of artists, architects and designers.

Architectural and Interior Elements BB028A

An examination of the place of Industrial Design in the design of cities, buildings and interiors.

Audio-Visual Communication BB029A

The use of audio-visual equipment in the design of products and the presentation of ideas.

Display, Packaging, Advertising BB030A

The place of marketing techniques in relation to product design and the approach to packaging and sales promotion.

Professional Practice BB031A

A knowledge of the business practices relevant to the work of an industrial designer.

Lettering and Typography BB032A

Exercises in the use of lettering in the design of products and in presentations.

English BF027A and B

Practical communication in speech and writing, together with the study of selected works.

Sociology BF668A

Survey of Sociological developments.

Economics BF412B

Survey of economic developments.

Elective

To be selected by each student.

INTERIOR DESIGN

This course provides training in the design of all types of interiors: industrial buildings, hospitals, restaurants, offices, private homes, apartments and store displays. There are good career prospects in studios, furniture stores, paint companies, glass companies, manufacturers.

Course Numbers, First Year 2041, Second Year 2042

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program and have completed the one year college Basic Design Course. Special arrangements are made for mature candidates.

Duration

Two years following completion of the one year Basic Design Course.

Content

The course provides practical training through a series of design projects and outside assignments, together with the basic skills of Measuring and Estimating, Rendering, Drawing and Painting. Supporting studies such as English and Economics are also provided.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	Number	Week	Term	Term	Total
Decorative Textiles and Sources of Supply	BB018A	3	1.5	1.5	3
Measuring and Estimating	BB019A	3	1.5	1.5	3
Drawing and Painting	BB020A	6	3.0	3.0	6
Rendering	BB021A	6	3.0	3.0	6
English	BF028A	3	1.5	1.5	3
Economics	BF412B	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Projects	BB018B	6	3.0	3.0	6
Drawing and Painting	BB020B	6	3.0	3.0	6
Rendering	BB021B	6	3.0	3.0	6
English	BF028B	3	1.5	1.5	3
Business Practice	BB022A	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Subject Details

Decorative Textiles and Sources of Supply BB018A and B

A study of the materials used in interior furnishings followed by a series of design projects.

Measuring and Estimating BB019A

Techniques of measuring materials and interiors and preparing specifications and estimates.

Drawing and Painting BB020A and B

Exercises to develop the students' use of colour texture and form.

Rendering BB021A and B

Training in the depiction and presentation of interior design schemes.

Business Practice BB022A

Background studies in business procedures as applied to Interior Design.

English BF028A and B

Practical communication in speech and writing, together with the study of selected works.

Economics BF412B

Survey of economic developments.

Elective

To be selected by each student.

PRINTING MANAGEMENT

This course prepares students for positions in the graphic arts industry leading to management. It has been developed in co-operation with the local printing industry, one of the largest employers in this area.
The object of the course is to educate students to an understanding of graphic technology and a mastery of business and managerial skills as related to the printing industry.

Course Numbers: First Year 2051, Second Year 2052, Third Year 2053

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Three Years

Contents

The course provides a comprehensive knowledge of all aspects of printing technology, with background studies in the business skills, e.g. Accounting, Statistics, Marketing, Law, Financial Management, Practical experience is provided in the college printing laboratory and by means of frequent visits to printing firms.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	Number	Week	Term	Term	Total
Printing Processes Methods and Materials	BB014A	6	3.0	3.0	6
Layout and Design	BB015A	2	1.0	1.0	2
Accounting	BC015	4	2.0	2.0	4
Mathematics	BH020A	3	1.5	1.5	3
English	BF029A	3	1.5	1.5	3
Science	BH721A	3	1.5	1.5	3
Introduction to Business	BC020	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Printing Processes Methods and Materials	BB014B	6	3.0	3.0	6
Layout and Design	BB015B	2	1.0	1.0	2
Accounting	BC035A	3	1.5	1.5	3
Mathematics and Statistics	BH020B	3	1.5	1.5	3
English	BF029B	3	1.5	1.5	3
Marketing Production	BC100A	3	1.5	1.5	3
Management	BB016A	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 3					
Printing Processes Methods and Materials	BB014C	6	3.0	3.0	6
Layout and Design	BB015C	2	1.0	1.0	2
Finance	BC031	3	1.5	1.5	3
Sales Management	BC108	3	1.5	1.5	3
Estimating	BB017A	4	2.0	2.0	4
Law	BC024	3	1.5	1.5	3
Human and Industrial Relations	BC037	4	2.0	2.0	4
Elective		2	1.0	1.0	2

Subject Details

Printing Processes and Materials BB014A, B and C

A systematic introduction to all aspects of printing technology with practical laboratory experience.

Layout and Design BB015A, B and C

Training in the techniques and fundamentals of good typographic design.

Production Management BB016A

A study of the organization and control of production processes in the printing industry.

Accounting (1st Year Subject) BC015

The balance sheet; profit and loss statement; purpose and form of account, general journal, work sheet, adjusting and closing entries; special journals; drafts and promissory notes; petty cash; cash control; payroll; practice set.

Accounting (2nd Year Subject) BC035A

Introduction to double-entry bookkeeping; transaction recording; payroll accounting; preparation of financial statements; adjustments; worksheet; partnership accounts; goodwill; practice set; formation of limited companies; retained earnings, dividends and reserves; share capital and surplus; bonds and investment securities; manufacturing accounts.

Mathematics & Statistics BH020A and B

Simple interest and discount; compound interest and discount; investing in stocks and bonds; borrowing money from a bank; instalment buying and selling with calculation of true interest rates; purchase and sale of real estate; income tax; municipal excise and sales tax; customs duties; fire and automobile insurance; continuous drill on operations involving whole numbers, fractions and decimals.

English BF029A and B

Practical communication in speech and writing, together with the study of selected works.

Science BH721A

An introduction to the science of processes, methods and materials.

Marketing BC100A

Introduction to the marketing process. Areas involved include: marketing system, functions of the various market institutions, customer decision making, consumer behavior, selection of trade channels, product policy and planning, market research analysis and forecasting, understanding the need for planning and coordination of all marketing activities.

Finance BC031

Role of finance; internal financial analysis, ratios, source and application of funds; working capital requirements; planning fixed assets; expenditures; source of Corporate funds, net profit, depreciation, tax considerations, policy decisions; dividends, equity vs. debit financing, short term capital and credit; long term debt financing.

Sales Management BC108

The salesman's role, duties, and responsibilities in our society is examined. Consideration is given to preparations necessary to sell — understanding consumer behaviour and motivation, the product and competition. Sales process — sales aids, sales presentation, closing the sale, building goodwill. Course also covers the principles and problems of sales organization; recruiting selection, training and supervision of sales personnel; motivation and control of salesmen.

Estimating BB017A

The methods of estimating printing jobs.

Law BC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Human and Industrial Relations BC037

Human relations in business organizations; historical and current of management approaches to personnel problems; case study analysis and their applications to management problems. The supervisor and the company; the supervisor and the union; developing and maintaining job interest; judging performance; developing leadership skills; individual interview and group meetings. History of labour unions; examination of labour philosophies; strength of labour organizations; labour negotiations; conciliation, strikes; grievance procedures and arbitration. Problems of union-management relations — structure of Canadian labour market and current union.

Introduction to Business

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

AUDIO-VISUAL TECHNICIAN

This course provides training in the operation and maintenance of all types of audio-visual equipment, for example, projectors, tape recorders, cameras. Good employment opportunities are available in schools, colleges, universities, industrial training centres.

Course Numbers, First Year 2061, Second Year 2062

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Two Years

Content

Students learn the operation and maintenance of a wide variety of audio- visual equipment, i.e. cameras, film projectors, slide projectors, overhead projectors, tape recorders, closed circuit television equipment, photocopiers. Instruction is also given in the care and development of audio-visual materials such as slide collections and films. The College is developing an extensive Learning Resources Centre to meet its own needs and students will have ample opportunities for practical experience. The course also includes basic studies such as Science and English.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Photo Equipment	BB033A	5	2.5	2.5	5
Printing and Duplicating	BB034A	4	2.0	2.0	4
Radio and TV Equipment	BB035A	5	2.5	2.5	5
Graphics	BB036A	3	1.5	1.5	3
Theory	BB037A	3	1.5	1.5	3
English	BF032A	3	1.5	1.5	3
Science	BH720A	3	1.5	1.5	3
Typewriting	BC010	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Photo Equipment	BB033B	5	2.5	2.5	5
Printing and Duplicating	BB034B	4	2.0	2.0	4
Radio and TV Equipment	BB035B	5	2.5	2.5	5
Stock-keeping and Records	BB038A	3	1.5	1.5	3
Theory	BB037B	3	1.5	1.5	3
English	BF032B	3	1.5	1.5	3
Introduction to Computing	BC060	2	1.0	1.0	2
Elective		2	1.0	1.0	2

Subject Details

Photographic Equipment BB033A and B

A systematic training in the use and maintenance of cameras, projectors, darkroom equipment; photographic processes, development of slide and film collection.

Printing and Duplicating BB034A

Training in the use of all types of printing and reprographic equipment normally used in educational institutions.

Radio and Television BB035A and B

The use of radio, television and related equipment for educational purposes.

Graphics BB036A

Lettering, typography, illustration, Use of Colour, Layout, Preparation of Charts, Notices, Displays.

Theory BB037A and B

The use of audio-visual techniques in the learning process.

Stock-keeping Records BB038A

Methods of recording stock, controlling issue and receipt of equipment, ordering, invoices, budgets.

English BF032A and B

Practical communication in speech and writing, together with the study of selected works.

Science BH720A

Background physics and chemistry in relation to theory of photography, printing, radio and television.

Typewriting BC010

One year basic course in use of manual and electric machines.

Introduction to Computing BC060

One year course in use of computers in educational institutions.

Elective

To be selected by each student.

FOOD SERVICE MANAGEMENT

This course prepares students for managerial and supervisory positions in every aspect of the food service industry: in hotels, motels, restaurants, hospitals, schools, colleges, factories. The career prospects for qualified personnel are particularly good in these fields.

Course Numbers, First Year 2071, Second Year 2072

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Two Years

Content

The course provides practical training in menu planning, food preparation, kitchen organization and restaurant service. Theoretical subjects include English, Science, Mathematics, Accounting and Introduction to Business, in addition to the background of the food industry. The facilities of the college will include a Food Services Laboratory.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Practical Catering	BB001A	9	4.5	4.5	9
Catering Theory	BB002A	6	3.0	3.0	6
English	BF031A	3	1.5	1.5	3
Science	BH718A	3	1.5	1.5	3
Accounting	BC015A	3	1.5	1.5	3
Introduction to Business	BC020A	3	1.5	1.5	3
Mathematics	08021A	2	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Practical Catering	BB001B	9	4.5	4.5	9
Catering Theory	BB002B	6	3.0	3.0	6
English	BF031B	3	1.5	1.5	3
Science	BH718A	3	1.5	1.5	3
Accounting	BC015B	3	1.5	1.5	3
Introduction to Business	BC020B	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Subject Details

Practical Catering BB001A and B

Practical training in menu planning, ordering, budgeting, food preparation, kitchen organization, restaurant service.

Catering Theory BB002A and B

Background of food service industry, types of establishment, hygiene, culinary and dietary terms, recipes, equipment planning and methods, supervision, food production, purchasing, management, law, design and layout.

English BF031A and B

Practical communication in speech and writing, together with the study of selected works.

Science BH718A and B

Bacteriology, chemistry and physics of food processes.

Accounting BC015A and B

The balance sheet; profit and loss statement; purpose and form of accounts; general journal, work sheet, adjusting and closing entries; special journals; drafts and promissory notes; petty cash; cash control; payroll; practice set.

Introduction to Business BC020A and B

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Mathematics 08021A

Review of elementary mathematics; statistical control; mathematics for budgetary control and nutrition.

Elective

To be selected by each student.

PHOTOGRAPHIC TECHNICIAN

This course prepares students for employment as technicians in photographic studios, darkrooms and processing laboratories. The emphasis of the course is on the technical aspects of photographic processes rather than the actual art of photography, although there is ample scope for work in practical photography. There are good employment prospects in photographic studios, hospitals, printing works, newspaper offices, television stations, photo-processing plants, education institutions and in many industrial firms.

Course Numbers, First Year 2081, Second Year 2082

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Two Years

Contents

The course provides practical training in all aspects of photography, with particular emphasis on technical processes and equipment. English and Science are also included.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Photographic Processes	BB039A	8	4.0	4.0	8
Practical Photography	BB040A	9	4.5	4.5	9
English	BF033A	3	1.5	1.5	3
Science	BH719A	3	1.5	1.5	3
Elective		2	1.0	1.0	2
YEAR 2					
Photographic Processes	BB039B	8	4.0	4.0	8
Practical Photography	BB040B	9	4.5	4.5	9
English	BF033B	3	1.5	1.5	3
Science	BH719B	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Subject Details

Photographic Processes BB039A and B

Training in use of photographic equipment, materials and processes.

Practical Photography BB040A and B

Practical exercises in photography.

English BF033A and B

Practical communication in speech and writing, together with the study of selected works.

Science BH719A and B

Physics and chemistry related to colour, light, lenses, photographic processes.

Elective

To be selected by each student.

BASIC DESIGN

This is a one year foundation course taken by students wishing to specialize during their second and third years in one of the following courses: Architectural Art, Industrial Design, Interior Design, Commercial and Fine Art.

Course Number 2101

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: One Year

Content

The foundation year provides a broad training in basic design and experience in a variety of media. In addition students take academic subjects such as English and History of Art together with a course in Special Studies which provides an introduction to the fields of Architectural Art, Industrial Design, Interior Design and Advertising Design. Students are thus enabled to make a meaningful choice of a specialized field of studies for their second and third years.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Special Studies	BB041A	3	1.5	1.5	3
Design Fundamentals	BB042A	14	3.5	3.5	7
History of Art	BB047A	3	1.5	1.5	3
English	BF034	3	1.5	1.5	3
Drafting	BJ141A	3	1.5	1.5	3
Elective		2	1.0	1.0	2

Subject Details

Special Studies BB041A

Projects in Architectural Art, Industrial Design, Interior Design, Advertising Design.

Design Fundamentals BB042A

Experimental projects to develop the student's creative use of media.

History of Art BB047A

A study of key developments in art and design.

English BF034

Practical communication in speech and writing, together with the study of selected works.

Drafting BJ141A

Review of basic drafting skills and concepts; sketching and pictorial drawing; dimensions of systems, fits, tolerances, surface finishes; preparation of design, detail and assembly working drawings; use of tables and catalogues; threads and fasteners; materials and manufacturing processes.

Elective

To be selected by each student.

BUSINESS DIVISION

The purpose of the Business Division is to meet the increasing demands of the business community for capable and trained individuals who can accept responsibility, assess situations, make decisions, communicate effectively and work with people. The program of studies in each course has been planned to satisfy these requirements.

The Business Division intends to graduate liberally educated business students who have developed positive personal qualities as well as business skills and who are able to adapt readily to the ever-changing needs of today's society. To accomplish this goal, all programs include disciplines from the humanities and social sciences, as well as business subjects generally.

In order to be more fully aware of the changing needs of the business community and to ensure students that course content follows current practices, a close liaison with employers is maintained through a divisional advisory committee, course advisory committees, and student work experience programs. Wherever possible, a close liaison is maintained with professional associations interested in graduates of particular courses. Some of these associations include: the Certified General Accountants' Association, the Registered Industrial Accountants' Association, the Association of Chartered Accountants, the National Secretaries Association, the Retail Council of Canada, and the Data Processing Managers' Association.

New courses initiated by the Business Division are established only after surveys as to the need for graduates have been made and a measure of demand has been determined. This procedure ensures that graduates of all business courses will have ample employment opportunities.

ACCOUNTANCY

This course offers further education to the Secondary School graduate who wishes to enter the field of accounting. Related subjects include business management, data processing, and law. Successful completion of this program will enable students to obtain exemptions from the recognized Accounting Associations.

The graduate of this program will be prepared for a variety of accounting positions in business and industry. It is presumed that a majority of graduates will eventually enroll in programs offered by recognized Accounting Associations.

Course Numbers, First Year 3021, Second Year 3022

Admission

Secondary School Graduation Diploma.

Duration

Two years.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	Number	Week	Term	Term	Total
Accounting	CC025A	6	2.5	2.5	5
Business Machines	CC022	3	1	1	2
Data Processing I	CC061A	5	2.5	2.5	5
English	CF050A	3	1.5	1.5	3
Introduction to Business	CC020	3	1.5	1.5	3
Mathematics	CH030A	5	2.5	2.5	5
Elective		2	1	1	2
YEAR 2					
Accounting	CC025B	8	3	3	6
Accounting Systems	CC023	2	1	1	2
Auditing and Taxation	CC021	3	1.5	1.5	3
Economics	CF409B	3	1.5	1.5	3
English	CF050B	3	1.5	1.5	3
Law	CC024	3	1.5	1.5	3
Mathematics	CH030B	5	2.5	2.5	5
Elective		2	1	1	2

Subject Details

Accounting CC025A

Introduction to double-entry bookkeeping; transaction recording; payroll accounting; preparation of financial statements; adjustments; worksheet; partnership accounts; goodwill; retained earnings; dividends and reserves; practice set; formation of limited companies; share capital and surplus; bonds and investment securities; manufacturing accounts.

Business Machines CC022

Exposure to a variety of business machines: printing calculators; full keyboard listing machines; rotary calculators; electric calculators; keypunches; accounting machines; duplicating and photo-copying equipment.

Data Processing I CC061A

The need for electronic data processing in business; the data processing cycle; the Hollerith card; methods of input preparation; elements and capabilities of an electronic computer; coded data representation; the central processing unit; an introduction to the stored program concept using a hypothetical low level programming language; flowcharting; solving simple business problems using a high level programming language; an introduction to magnetic tape and disk concepts; an introduction to systems analysis and design.

English CF050A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too, at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Mathematics CH030A

Basic algebra; factoring, exponents and radicals, linear equations and inequalities and their solutions in one and two variables; quadratic equations; graphs; break-even points and profit levels; introduction to linear programming; matrices; logarithms; sequences, arithmetic and geometric progressions; number bases for computers; growth of money (compound interest).

Elective

To be selected by each student.

Accounting CC025B

Topics include: year-end procedures and adjustments; measuring and recording revenue; cash and short term investments; receivables; liabilities; inventory; long-term investments; fixed assets; limited companies; retained earnings and dividends; corporation taxes; analysis of financial statements; departmental and branch operations; consolidated statements.

Accounting Systems CC023

Designing general ledger account forms; automatic writing and reproducing equipment; account posting by machine methods; records management; systems and procedures; accounts receivable and payable procedures; payroll and production control procedures; inventory procedures; practical application is achieved by the use of business machines and other mechanical aids.

Auditing and Taxation CC021

Audit reports; audit programs; original record examinations; cash, receivables, related revenues and credit losses; investments and related revenues; inventories and loss of sales; prepaid items and related expenses; assets. liabilities and equities; completing an audit; legal responsibilities of auditors; determination of an audit; determination of taxable incomes for individuals, partnerships, small business concerns and limited companies; completion of Canadian Taxation returns; Canadian taxation laws.

Economics CF409B

Organization of business enterprises; demand, supply and price, applications of price theory; perfect and imperfect competition; monopoly; principles of income distribution; wages; trade unions; rent, interest and profit; international trade; economic cooperation; public finance; money supply and price levels.

English CF050B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.
The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Mathematics CH030B

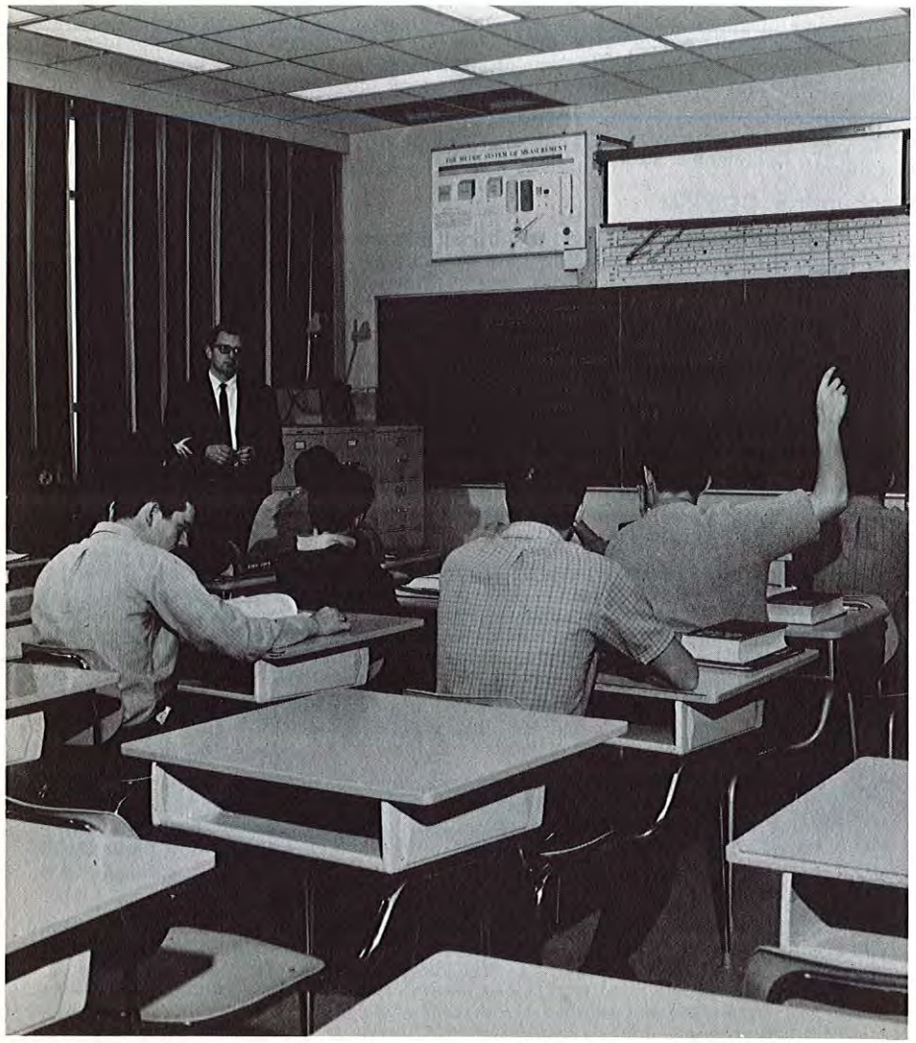
Mathematics of Finance including reviewing compound interest and equations of equivalence; annuities — simple and general; amortization; depletion; perpetuities; capitalization; depreciation; bonds.

Business Statistics

Frequency distribution; measures of central tendencies and dispension; probability; theoretical frequency distributions; sampling; statistical influence and testing in hypothesis; use and construction of index numbers; time series and trend fitting; correlation and regression.

Elective

To be selected by each student.



BUSINESS ADMINISTRATION

The aim of this course is to provide the student with a broad business oriented education along with a strong emphasis on the humanities and social sciences. Success in this course depends upon a sound knowledge of business plus the ability to relate this knowledge to their social and economic environment. Individual subjects are of two general types those such as accounting, administration and marketing with direct "on the job" application, and those such as economics, psychology and political science. Students must select in the third year one of five options for specialization.

Challenging opportunities in administration, accounting, finance, systems analysis, marketing and retailing should be available to graduates in manufacturing industries, accounting firms, banks and trust companies, insurance companies, government departments, advertising agencies, retailing concerns and a wide variety of other organizations.

Course Numbers: First Year 3031, Second Year 3032, Third Year 3033

Admission

Secondary School Graduation Diploma from the five year program, with a sixty percent average.

Duration: Three Years.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	**Number**	**Week**	**1st Term**	**2nd Term**	**Total**
Accounting	CC025A	5	2.5	2.5	5
Data Processing I	CC061A	5	2.5	2.5	5
English	CF051A	3	1.5	1.5	3
Introduction to Business	CC020	3	1.5	1.5	3
Marketing I	CC100A	3	1.5	1.5	3
Mathematics	CH031A	5	2.5	2.5	5
Elective		2	1	1	2
YEAR 2					
Accounting	CC035A	3	1.5	1.5	3
Economics	CF409B	3	1.5	1.5	3
English	CF051B	3	1.5	1.5	3
Finance	CC031	3	1.5	—	1.5
Law	CC024	3	1.5	1.5	3
Math of Finance and Statistics	CH031B	5	2.5	2.5	5
Office and Personnel Administration	CC030	5	2.5	2.5	5
Production	CC036	3	—	1.5	1.5
Elective		2	1	1	2
YEAR 3					
English	CF051C	3	1.5	1.5	3
Human & Industrial Relations	CC037	3	1.5	1.5	3
Statistics and Linear Programming	CH031C	3	1.5	1.5	3
Elective		2	1	1	2
Option (one of five)		12			12
Accounting Option					
Accounting	CC035B	7	3.5	3.5	7
Systems	CC023	2	1	1	2
Auditing and Taxation	CC021	3	1.5	1.5	3
Business Computer Systems Option					
Advanced Programming & Computer Applications	CC063	7	3.5	3.5	7
Data Processing Systems	CC064	3	1.5	1.5	3
Data Processing Project	CC065	2	1	1	2

Subject	Number	Hours per Week	Units of Credit 1st Term	2nd Term	Total
Financial Option					
Auditing & Taxation	CC021	3	1.5	1.5	3
Financial Administention	CC032	3	1.5	1.5	3
Financial & Investment Management	CC033	3	1.5	1.5	3
Money and Banking	CC034	3	1.5	1.5	3
Marketing Option					
Advertising & Sales Promotion	CC103	3	1.5	1.5	3
Marketing II	CC100B	3	1.5	1.5	3
Purchasing	CC038	2	1	1	2
Salesmanship & Sales Management	CC108	4	2	2	4
Retailing Option					
Advertising & Sales Promotion	CC103	4	—	2	2
Credits & Collections	CC104	2	1	—	1
Customer & Public Relations	CC105	2	—	1	1
Retail Administration	CC101	3	1.5	1.5	3
Salesmanship & Sales Management	CC108	4	2	—	2
Techniques of Buying	CC110	3	—	1.5	1.5
Techniques of Merchandising	CC109	3	1.5	—	1.5

Subject Details

Accounting CC025A

Introduction to double-entry bookkeeping; transaction recording; payroll accounting; preparation of financial statements; adjustments; worksheet; partnership accounting; goodwill; practice set; formation of limited companies; retained earnings, dividends and reserves; share capital and surplus; bonds and investment securities.

Data Processing I CC061A

The need for electronic data processing in business; the data processing cycle; the Hollerith card; methods of input preparation; elements and capabilities of an electronic computer; coded data representation; the central processing unit; an introduction to the stored program concept using a hypothetical low level programming language; flowcharting; solving simple business problems using a high level programming language; an introduction to magnetic tape and disk concepts; an introduction to systems analysis and design.

English CF051A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Marketing I CC100A

Introduction to the marketing process. Areas involved include: marketing system, functions of the various market institutions, customer decision making, consumer behaviour, selection of trade channels, product policy and planning, market research, analysis and forecasting, understanding the need for planning and coordination of all marketing activities.

Mathematics CH031A

Review of fundamental operations; simple linear equations in one unknown; simultaneous linear equations; ratio, proportion and percentages; single discount equations of payments; exponents and radicals; quadratic equations; series; functions and graphs; logarithms.

Elective

To be selected by each student.

Accounting CC035A

Departmental accounting; partnerships - formation, dissolution and liquidation of partnership; limited companies-organization, issue of shares to public, premiums and discounts, dividends, forfeited shares, incorporation of a partnership; bonds - amortization, redemption, sinking fund; cost accounting; bankruptcy; branches; review of accounting principles; financial statement analysis.

Economics CF409B

Organization of business enterprises; demand, supply and price, applications of price theory; perfect and imperfect competition; monopoly; principles of income distribution; wages; trade unions; rent; interest and profit; international trade; economic cooperation; public finance; money supply and price levels.

English CF051B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

Finance CC031

Role of finance; internal financial analysis, ratios, source and application of funds; planning working capital requirements; planning fixed asset expenditures; source of Corporate funds, net profit, depreciation, tax considerations, policy decisions; dividends, equity vs. debit financing, short term capital and credit; long term debt financing.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Math of Finance and Statistics CH031B

Statistics for management - Part I. The value of statistical techniques; measures of central tendency and dispersion; probability; frequency distribution. Mathematics of Finance - review of topics from - compound interest, interest and discount and corresponding present value and amount problems; annuities certain including ordinary annuities, due and deferred annuities; perpetuities, capitalized cost and general annuities; amortization and sinking funds; bonds; depreciation; life annuities and life insurance. Algebra problems including number bases; problems in profit and expenses; matrices; linear programming and inventory control.

Office and Administration Personnel CC030

A study of basic principles and procedures relating to office organization including routine and personnel considerations. The course covers such areas as: functions of an Office Manager; organizing and planning office operations; organization chart, communications, office planning and layout, furnishings and equipment, staffing the office; controlling office costs, system analysis, forms analysis, job analysis, work measurement, leadership, effective supervision of office activities, training programs, wage structure, business information systems, mechanical aids.

Production CC036

A general study of the production function in business. The topics covered include: basic functions of production, product planning, models for decision-making, financial model, break-even chart, decision-making in production, deciding input and output levels, types of production, production of goods to order and for stock, organizing for production, capacity for production, process planning, plant planning, effective use of capacity, controlling quality level and maintaining facilities.

Elective

To be selected by each student.

English CF051C

Third year English students will elect a course of their choice **each** semester from such possibilities as FILM LITERATURE PUBLIC SPEAKING, THE NOVEL, DRAMA WORKSHOP, LITERATURE and MUSIC.

Human and Industrial Relations CC037

Human relations in business organizations; historical and current theories of management approaches to personnel problems; case study analysis and their applications to management problems. The supervisor and the company; the supervisor and the union; developing and maintaining job interest; judging performance; developing leadership skills; individual interview and group meetings. History of labour unions; examination of labour philosophies; structure of labour organizations; labour negotiations; conciliation, strikes, grievance procedures and arbitration. Problems of union-management relations — structure of Canadian labour market and current union problems.

Statistics and Linear Programming CH031C

Statistics for management part two - sampling; estimation; testing of hypothesis; correlation and regression; line series and index numbers; chi square test; analysis of variance.

Elective

To be selected by each student.

Accounting Option

Accounting CC035C

Examinations in depth of the following topics; accounting procedures, working papers, measuring and reporting income, financial statements, revising statements to correct errors, cash and secondary cash resources, current and long term liabilities, inventory pricing and control, long term investments, fixed and sundry assets, share capital, retained earnings, dividends.

Accounting Systems CC023

Designing general ledger account forms; automatic writing and reproducing equipment; account posting by machine methods; records management; systems and procedures; accounts receivable and payable procedures; payroll and production control procedures; inventory procedures; practical application is achieved by the use of business machines and other mechanical aids.

Auditing and Taxation CC021

Audit reports; audit programs; original record examinations; cash, receivables, related revenues and credit losses; investments and related revenues; inventories and less of sales; prepaid items and related expenses; assets, liabilities and equities; completing an audit; legal responsibilities of auditor; determination of an audit; determination of taxable incomes for individuals, partnerships, small business concerns and limited companies; completion of Canadian Taxation returns; Canadian Taxation law.

Business Computer Systems Option

Advanced Programming and Computer Applications CC063

Oriented to the needs of management and deals generally with systems design and analysis, using the case study methods and management information systems; some programming in a business oriented language.

Data Processing Project CC065

The analysis of a systems problem and the design of a new system.

Financial Option

Auditing and Taxation CC021

Audit reports; audit programs; original record examinations; cash, receivables, related revenues and credit losses; investments and related revenues; inventories and loss of sales; prepaid items and related expenses; assets, liabilities and equities; completing an audit; legal responsibilities of auditors; determination of an audit; determination of taxable incomes for individuals, partnerships, small business concerns and limited companies; completion of Canadian Taxation returns; Canadian Taxation law.

Financial Administration CC032

Consideration and analysis of the factors related to the liquidity, risk, income and control in Canadian business. A study of the effects of changing credit conditions upon the liquidity of firms of various sizes along with the technique of timing used to minimize the long-run cost of capital.

Financial and Investment Management CC033

The course intent is to enable the student to develop a critical approach to investments and personal finance. The course covers such areas as credit cards and instalment plans, borrowing, banking, life insurance, annuities, securities market, investment companies, financial analysis, portfolio analysis.

Money and Banking CC034

This course in Canadian money and banking surveys the nature and use of money and the development of monetary standards. It further deals with current commercial banking operations within a historical context. Non-bank financial intermediaries are studied as well to provide an understanding of the entire financial community. Central banking and monetary control are key topics. Monetary theory and income determination provide a basis for understanding the impact of money on the economy. The analysis is extended to an open economy to indicate the role of money in international trade.

Marketing Option

Advertising and Sales Promotion CC103

Examination of the four major groups of media — printed advertising media, broadcast media, position media and point of purchase; creation of advertising — copy, art and layout, mechanical production; structure planning and management.

Marketing II CC100B

Markets and the marketing environment, market segmentation, buyer behaviour, market measurement and forecasting, planning, research, product decisions, marketing control.

Purchasing CC038

Scope and importance of the procurement function; organization and personnel for purchasing; contributors to profits; discussion of problems and cases involving business procurement; purchasing procedures; quality considerations; sources of supply; price policies; forward buying and speculation; procurement of major equipment.

Salesmanship and Sales Management CC108

The salesman's role, duties, and responsibilities in our society is examined. Consideration is given to preparations necessary to sell: understanding consumer behaviour and motivation, the product and competition; sales process: sales aids, sales presentation, closing the sale, building goodwill. Course also covers the principles and problems of sales organization; recruiting selection, training and supervision of sales personnel, motivation and control of salesmen.

Retailing Option

Credit and Collections CC103

Mercantile credit terms and credit instruments; credit agencies; analysing the credit risk, character, income, capital, residence, employment, debtor psychology, property; credit procedures; credit records; operation of a credit department; legislation, statute of limitations, conditional sales act, small loans act, sales finance and consumer finance companies.

Retail Administration CC101

Review and evaluate the technological and environmental changes that have taken place and the responses made by retailing institutions including management policies and operating methods. The principal areas covered are:- changes in the retail trade, establishing a retail store, store location, store layout and store organization, and retail control including merchandise and financial record control.

Salesmanship and Sales Management CC108

The salesman's role, duties, and responsibilities in our society is examined. Consideration is given to preparations necessary to sell:- understanding consumer behaviour and motivation, the product and competition. Sales process:- sales aids, sales presentation, closing the sale, building goodwill. Course also covers the principles and problems of sales organization; recruiting selection, training and supervision of sales personnel; motivation and control of salesmen.

Techniques of Merchandising CC109

This course covers the mathematical, statistical and control phases of retail merchandising. The principal areas included are: price and mark up computation; evaluation of inventories, stock controls, plan buying, and the comparison of commonly-used techniques.

Advertising and Sales Promotion CC103

Examination of the four major groups of media — printed advertising media, broadcast media, position media and point of purchase; creation of advertising — copy, art and layout, mechanical production; advertising planning and management.

Customer and Public Relations CC105

A general approach of the subject is taken with the intent of developing student awareness, appreciation and positive reaction to the customer. The course includes such topics as:- customer relation policies, store strategy, implementation of policies; understanding the customer, human behaviour patterns and motivations; changing external environment, income levels, living habits, leisure time; public relations, relations with the community and means of change.

Techniques of Buying CC110

A study of principles and philosophy that determine excellence in merchandise selection for resale. Areas covered are:- management of the buying function; the buying function, what to buy, where and how to buy and buyer/vendor relations.

GENERAL BUSINESS

This course is designed to provide students with the necessary skills to meet the demands of automated business offices, as well as provide a combination of instructions in accounting, data processing, marketing, law, etc.
The graduate from this course will find employment opportunities in almost all business enterprises. Opportunities exist in large and small companies engaged in manufacturing and processing, insurance, financial and retailing institutions, and other companies in the services sector of business.

Course Numbers, First Year 3041, Second Year 3042

Admission

Secondary School Graduation Diploma or qualifications considered satisfactory by The Board of Admissions.

Duration: Two Years

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Accounting	CC015	4	1.5	1.5	3
Business Correspondence	CC052	2	—	1	1
Business Machines	CC022	3	1	1	2
Business Mathematics	CF054	3	1.5	1.5	3
English	CF052A	3	1.5	1.5	3
Human Relations	CC056	2	1	—	1
Introduction to Business	CC020	3	1.5	1.5	3
Introduction to Typewriting	CC010	4	1	1	2
Law	CC024	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Credits and Collections	CC104	2	1	—	1
Customer and Public Relations	CC105	2	—	1	1
Economics	CF409B	3	1.5	1.5	3
English	CF052B	3	1.5	1.5	3
Data Processing I	CC061A	5	2.5	2.5	5
Marketing I	CC100A	3	1.5	1.5	3
Office & Personnel Administration	CC030	5	2.5	2.5	5
Salesmanship	CC107	5	2.5	—	2.5
Techniques of Merchandising	CC109	5	—	2.5	2.5
Elective		2	1	1	2

Subject Details

Accounting CC015

Topics include: the recording of Balance Sheet and Income and Expense transactions; the journal; the ledger; posting; trial balance; closing entries; post closing trial balance; cash receipts and payments; purchases and the accounts payable ledger; sales and the accounts receivable ledger; adjusting entries and worksheet; financial statements; payroll; depreciation; accrued income and expenses.

Business Correspondence CC052

Business letter structure; preparing letters for mailing; mechanical details; punctuation; the sentence; essential characteristics of the business letter; simpler types of business letters; advanced types of business letters; administrative correspondence.

Business Machines CC022

Exposure to a variety of business machines; printing calculators; full keyboard listing machines; rotary calculators; electronic calculators; key punches; accounting machines; duplicating and photocopying equipment.

Business Mathematics CC054

Simple interest and discount; compound interest and discount; investing in stocks and bonds; borrowing money from a bank; instalment buying and selling with calculation of true interest rates; purchase and sale of real estate; income tax; taxation; life insurance; fire and automobile insurance; payroll; depreciation.

English CF052A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Human Relations CC056

Etiquette in business; personality improvement; self-analysis; role of home, school and church in today's society; the techniques of delegating; handling people; efficient remembering and reminder systems; building personal leadership; statistical measurement and rating scales; biographical and auto-biographical studies; human relations in business.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Introduction to Typewriting CC010

Parts of typewriter; letters and characters of keyboard; centering; tabulation; letter style and punctuation; addressing, envelopes, folding and inserting letters; carbon copy exercises; office standards; office organization; postal and banking services; filing procedures.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sale of goods; bailment; real property; lease.

Elective

To be selected by each student.

Credits and Collections CC104

Mercantile credit terms and credit instruments; credit agencies; analysing the credit risk, character, income, capital, residence, employment, debtor psychology, property; credit procedures; credit records; operation of a credit department; legislation; statute of limitations, conditional sales act, small loans act, sales finance and consumer finance companies.

Customer and Public Relations CC105

A general approach of the subject is taken with the intent of developing student awareness, appreciation and positive reaction to the customer. The course includes such topics as: customer relation policies, store strategy, implementation of policies; understanding the customer, human behaviour patterns and motivations; changing external environment, income levels, living habits, leisure time; public relations, relations with the community and means of change.

Economics CF409B

Organization of business enterprises; demand, supply and price, applications of price theory; perfect and imperfect competition; monopoly; principles of income distribution; wages; trade unions; rent, interest and profit; international trade; economic operation; public finance, money supply and price levels.

English CF052B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

Data Processing I CC061A

The need for electronic data processing in business; the data processing cycle; the Hollerith card; methods of input preparation; elements and capabilities of an electronic computer; coded data representation; the central processing unit; an introduction to the stored program concept using a hypothetical low level programming language; flowcharting; solving simple business problems using a high level programming language; an introduction to magnetic tape and disk concepts; an introduction to systems analysis and design.

Marketing I CC100A

Introduction to the marketing process. Areas involved include: marketing system, functions of the various market institutions, customer decision making, consumer behaviour, selection of trade channels, product policy and planning, market research, analysis and forecasting, understanding the need for planning and coordination of all marketing activities.

Office and Personnel Administration CC030

A study of basic principles and procedures relating to office organization including routine and personnel considerations. The course covers such areas as: functions of an office manager; organizing and planning office operations; organization chart, communications, office planning and layout, furnishings and equipment, staffing the office; controlling office costs, system analysis, forms analysis, job analysis, work measurement, leadership, effective supervision of office activities, training programs, wage structure, business information systems, mechanical aids.

Salesmanship CC107

The salesman's role, duties, and responsibilities in our society is examined. Consideration is given to preparations necessary to sell: understanding consumer behaviour and motivation, the product and competition. Sales process: sales aids, sales presentation, closing the sale, building goodwill.

Techniques of Merchandising CC109

This course covers the following general areas: Merchandising - lines to carry, supply availability, layout planning, pricing. Inventory - control, reorder systems, mark-up, mark-downs, profit, turnover. Selling - staff selection, staff product knowledge, customer shopping conditions. Sales Promotion - tools; advertising, displays, credit promotions. Advertising - mediums, newspapers, radio, circulars, television.

Elective

To be selected by each student.

BUSINESS SECRETARIAL

This course is designed to provide students with the necessary secretarial skills to meet the demands of modern business, as well as provide a sound basis for more advanced secretarial courses. A combination of instruction in typewriting, shorthand, business machines, and office procedures will provide an excellent business education.

While graduates usually begin employment as stenographers, with experience and with this background, they should qualify for early advancement to the secretarial level.

Note: The Business Secretarial Course and either the Legal, Medical, or second year of the Business Secretarial Course could be combined to form a two year course for those applicants without previous secretarial training.

The entrance requirements for Legal, Medical and second year of the Business Secretarial courses includes a minimum of 80 w.p.m. in shorthand, and 40 w.p.m. in typewriting.

Course Numbers, First Year 3051, Second Year 3052

Admission

Secondary School Graduation Diploma or qualifications considered satisfactory by the Board of Admissions.

Note: Secondary School graduates of the Business and Commerce branch, designated Secretarial or Special, may be admitted into the second year if they have 80 w.p.m. in shorthand, and 40 w.p.m. in typewriting.

Duration

Two years.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Business Correspondence	CC052	2	1	1	2
Business Machines	CC022	3	1	1	2
Business Mathematics	CC054	3	1.5	1.5	3
English	CF053A	3	1.5	1.5	3
Secretarial Accounting I	CC055	3	1.5	1.5	3
Shorthand and Transcription I	CC050A	6	2.5	2.5	5
Typewriting I	CC051A	6	2.5	2.5	5
Elective		2	1	1	2
YEAR 2					
English	CF053B	3	1.5	1.5	3
Human Relations	CC056	2	1	—	1
Introduction to Business	CC020	3	1.5	1.5	3
Law	CC024	3	1.5	1.5	3
Personal Development	CC057	2	—	1	1
Secretarial Procedures	CC053	3	1.5	1.5	3
Shorthand and Transcription II	CC050B	6	2.5	2.5	5
Typewriting II	CC051B	6	2.5	2.5	5
Elective		2	1	1	2

Subject Details

Business Correspondence CC052

Business letter structure; preparing letters for mailing; mechanical details; punctuation; the sentence; essential characteristics of the business letter; simpler types of business letters; advanced types of business letters; administrative correspondence.

Business Machines CC022

Exposure to a variety of business machines; printing calculators; full keyboard listing machines; rotary calculators; electronic calculators; keypunches; accounting machines; duplicating and photo-copying equipment.

Business Mathematics CC054

Simple interest and discount; compound interest and discount; investing in stocks and bonds; borrowing money from a bank; instalment buying and selling with calculation of true interest rates; purchase and sale of real estate; income tax; taxation; life insurance; fire and automobile insurance; payroll; depreciation.

English CC053A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Secretarial Accounting I CC055

Personal cash records; cash records for a service business; the ledger; trial balance and financial statements; combined journal and worksheet; special journals; adjusting and closing entries; payroll records; secretarial accounting for a variety of retail concerns.

Shorthand and Transcription I CC050A

Principles of Pitman Shorthand system; shorthand writing techniques; speed development; personalized disc and tape lesson dictation; development of theoretical accuracy; dictation of business correspondence.

Typewriting I CC051A

Parts of typewriter; letters and characters of keyboard; centering; tabulation; letter styles and punctuation; addressing envelopes, folding and inserting letters; carbon copy exercises; circular letters; bank and financial statements; practice on transcribing units.

Elective

To be selected by each student.

English CF053B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

Human Relations CC056

Etiquette in business; personality improvement; self-analysis; role of home, school and church in today's society; the techniques of delegating; handling people; efficient remembering and reminder systems; building personal leadership; statistical measurement and rating scales; biographical and auto-biographical studies; human relations in business.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Personal Development CC057

The development of personality, charm and poise. Topics include: charm analysis; character improvement chart; "Musts" for a career girl; telephone courtesy; public relations; speaking effectively; the well-groomed look; colour and your personality; posture development; complexion care; planning your wardrobe.

Secretarial Procedures CC053

Topics: office procedures; preparation for dictation; transcription; reports and manuscripts; minutes of meetings; travel information; receptionist duties and responsibilities; telephone service; kinds of communications; postal services; information retrieval systems; creating filing systems; alphabetic and geographical systems, numeric and subject filing systems; filing equipment; card and microfilming systems; retention and disposal of records.

Shorthand and Transcription II CC050B

Advanced speed in writing and transcribing shorthand dictation; periodic speed and vocabulary tests and Theory Review Tests; personalized tape and disc dictation at advanced speeds; Shorthand Transcription techniques.

Typewriting II CC051B

Advanced speed and accuracy building in the operation of various electric typewriters; manuscripts and proofreading; business and legal documents; duplicating equipment and processes; dictation to and transcription from dictation machines; prerequisites for transcription, punctuation, syllabication, abbreviations.

Elective

To be selected by each student.

ELECTRONIC DATA PROCESSING

This course offers further education to Secondary School graduates who wish to enter the specialized field of data processing. Related subjects include accounting, business management, and economics. The remainder of the course places emphasis on the highly specialized areas of data processing. Successful completion of this program will enable students to seek positions initially as junior programmers. The nature and scope of data processing activities in business, industry, education and government, insure graduates unique employment opportunities.

Course Numbers, First Year 3061, Second Year 3062

Admission

Secondary School Graduation Diploma.

Duration: Two Years

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Accounting	CC025A	6	2.5	2.5	5
Data Processing I	CC061A	5	2.5	2.5	5
Computer Programming I	CC062A	3	1.5	1.5	3
English	CF054A	3	1.5	1.5	3
Introduction to Business	CC020	3	1.5	1.5	3
Mathematics	CH032A	5	2.5	2.5	5
Elective		2	1	1	2
YEAR 2					
Data Processing II	CC061B	7	2.5	2.5	5
Computer Programming II	CC062B	7	2.5	2.5	5
Economics	CF409B	3	1.5	1.5	3
English	CF054B	3	1.5	1.5	3
Law	CC024	3	1.5	1.5	3
Mathematics	CH032B	3	1.5	1.5	3
Elective		2	1	1	2

Subject Details

Accounting CC025A

Introduction to double-entry bookkeeping; transaction recording; payroll accounting; preparation of financial statements; adjustments; worksheet; partnership accounts; goodwill; retained earnings; dividends and reserves; practice set; formation of limited companies; share capital and surplus; bonds and investment securities; manufacturing accounts.

Data Processing I CC061A

The need for electronic data processing in business; the data processing cycle; the Hollerith card; methods of input preparation; elements and capabilities of an electronic computer; coded data representation; the central processing unit; an introduction to the stored program concept using a hypothetical low level programming language; flow-charting; solving simple business problems using a high level programming language an introduction to magnetic tape and disk concepts; an introduction to systems analysis and design.

Computer Programming I CC062A

This is a problem course of a practical nature using a high level programming language. Successful completion of the course requires submission of completely documented programs for several business type problems.

English CF054A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Mathematics CH032A

Number bases; basic algebra including factoring, exponents and radicals; linear equations and inequalities and their solutions in one and two variables; quadratic equations; graphs; logarithms, systems of equations; matrices; introduction to linear programming and other application; sequences, arithmetic and geometric progressions; summations, square roots.

Elective

To be selected by each student.

Data Processing II CC061B

This course is concerned with the analysis and design of business systems, with emphasis on adapting manual systems to the computer. The case study method is used. Topics include: forms design, file design, systems flow-charting, management information systems. The aim of this course is to develop in the data processing student, the ability to relate his technical skills to the business organization as a whole.

Computer Programming II CC062B

The purpose of this course is to develop in the student the ability to write computer programs in several languages including COBOL, FORTRAN IV, and RPG. Successful completion of the course will depend upon the submission of completely documented programs for a variety of problems.

Economics CF409B

Organization of business enterprises; demand, supply and price, applications of price theory; perfect and imperfect competition; monopoly; principles of income distribution; wages; trade unions; rent, interest and profit; international trade; economic cooperation; public finance; money supply and price levels.

English CF054B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Mathematics CH032B

Business statistics: frequency distributions; measures of central tendencies and dispersion; probability; theoretical frequency distributions; sampling; statistical inference and testing of hypothesis; use and construction of index numbers; time series and trend fitting; correlation and regression.

Elective

To be selected by each student.

RETAIL MARKETING

This course is designed to satisfy the need for management trainees in the retailing field as well as other sectors of marketing. This two year course would appeal to young men and women who are interested in subject areas such as: administration, selling, marketing, and advertising. The anticipated growth of our country's population ensures the fact that the retail industry will continue to expand — creating hundreds of new job opportunities. The retail industry in Ontario at the present time employs over 300,000 people. Included are: department managers, personnel managers, merchandise superintendents, distribution managers, advertising managers and many more.

Course Numbers, First Year 3101, Second Year 3102

Admission

Secondary School Graduation Diploma.

Duration: Two Years

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Accounting	CC015	4	1.5	1.5	3
Business Mathematics	CC054	3	1.5	1.5	3
English	CF058A	3	1.5	1.5	3
Introduction to Business	CC020	3	1.5	1.5	3
Law	CC024	3	1.5	1.5	3
Marketing I	CC100A	3	1.5	1.5	3
Retail Administration	CC101	3	1.5	1.5	3
Traffic and Distribution	CC102	5	2.5	—	2.5
Techniques of Buying	CC110	5	—	2.5	2.5
Elective		2	1	1	2
YEAR 2					
Advertising and Sales Promotion	CC103	3	1.5	1.5	3
Credits and Collections	CC104	2	1	—	1
Customer and Public Relations	CC105	2	—	1	1
Data Processing I	CC061A	5	2.5	2.5	5
Economics	CF409B	3	1.5	1.5	3
English	CF058B	3	1.5	1.5	3
Personnel Relations	CC106	3	1.5	1.5	3
Salesmanship	CC107	5	2.5	—	2.5
Techniques of Merchandising	CC109	5	—	2.5	2.5
Elective		2	1	1	2

Subject Details

Accounting CC015

Topics include: the recording of Balance Sheet and Income and Expense transactions; the journal; the ledger; posting; trial balance; closing entries; post closing trial balance; cash receipts and payments; purchases and the accounts payable ledger; sales and the accounts receivable ledger; adjusting entries and worksheet; financial statements; payroll; depreciation; accrued income and expenses.

Business Mathematics CC054

Simple interest and discount; compound interest and discount; investing in stocks and bonds; borrowing money from a bank; instalment buying and selling with calculation of true interest rates; purchase and sale of real estate; income tax; taxation; life insurance; fire and automobile insurance; payroll; depreciation.

Legal Accounting CC075

Bookkeeping cycle; journalizing; posting; subsidiary ledgers; worksheets; financial statements; special journals; bank reconciliation statements; petty cash; payroll; adjusting and reversing entries; partnership accounting; limited company formation; trust accounts; legal accounting practice set.

Legal Shorthand and Transcription CC070

Pitman System: the compilation of a glossary of selected legal terms used in correspondence and documents; personalized tape and disc dictation of business and legal correspondence; legal documents; current law cases; shorthand transcription techniques; duties of legal secretaries.

Legal Terminology CC072

Commonly used legal terms; derivations; courts and courtroom procedures; legal ethics; legal writing style; legal forms pertaining to bankruptcy; real estate; sale of property; wills and probate; partnerships; corporations; legal actions.

Legal Typewriting and Office Procedures CC071

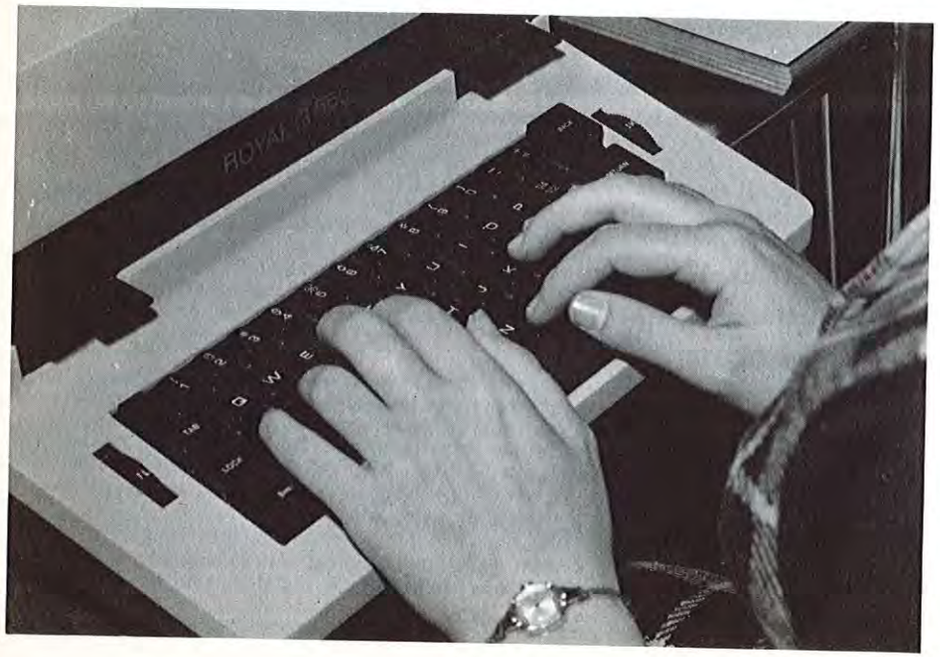
Contracts: accident statement; power of attorney; estimate of property damage; writ and other documents necessary for court proceedings; partnerships; agreements; quit claim deeds; dissolution agreements; corporations; articles of organization; by-laws, etc.; bankruptcy; legal forms necessary to file a bankruptcy claim; real estate; documents concerned with buying and selling property; wills and probate; criminal action; reminder systems and practices; filing; correspondence and telegrams in the law office; handling material for printing; operation of duplicating and photo-copying equipment.

Personal Development CC057

The development of personality, charm and poise. Topics include: charm analysis; character improvement chart; "Musts" for a career girl; telephone courtesy; public relations; speaking effectively; the well-groomed look; colour and your personality; posture development; complexion care; planning your wardrobe.

Elective

To be selected by each student.



MEDICAL SECRETARIAL

This course is designed as a continuing educational program for Secondary School graduates. It meets a need found to exist in our hospitals and medical clinics. The course prepares the Medical Secretary for the complicated and exacting standards and terminology to be encountered in today's medical profession. Medical Secretaries are employed in hospitals, medical clinics, research centres and medical schools. Other areas include health departments at all levels of government, insurance companies, medical publishers and supply houses, as well as doctors' offices.

Course Number, First Year 3081

Admission

a) Secondary School Graduation Diploma of the Business and Commerce Branch, designated Secretarial or Special.

OR

b) Successful completion of basic Secretarial Courses at College of Applied Arts and Technology.

OR

c) Qualifications considered by the Board of Admissions to be of equivalent standing.

Note: Applicants must have 80 w.p.m. in shorthand, and 40 w.p.m. in typewriting.

Duration: One Year

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
English	CF055	3	1.5	1.5	3
Human Relations	CC056	2	1		1
Medical Accounting	CC085	3	1.5	1.5	3
Medical Terminology	CC082	3	1.5	1.5	3
Medical Typewriting and Office Procedures	CC081	6	2.5	2.5	5
Medical Shorthand and Transcription	CC080	6	2.5	2.5	5
Medical Records	CC083	2	1		1
Pharmacology	CC084	2	1		1
Personal Development	CC057	2		1	1
Principles of First Aid	CC086	2		1	1
Elective		2	1	1	2

Subject Details

English CF055

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Human Relations CC056

Etiquette in business; personality improvement; self-analysis; role of home, school and church in today's society; the techniques of delegating; handling people; efficient remembering and reminder systems; building personal leadership; statistical measurement and rating scales; biographical and auto-biographical studies; human relations in business.

Medical Accounting CC085

Introduction to hospital accounting; hospital accounting cycle; recording function; posting and closing entries; fund departmental accounting; hospital revenue and disbursements; accrued and prepaid revenues and expenses; payroll accounting and financial reports; physicians' practice set.

Medical Terminology CC082

Introduction to the origin of medical words; composition of medical terms; suffixes, stems or roots, prefixes; composition of a medical case record; abbreviations and symbols. Structure of the body; the skeletal system; joints and muscles; circulatory system; respiratory system; digestive system; excretory systems; nervous system and reproductive systems.

Medical Typewriting and Office Procedures CC081

Letter display; envelope addressing; abbreviations; invoices; cheques; financial statements; balance sheets; profit and loss accounts; statistics; stencil cutting; indexing; interdepartmental correspondence; medical typewriting practice; case histories; medical records; belt transcription techniques; medical terminology; professional behaviour; physicians' appointments; patients' histories; insurance and completing forms accurately; correspondence; filing; office management; the medical secretary in a hospital; preparation of manuscripts; the doctor and the law; operation of duplicating and photo-copying equipment.

Medical Shorthand and Transcription CC080

Pitman System: development of medical words — roots, prefixes, and suffixes with appropriate Pitman Shorthand outlines; compilation of glossary of selected medical terms; personalized tape and disc dictation of business and medical correspondence; medical and surgical case histories and articles; shorthand transcription techniques; duties of medical secretaries.

Medical Records CC083

History of medicine; developments in medicine — and medical records from Egyptian times to the present day. The Medical Record: various forms and methods required today. Maintaining medical records: numbering and filing methods. Legal aspects of medical records: medical cases and the medical report. Inter-departmental relations: lines of authority, responsibility of various hospital departments.

Pharmacology CC084

Drug legislation; drug standards; methods of administering drugs; dosage forms used for dispensing medication; pharmaceutical terms; abbreviation; derivation; meaning; systems of measuring drug dosage; terms describing systematic action; effect of drugs; definitions for selective actions of drugs.

Personal Development CC057

The development of personality, charm and poise. Topics include: charm analysis; character improvement chart; "Musts" for a career girl; telephone courtesy; public relations; speaking effectively; the well-groomed look; colour and your personality; posture development; complexion care; planning your wardrobe.

Principles of First Aid CC086

Fundamentals of First Aid; external and internal bleeding; wounds and infections; artificial respiration; — theory and practical including direct and indirect methods; poison prevention; unconsciousness; transportation of the injured; external injuries; injuries due to heat and cold; other emergencies requiring first aid; methods of splinting and bandaging.

Elective

To be selected by the student.

SECRETARIAL SCIENCE

This course is designed to meet the increasing demand for executive secretaries. Emphasis is placed on the following areas: shorthand, typewriting, office procedures and administration; an understanding of the historical and economic development of business and industry; a study of the Social Sciences and Humanities; ability to communicate effectively; the study of development of good human relations.

Graduates of this course will have unlimited opportunity for employment in many types of businesses where salaries and possibilities for advancement are excellent. Their training and education will enable them to become valuable assistants to highly placed executives. Secretarial graduates may become eligible to teach certain specified commercial subjects in the Secondary Schools in Ontario.

Course Numbers, First Year 3091, Second Year 3092, Third Year 3093

Admission

Secondary School Graduation Diploma from the five year program with a 60% average, or from a four year program with a 70% average.

Duration: Three Years

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Canadian Economic History	CF729A	3	1.5	1.5	3
English	CF057A	3	1.5	1.5	3
Introduction to Business	CC020	3	1.5	1.5	3
Law	CC024	3	1.5	1.5	3
Secretarial Science I	CC091A	6	2.5	2.5	5
Shorthand and Transcription I	CC090A	6	2.5	2.5	5
Sociology	CF665A	3	1.5	1.5	3
YEAR 2					
Applied Psychology	CF615B	3	1.5	1.5	3
Canadian Government	CF508B	3	1.5	1.5	3
Economics	CF409B	3	1.5	1.5	3
English	CF057B	3	1.5	1.5	3
Human Relations	CC056	2	1	—	1
Personal Development	CC057	2	—	1	1
Secretarial Science II	CC091B	6	2.5	2.5	5
Shorthand and Transcription II	CC090B	6	2.5	2.5	5
YEAR 3					
English	CF057C	3	1.5	1.5	3
Office & Personnel Administration	CC030	5	2.5	2.5	5
Secretarial Accounting II	CC095	4	2	2	4
Secretarial Science III	CC091C	6	2.5	2.5	5
Shorthand and Transcription III	CC090C	6	2.5	2.5	5
Elective		2	1	1	2

Subject Details

Canadian Economic History CF729A

The fur trade; early immigration; canal building; the railways; confederation; trade policies; the opening of the west; the depression; the development of manufacturing in the St. Lawrence Valley; newsprint; mining, power, oil and gas; regionalism in Canada; Canadian relations with the United States.

English CF057A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Secretarial Science I CC091A

Parts of typewriter; letters and characters of keyboard; centering; tabulation; letter styles and punctuation; addressing envelopes; folding and inserting letters; carbon copy exercises; circular letters; bank and financial statements.

Shorthand and Transcription I CC090A

Principles of Pitman Shorthand system; shorthand writing techniques; speed development; personalized disc and tape lesson dictation; development of theoretical accuracy; dictation of business correspondence.

Sociology CF665A

Application of the scientific method to problems of man, his personality, and society; technology; culture and communication; status, role and values in human groups; types of human interaction and organization; cultural conflict; prejudice and minority groups; methods of integration of the individual with society.

Applied Psychology CF615B

The basic principles of psychology in the areas of learning; perception, maturation and development, motivation, emotion and personality are discussed with the view to using these principles as the basis for a course in applied psychology. Topics discussed in the applied section include: mental health, psychopathology, group dynamics and psychology in industry.

Canadian Government CF508B

A study of contemporary forms of government and especially those of Britain, Canada and the U.S.A. The relationship of Dominion to Provincial Government and of both to the municipalities of Canada.

Economics CF409B

Organization of business enterprises; demand, supply and price, applications of price theory; perfect and imperfect competition; monopoly; principles of income distribution; wages; trade unions; rent, interest and profit; international trade; economic cooperation; public finance; money supply and price levels.

English CF057B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course

Human Relations CC056

Etiquette in business; personality improvement; self-analysis; role of home, school and church in today's society; the techniques of delegating; handling people; efficient remembering and reminder systems; building personal leadership; statistical measurement and rating scales; biographical and auto-biographical studies; human relations in business.

Secretarial Science II CC091B

Advanced speed and accuracy building in the operation of various electric typewriters; manuscripts and proofreading; business and legal documents; duplicating equipment and processes; dictation to and transcription from dictation machines; prerequisites for transcription, punctuation, syllabication, abbreviations.

Shorthand and Transcription II CC090B

Advanced speed in writing and transcribing shorthand dictation; periodic speed and vocabulary tests and Theory Review Tests; personalized tape and disc dictation at advanced speeds; Shorthand Transcription techniques.

Personal Development CC057

The development of personality, charm and poise. Topics include: charm analysis; character improvement chart; "Musts" for a career girl; telephone courtesy; public relations; speaking effectively; the well-groomed look; colour and your personality; posture development; complexion care; planning your wardrobe.

English CF057C

Third year English students will elect a course of their choice **each** semester from such possibilities as FILM LITERATURE, PUBLIC SPEAKING, THE NOVEL, DRAMA WORKSHOP, LITERATURE and MUSIC.

Office and Personnel Administration CC030

A study of basic principles and procedures relating to office organization including routine and personnel considerations. The course covers such areas as: functions of an office manager; organizing and planning office operations; organization chart, communications, office planning and layout, furnishings and equipment, staffing the office; controlling office costs, system analysis, forms analysis, job analysis, work measurement, leadership, effective supervision of office activities, training programs, wage structure, business information systems, mechanical aids.

Secretarial Accounting II CC095

Theory and fundamentals of bookkeeping; maintenance of confidential accounting records; payroll preparation; banking practices and handling of cash; accounting for professional service enterprises; internal organization; procedures and records.

Secretarial Science III CC091C

The training of an efficient secretary; secretary's role in human and public relations, office procedures; protocol and responsibilities; reference and research sources; traffic and travel arrangements; communications services; equipment and supplies; business machines; filing systems; advanced typing speed and accuracy building in excess of 60 w.p.m.; typing from advanced copy (specialized material) and dictation.

Shorthand and Transcription III CC090C

Advanced speed building at rates of 120 w.p.m. and higher; production of mailable transcripts at advanced rates with emphasis on professional competence.

Elective

To be selected by each student.

LEGAL SECRETARIAL

The Legal Secretarial course is designed to bridge the gap that has existed between general secretarial training and the requirements of the legal profession for its secretaries. The course offers special emphasis on the secretarial skills required in this profession with such subjects as: legal terminology, legal typewriting, and legal transcription. The graduate should be a preferred assistant, eligible for a more responsible position with greater job security and higher remuneration in legal, corporation or municipal offices and courts and legal departments of government.

Course Number, First Year 3071

Admission

a) Secondary School Graduation Diploma of the Business and Commerce Branch, designated Secretarial or Special.

OR

b) Successful completion of basic Secretarial Courses at Colleges of Applied Arts and Technology.

OR

c) Qualifications considered by the Board of Admissions to be of equivalent standing.

Note: Applicants must have 80 w.p.m. in shorthand, and 40 w.p.m. in typewriting.

Duration: One Year

Hours and Credits

Subject	Number	Hours per Week	Units of Credit 1st Term	2nd Term	Total
English	CF055	3	1.5	1.5	3
Human Relations	CC056	2	1		1
Law	CC024	3	1.5	1.5	3
Legal Accounting	CC075	3	1.5	1.5	3
Legal Shorthand and Transcription	CC070	6	2.5	2.5	5
Legal Terminology	CC072	3	1.5	1.5	3
Legal Typewriting and Office Procedures	CC071	6	2.5	2.5	5
Personal Development	CC057	2		1	1
Elective		2	1	1	2

Subject Details

English CF055

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration of this course.

Human Relations CC056

Etiquette in business; personality improvement; self-analysis; role of home, school and church in today's society; the techniques of delegating; handling people; efficient remembering and reminder systems; building personal leadership; statistical measurement and rating scales; biographical and auto-biographical studies; human relations in business.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

English CF058A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Principles of good business writing and investigation of formats for business writing also comprise a major consideration in this course.

Introduction to Business CC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Law CC024

Division of law; elements of contracts; extent of contractual rights; guarantee and suretyship, agency; master and servant; negotiable instruments; banks and banking; interest; mortgages; sales of goods; bailment; real property; lease.

Marketing I CC100A

Introduction to the marketing process. Areas involved include: marketing system, functions of the various market institutions, customer decision making, consumer behaviour, selection of trade channels, product policy and planning, market research, analysis and forecasting, understanding the need for planning and coordination of all marketing activities.

Retail Administration CC101

Review and evaluate the technological and environmental changes that have taken place and the responses made by retailing institutions including management policies and operating methods. The principal areas covered are: changes in the retail trade, establishing a retail store, store location, store layout and store organization, and retail control including merchandise and financial record control.

Traffic and Distribution CC102

Traffic and distribution services; transportation systems; buyers of transportation; carrier operations; legislation; the pricing of transportation services; terms of sale; aims of material handling; evaluation of material handling; principles and methods of material handling; principles of storage.

Techniques of Buying CC110

A study of principles and philosophy that determine excellence in merchandise selection for resale.

Areas covered are: management of the buying function; the buying function; what to buy, where and how to buy, and buyer/vendor relations.

Elective

To be selected by each student.

Advertising and Sales Promotion CC103

Examination of the four major groups of media - printed advertising media, broadcast media, position media and point of purchase; creation of advertising-copy, art and layout, mechanical production; advertising planning and management.

Credits and Collections CC104

Mercantile credit terms and credit instruments; credit agencies; analysing the credit risk, character, income, capital, residence, employment, debtor psychology, property; credit procedures; credit records; operation of a credit department; legislation; statute of limitations, conditional sales act, small loans act, sales finance and consumer finance companies.

Customer and Public Relations CC105

A general approach of the subject is taken with the intent of developing student awareness, appreciation and positive reaction to the customer. The course includes such topics as — customer relation policies, store strategy, implementation of policies; understanding the customer, human behaviour patterns and motivations; changing external environment, income levels, living habits, leisure time; public relations, relations with the community and means of change.

Data Processing I CC061A

The need for electronic data processing in business; the data processing cycle; the Hollerith card; methods of input preparation; elements and capabilities of an electronic computer; coded data representation; the central processing unit; an introduction to the stored program concept using a hypothetical low level programming language; flowcharting; solving simple business problems using a high level programming language; an introduction to magnetic tape and disk concepts; an introduction to systems analysis and design.

Economics CF409B

Organization of business enterprises; demand, supply and price, applications of price theory; perfect and imperfect competition; monopoly; principles of income distribution; wages; trade unions; rent, interest and profit; international trade; economic cooperation; public finance; money supply and price levels.

English CF058B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

Personnel Relations CC106

The principles, policies and procedures surrounding personnel relations are examined in the light of recent developments. Topics include: staff and line organization and relationships; job requirements; recruitment of staff; orientation and on the job training; management development programs; performance evaluation; motivation; wage and salary administration; employee benefits.

Salesmanship CC107

The salesman's role, duties, and responsibilities in our society is examined. Consideration is given to preparations necessary to sell — understanding consumer behaviour and motivation, the product and competition. Sales process — sales aids, sales presentation, closing the sale, building goodwill.

Techniques of Merchandising CC109

This course covers the following general areas: Merchandising — lines to carry, supply availability, layout planning, pricing. Inventory — control, reorder systems, mark-up, mark-downs, profit, turnover. Selling — staff selection, staff product knowledge, customer shopping conditions. Sales Promotion — tools; advertising, displays, credit promotions. Advertising — mediums, newspapers, radio, circulars, television.

Elective

To be selected by each student.

HEALTH AND WELFARE DIVISION

Courses in this division are of special interest to students who wish to involve themselves in a career which prepares them to work with people in a helping capacity, either in the para-medical field, or the social service field.

The increase in the quantity of social and health services in our society demands more, better trained people in a variety of fields such as those described below. Students will be helped to attain the maturity, knowledge of techniques and understanding that will make them more effective in careers which are centered around serving others in need of help.

CHILD CARE WORKER

This course is designed to train staff workers in the care and treatment of emotionally disturbed children and adolescents. Since emotionally disturbed children spend the greatest part of their day under the care and supervision of the Child Care Worker, he or she must not only have the necessary specialized training, but must also have an understanding on the development of the normal child.

Course Numbers, First Year 5011, Second Year 5012

Admission

Secondary School Graduation Diploma or mature student status. Prior to final acceptance, all candidates will be interviewed. Applicants must be 18 years of age or over.

Duration

Two years.

Content

The Child Care Worker becomes an important member of a treatment team with social workers, psychiatrists, psychologists and teachers which sets up treatment policies for the various patients and also assesses their progress and plans for their rehabilitation.

During the two years the student gains practical experience with the children in supervised field placements as well as learning the necessary academic background. The student will spend two days a week in the college and three days a week in a placement, where he or she will work directly with the children. Conferences, lectures and group discussions are held at the college for the remaining two days of each week.

There is an increasing demand for trained Child Care Workers in institutions, group homes and day care centres. With the need for expansion of present facilities and the creating of new centres to treat these children there are ample employment opportunities and possibilities for advancement. There is a particularly great need for male Child Care Workers.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Activities for Children	EE120A	2	1	1	2
Child Psychiatry	EE110A	2	1	1	2
English	EF100A	2	1	1	2
Milieu Therapy	EE100A	2	1	1	2
Psychology	EF611A	2	1	1	2
Sociology	EF662A	2	1	1	2
Child Health and First Aid	EE125A	2	1	1	2
Placement Supervision and Field Work	EE150A*		7	7	14
	* 3 days per week				
YEAR 2					
Activities for Children	EE121B	2	1	1	2
Child Psychiatry	EE111B	2	1	1	2
Child Psychology	EE105B	2	1	1	2
English	EF100B	2	1	1	2
Group Dynamics I	EE010B	2	1	1	2
Milieu Therapy	EE101B	2	1	1	2
Special Problems in Children and use of audio visual equipment	EE130B	1	.5	.5	1
Placement Supervision and Field Work	EE151B*		6.5	6.5	13
	* 3 days per week				

Subject Details

Activities for Children EE120A

Practical training in Arts and Crafts, Woodworking, Swimming and Gym and Games, so the worker has some basic skills to draw from in planning and conducting activities with children. Discussion is also held on therapeutic use of structured activities with different age groups and levels of disturbance.

Child Psychiatry EE110A

A lecture series given by Psychiatrists on the causes, types and treatment of mental illness in children. Included is information on use of drugs in treating children. (Definition of psychiatric illness; causes of mental illness; personality development; mental mechanisms; neurosis; mental retardation; brain damage; diagnostic categories; schizophrenia; epilepsy; behaviour disorders; psychophysiological disturbances; drugs).

English EF100A

This course is aimed at assisting students to speak and write the English language more effectively. Methods of organizing and presenting professional material comprise a major consideration in this course. A further aim of the course is to involve students in an examination of North American society as North Americans view it and as others see it, a comparison of North American society with some other societies and, finally, a projection for the future of this society. Varied media (speakers, television, recordings, films, as well as books) will assist students in these pursuits.

Milieu Therapy EE100A

Emphasis is placed on learning therapeutic ways of handling and understanding the significance of disturbed behaviour in patients. Another important area is examining what environmental conditions in institutions will support the patient in treatment and later rehabilitation. Setting effective limits and controls for this type of child is a necessity.

Psychology EF611A

Introduction to the study of human growth and behaviour. Basic concepts and methods of psychology, including: individual differences, learning, memory, thinking, sensation and perception, motivation, emotion, personality, with emphasis on the developmental processes. Special problems associated with adolescence, aging and physical and mental handicaps will be examined. The physical stages of bodily development, importance of nutrition and health practices and the psychosomatic concept of health and illness will be considered.

Sociology EF662A

An introduction to the basic concepts and methods of sociology, including: social organization, culture, socialization, group structure, social stratification, community structure, population and social change. Special emphasis will be placed on the functioning of the family.

Child Health and First Aid EE125A

Physical care of the children, nutrition, recognition and care of minor illnesses. Included is a brief course in anatomy. Discussions are held on methods of preparing children, particularly emotionally disturbed children, for such anxiety producing experiences as hospitalization, visits to the dentist etc. Canadian Red Cross Society conducts the standard First Aid Course.

Placement Supervision and Field Work EE150A

Students receive individual supervision at the College for the purpose of discussing concerns about their field work or general discussion about their field work or general discussion about the course content and its application.

Each student is assigned to a field work centre working with disturbed children. The student is required to work directly with the children under supervision for three days of each week. The student should be prepared to work shifts and also some week-end work. A student may be assigned to a field placement centre outside of London. Each student is assigned a field supervisor in the centre in which they are working and receive a minimum of two hours a month individual supervision over their direct ward supervision. Written work evaluations are prepared by the field supervisors on the students' practical work, which will constitute fifty percent of the students' overall standing for the year's work.

Activities for Children EE121B

Continuation of first year

Child Psychiatry EE111E

A discussion series: students present case conferences for discussion with the psychiatrist, to gain some understanding of the significance of behaviour shown by patients, and also the Child Care Worker's personal feelings towards patients. Some time is spent in discussion groups on specific handling procedures for patients.

Child Psychology EE105B

A study of the principles of maturation and development of the normal child from pre-natal stage to adolescence. Emphasis is also placed on abnormal development for example Intellectual Deviations, physical disability, Physiological impairment, emotional and Social Maladjustment.

Group Dynamics I EE010B

An introduction to the study of small groups as they occur in the laboratory and in society. Concepts developed in classical small group experiments will be related to naturally occurring groups. Discussion will concentrate on leadership, hierarchy development and culture formation within the group.

Milieu Therapy EE101B

Continuation of the first year with emphasis on the therapeutic use of programming with different age groups, intellectual levels, interests, and specific emotional disturbances in mind. Some time will be spent on practical planning and application of structured activities in many areas of which crafts, camping, rhythm and dance are some.

Special Problems in Children and use of Audio-Visual Equipment EE130B

Special difficulties that some children have, for example mental retardation or brain damage, are dealt with, going into the practical measures of training these children in the tasks of dressing, eating, etc. which are simple, routine things for the normal child. Discussion groups are held on such subjects as movies, TV, books, with regard to children. Instruction is given in the operation and use of various audio-visual equipment.

Placement Supervision and Field Work EE151B

Continuation of first year course.

English EF100B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Special attention will be paid to the nature and significance of Children's literature in our culture. Speaking and writing skills developed in first year English will be practised further. The preparation of a professional report dealing with a problem pertaining to the student's main area of study will be a part of the student's responsibility in this course.

SOCIAL SERVICE WORKER

This program is designed to provide a basic training which will prepare students for employment in a wide variety of social agencies and welfare programs. both public and private.

Course Numbers, First Year 5021, Second Year 5022

Admission

Secondary School Graduation Diploma or Mature Student Status. Prior to final acceptance all candidates will be interviewed. Applicants must be 18 years of age or over.

Duration: Two Years

Content

The first year is a broadly based program in Behavioural Sciences with some introduction to Social Service concepts. The second year extends the students' knowledge in these fields and provides field work experience under supervision.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Social Welfare and Social Services	EE001A	3	1.5	1.5	3
Community	EE020A	6	3	3	6
Human Relations I	EE051A	6	3	3	6
Psychology	EF609A	3	1.5	1.5	3
Sociology	EF660A	3	1.5	1.5	3
English	EF104A	3	1.5	1.5	3
YEAR 2					
Human Relations II	EE052B	6	3	3	6
Techniques of Helping	EE060B	3	1.5	1.5	3
Social Problems and the Community	EE021B	3	1.5	1.5	3
Basics of Community Organization and Administration	EE022B	3	1.5	1.5	3
Field Practice	EE030B	15	7.5	7.5	15

Subject Details

Social Welfare and Social Services EE001A

An introduction to the broad field of social welfare as a basic institution of industrial society. Major groupings of social and health services will be examined with reference to: needs and problems of people in relation to industrial society; past and current social legislation in Canada and Ontario; federal-provincial-municipal relationships; patterns of financing and administration of services; and the roles people play in the principal types of organizations and agencies.

Human Relations I* EE050A

Lectures, discussions and field visits to acquaint the student with the major principles of interpersonal relationships and methods of relating to and helping people in one-to-one situations and in small groups. Students, working in small teams or individually, will visit a wide variety of service agencies as an introduction to actual settings and situations in which these principles and methods are put into practice.

Community* EE020A

Lectures, discussions, seminars and field visits to introduce the student to the concept of a community as a living, functioning organism. Attention will be given to the primary objectives and functions of major community institutions — e.g. industry, commerce, organized labour, law, medicine, education, corrections,

etc. — and to relationships within and among these institutions. The dynamics of community power structures will be examined. Field observation visits will be made to a wide variety of organizations.

Note — * Special attention is drawn to the fact that field work for the first year has been incorporated into the two courses above (Human Relations I and Community). Field observation and class discussion of experience will total approximately 150 hours during the year.

Psychology EF609A

Introduction to the study of human growth and behaviour. Basic concepts and methods of psychology, including: individual differences, learning, memory, thinking, sensation and perception, motivation, emotion, personality, with emphasis on the developmental processes. Special problems associated with adolescence, aging and physical and mental handicaps will be examined. The physical stages of bodily development, importance of nutrition and health practices and the psychosomatic concept of health and illness will be considered.

Sociology EF660A

An introduction to the basic concepts and methods of sociology, including: social organization, culture, socialization, group structure, social stratification, community structure, population and social change. Special emphasis will be placed on the functioning of the family.

English EF104A

This course is aimed at assisting students to speak and write the English language more effectively. Methods of organizing and presenting professional material comprise a major consideration in this course. A further aim of the course is to involve students in an examination of North American society as North Americans view it and as others see it, a comparison of North American society with some other societies, and, finally, a projection for the future of this society. Varied media (speakers, television, recordings, films, as well as books) will assist students in these pursuits.

Human Relations II EE052B

An advanced study of human relations through an integrated approach involving the disciplines of sociology, psychology, social psychology and communications and using the "team teaching" method. Problems of human relations, and methods of dealing with them, will be examined in detail from a variety of points of view.

Techniques of Helping EE060B

Lectures and seminars on the basic methods used in helping people through the techniques of case work and group work.

Social Problems and The Community EE021B

Seminars on major social problems e.g. mental illness, poverty, chemical dependencies, juvenile delinquency, crime, family conflict. The student will be expected to study at least one of the problems in considerable detail and to lead a seminar on his specialty. A review of the major techniques used to investigate social phenomena will be made as an integral part of the course.

Basics of Community Organization and Administration EE022B

Lectures, discussions and seminars to acquaint the student with basic elements of community organization, social planning and administration. It will include an examination of the various roles played by staff and volunteers, a study of various types of committees and of how they function and an exploration of the roles of different types of policymaking bodies. Students will be introduced to the principal elements of administration with particular reference to financial accountability, functional budgeting and personnel management.

Field Practice EE030B

Each student will be assigned to an agency for actual work study experience, five afternoons a week. The student will work under the guidance of a faculty advisor as well as under agency supervision and, for one afternoon periodically, will meet with other students and faculty advisor(s) for discussion of field practice experience as it relates to classroom study. A change in field placement of each student may be made at the end of first term.

RADIOLOGICAL TECHNICIAN

This course, open to both male and female applicants, provides the theoretical portion of the training which prepares the student for certification examinations conducted for the Board of Radiological Technicians (Ontario), and examinations by the Canadian Society of Radiological Technicians. The successful candidate becomes registered as an R.R.T. qualified to work in diagnostic radiography.

Course Numbers 5031, 5032, 5033

Admission

Secondary School Graduation Diploma from the Fourth Year of any Five Year Program with Science and Mathematics Compulsory, and with 60 percent average.

Entry is restricted to students sponsored by a hospital operating a training program for Radiological Technicians approved by the Board of Radiological Technicians (Ont.). Students must be eligible for enrolment as student members in the Ontario Society of Radiological Technicians.

Students must have completed 30 days minimum orientation in the affiliated hospital prior to commencement of first year classes.

Duration

24 weeks over two years taken in 3 eight week sessions.

Content

Following a brief indoctrination period (see admission prerequisites) in an affiliated hospital the student attends 8 weeks of lectures and demonstrations at the College in a Basic Course. After an 8 - 16 week interval spent in the hospital, a second 8 week Intermediate Course is given at the College to complete the first didactic year.

In the second year most of the students activities are in the parent hospital receiving clinical and practical instruction. A final 8 weeks Advanced Course in Technique and Radiological Procedures complete the 24 weeks didactic training. The certification examination are written at the end of twenty-four months combined theory and clinical training.

Hours and Credits

INTAKES 1 AND 2 Subject	Number	Units of Credit	Total
Anatomy & Physiology	EE500A	5	5
Basic Medical Sciences (Related to Medical Radiography)	EE501A	3	3
Orientation, History, Ethics, Administration & Records	EE502A	2	2
Radiologic Physics, Apparatus & Accessories	EE503A	7	7
Image Recording, Methods & Media	EE504A	3	3
Radiobiology & Protection	EE505A	2	2
Radiographic Technique & Positioning	EE506A	7	7
English	EF102A	3	3
INTAKE 3			
Anatomy & Physiology	EE500B	4	4
Basic Medical Sciences (Related to Medical Radiography)	EE501B	2	2
Orientation, History, Ethics, Administration & Records	EE502B	1	1
Radiologic Physics, Apparatus & Accessories	EE503B	4	4
Image Recording, Methods & Media	EE504B	2	2
Radiobiology & Protection	EE505B	3	3
Radiographic Technique & Positioning	EE506B	10	10
English	EE102B	2	2

Subject Details

English EF102A, B

The student studies language in this course to develop effective techniques for written and oral expression. Various types of literature are examined to develop a soundly critical approach to experience.

Anatomy and Physiology EE500A, B

Origin and meaning of medical terms; brief outline of embryology; general summary and development of the human body; types of tissues and organs; classification of bones and joints; skeletal-muscular system; cranium; soft tissue systems and organs; surface anatomy and landmarks for radiography; contrast media and its selection; children's radiographic anatomy.

Basic Medical Sciences Related to Medical Radiography EE501A, B

Patient Care and Nursing Essentials —

Professional approach, patient safety and comfort, handling and lifting patients, care of emergency patients; first aid and surgical care, handling fractures, splints and dressings; aseptic technique, care and handling patients under anaesthesia; preparation of patients for radiographic procedures.

Bacteriology —

classification and properties of micro-organisms, common bacteria, viral and parasitic infections.

Pharmacology —

definitions, sources of drugs, terminology used in dispensing and administration of medicines; absorption, distribution and action of drugs; Toxicology.

Pathology —

pathological terms; common congenital, acquired and pathological conditions and the methods of demonstrating these in the various body systems and organs.

Orientation, History, Ethics, Administration and Records EE502A, B

The purpose and function of a hospital and the department of radiology; history and development of radiography, of the radiological technician and technician societies; department administration and organization of a radiographic department; handling of requisitions, patient records and films; confidential nature of medical information, medicolegal aspects of radiographs and medical liability; hospital organization, financing, purchasing and control of hospital expenditures; personnel management and personnel relations.

Radiologic Physics, Apparatus and Accessory Equipment EE503A, B

Physical phenomena associated with the production of ionizing radiations: Structure of matter; magnetism; electro-statics and current electricity; electromagnetic induction; thermionic emission; radioactivity, interactions of radiation; x-ray generators, x-ray tubes, control apparatus, radiographic accessory equipment and specialized radiological apparatus.

Image Recording Methods & Media EE504A, B

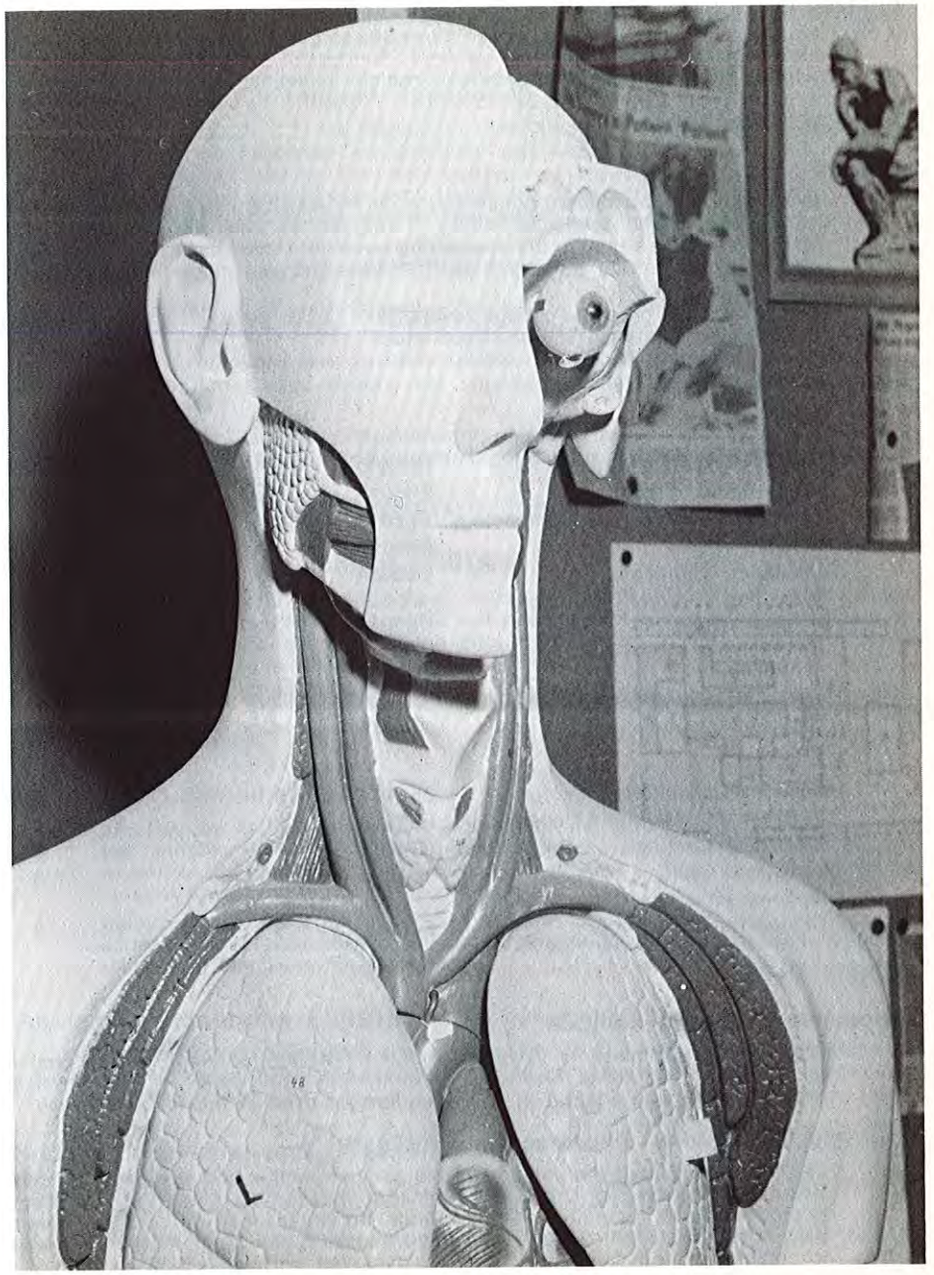
Fundamentals of photography and radiographic image recording; photographic chemistry; film holders and cassettes, intensifying screens; photographic sensitometry and recording materials; darkroom construction and processing equipment; photographic recording equipment; television, video tape; viewers and projection equipment; reproduction and copying of radiographs.

Radiobiology & Protection EE505A, B

Ionizing radiation and measurement; the biological effects on normal tissues; permissible radiation exposure and radiation hazards; minimizing radiation and means of protection, radiation monitoring; electrical hazards; health for radiation workers; principles of radiation therapy and use of radioactive isotopes in medical treatment.

Radiographic Technique & Positioning EE506A, B

Prime factors in radiographic technique; photographic effect and the control of technical factors; types of radiographic technique charts and formulating technique charts; specialized techniques for operating room, pediatric, high kilovoltage and contrast media radiography. Radiographic positioning terminology; procedures and positioning of bones, thorax and abdomen, alimentary and genito-urinary systems, glands and miscellaneous examinations; specialized radiographic procedures; pediatric radiography.



INHALATION THERAPY (BIOMEDICAL TECHNICIAN)

This course is in a new and exciting field of medical technology. The course follows a curriculum approved by the Canadian Society of Inhalation Therapy Technicians and their sponsoring medical organizations. Graduates will work primarily in hospitals as part of the patient-care team.

Course Numbers, 5041, 5042

Admission

Secondary School diploma, Grade 12 or 13, and an earnest desire to pursue a career in the Health and Welfare field. Successful completion of this course entitles the student to sit the national registry examinations.

Duration: Two Years

Content

In the first year the student concentrates on the medical and electronic theoretical material in the academic setting. During the second year the student will spend most of his time in his sponsoring hospital. Under the supervision of his clinical instructors he will apply the principles and techniques mastered in the first year of training.

The student will be at the college several hours each week to receive instruction in advanced Inhalation Therapy Techniques.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Properties of Gases	EH502A	3	1.5	1.5	3
Anatomy, Physiology, Pharmacology	EE601A	2	1	1	2
Medical Theory	EE602A	1	.5	.5	1
Inhalation Therapy	EE603A	4	2	2	4
Inhalation Therapy — Clinical Application	EE604A	3	1.5	1.5	3
Biomedical Technicians Mathematics	EH050A	3	1.5	1.5	3
Practical and Test Equipment	EG01A	3	1	1	2
Devices and Circuits	EG02A	4	2	2	4
YEAR 2					
Pulmonary Monitoring	EE610B	3	1.5	1.5	3
Hospital Operation and Patient Care	EE611B	2	1	1	2
Electronic Circuits	EG03B	7	3	—	3
Television Systems	FG04B	7	—	3	3
Options: (2nd Year)					
Human Relations I	EE051A	3	1.5	1.5	3

Subject Details

Properties of Gases EH502A

The aim of this class is to give Inhalation Therapy students a background knowledge of chemistry relating to chemotherapy procedures and the physical laws of gases with adaptation to the equipment used in Inhalation Therapy.

Anatomy, Physiology, Pharmacology EE601A

This class introduces the students to the body structures and systems. The content is linked to the content of the clinical application class and the physiology of these systems. An outline of the bacteria and viruses that will be encountered, the principles of sterilization and a broad outline of the drugs that will be used in conjunction with Inhalation Therapy equipment will be presented.

Medical Theory EE602A

An introduction to the general manifestations of illness. Respiratory, cardiac and cardio-vascular diseases are emphasized. Diagnostic procedures the technician will perform are presented.

Inhalation Therapy EE603A

This class includes the physical principles as they are applied to Inhalation Therapy apparatus and the gases that are employed. It interprets, in technological terms, modern methods and the advantages and disadvantages encountered in various types of equipment.

Inhalation Therapy - Clinical Application EE604A

This class deals with the mechanics of Inhalation Therapy Apparatus, specifications of the permanent installations, gas supply systems and the minimum standards required for their safe operation. Many different makes of apparatus are presented and clinical evaluations are demonstrated. Department administration and responsibility is also dealt with.

Biomedical Technician Mathematics EH050A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.

Algebra: functions and graphs; systems of linear equations; exponents and radicals, logarithms; exponential functions; quadratic equations; ration and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurements; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

Practical and Test Equipment EG01A

The practical and test equipment course is intended to give the student proficiency, using standard electronic test equipment, tools of the electronics trade and in the production of printed circuit fabrication techniques. Some of the topics included in the course are:

Use of hand tools, soldering, the use of VOM, VTVM, the oscilloscope, ECG, Viso-scope and Heart Sound Amplifier, printed circuit fabrication, testing and troubleshooting.

Devices and Circuits EG02A

The Devices and Circuits course is a lecture and laboratory course dealing with the fundamentals of AC and DC Passive Circuits and Active Devices. Included as part of the course are circuits and devices used in medical electronic equipment. A few of the topics covered are:

Electro-statics, DC circuits and components, bridges, filters and frequency response, temperature measurements, semi-conductor devices, power supplies, differential amplifiers, DC amplifiers.

Pulmonary Monitoring EE610B

This course includes both class room and lab sessions and will introduce the student to the theory and techniques of blood gas analysis and basic pulmonary function testing.

Hospital Operation and Patient Care

Hospital Management and the Inhalation Technicians position in the hospital community will be discussed.

The technicians approach to the psychological problems of the chronically ill is also discussed.

Electronic Circuits EG03B

The Electronic Circuits course extends the student's knowledge of circuits with a study of Pulse Circuits and medical applications, amplifiers, recording systems and transistors.

Some of the topics covered in this course are:
Time constants, limiters, clampers, multivibrators, defibrillators, ECG, waveform generator, electro-encephalograph, electro-myograph, electroretinograph, recording and display systems, pressure, strain and piezo electric transducers and diathermy.

Television Systems EG04B

The Television Systems Course provides an opportunity to study the increasingly important application of Television production, distribution and reception within a hospital. Topics covered will include: production of the video signal, camera tubes, receivers, colour systems, video tape recorders, cable distribution systems, ECG and defibrillator synchronization system installations.

Human Relations I EE050A (Option - 2nd Year)

Lectures, discussions and field visits to acquaint the student with the major principles of interpersonal relationships and methods of relating to and helping people in one-to-one situations and in small groups. Students, working in small teams or individually, will visit a wide variety of service agencies as an introduction to actual settings and situations in which these principles and methods are put into practice.

MEDICAL RECORD TECHNICIAN

This course is designed to meet the demands for better trained Medical Record Personnel. It is the aim that students will acquire sufficient knowledge and skills to make them invaluable to the institution in which they seek employment and the association through which they practice their profession. Upon graduation employment is in hospital settings.

Course Number 5051

Admission

Grade 12 of a four or five year program.

Duration: One Year

Hours and Credits

YEAR 1

Subject	Number	Hours per Week	Units of Credit 1st Term	2nd Term	Total
Medical Terminology	EE553A	2	1	1	2
Anatomy, Physiology, Microbiology	EE550A	3	1.5	1.5	3
Medical Essentials	EE552A	2	1	1	2
Medical Record Sciences	EE551A	8	4	4	8
Computer Sciences	EC060A	2	1	1	2
Secretarial Practice	EC005A	4	2	2	4
Human Relations I	EE050A	3	1.5	1.5	3
English	EF105A	3	1.5	1.5	3
Medical Technician Practice	EE554A		5	5	10

4 weeks in a hospital setting at end of academic program.

Subject Details

Anatomy, Physiology, Microbiology EE550A

The course gives the student an understanding of the systems, structures and function of the body. The student also gains a knowledge of the causative organisms of disease necessary for the interpretation of the various reports encountered.

Medical Terminology EE553A

By developing the skill to analyze medical terms through recognition of their component parts, the student gains a knowledge of medical terms. In addition, the student learns to recognize accepted abbreviations, hospital terms and eponyms.

Medical Essentials EE552A

The course is an introductory course into diseases, the systems and parts of the body affected, the causes and treatment involved. The discussion includes laboratory and x-ray procedures most commonly used as well as the more commonly used drugs.

Medical Record Sciences EE551A

The student gains a thorough knowledge of medical record procedures. Classes include lectures, discussions, demonstrations and field trips.

Discussion includes an analysis of the forms composing the medical record; an examination of the various filing methods, numbering systems and accepted practices and methods in storage of these records; the principles, methods and reasons involved in obtaining and keeping meaningful hospital statistics; the principles, theory and practice in the various coding systems with emphasis on the I.C.D.A.; and other areas of principles and practice relevant to the profession: i.e. legal, professional, medical and hospital administrative implications and responsibilities.

Computer Sciences EC060A

A general course in computer terminology with emphasis on the various data processing programs available to hospitals. The students gain experience in H.M.R.I. and P.A.S.

Secretarial Practice EC005A

Students gain practice in typing the various medical reports, departmental reports, index cards, statistical reports, dealing with inquiries and taking minutes of meetings. The course includes some instruction in correct office techniques.

Medical Technician Practice EE554A

This is four weeks to run concurrent at the completion of the course and designed to give the student practice in all areas of the Medical Record Department including the stenographic pool and to be under the supervision of a registered medical record librarian. The areas and time in each to be specified by the college.

English EF105A

This course is aimed at assisting students to speak and write the English language more effectively. Methods of organizing and presenting professional material comprise a major consideration in this course. A further aim of the course is to involve students in an examination of North American society as North Americans view it and as others see it, a comparison of North American society with some other societies and, finally, a projection for the future of this society. Varied media (speakers, television, recordings, films, as well as books) will assist students in these pursuits.

Human Relations I EE050A

Lectures, discussions and field visits to acquaint the student with the major principles of interpersonal relationships and methods of relating to and helping people in one-to-one situations and in small groups. Students, working in small teams or individually, will visit a wide variety of service agencies as an introduction to actual settings and situations in which these principles and methods are put into practice.

BEHAVIOURAL SCIENCES

This program provides a broadly based education in human behaviour, developing in the student an understanding of how people function as individuals, within the family, in groups at work and play, and in the community. Attention is also directed to how people can be helped to deal with their problems in a variety of settings. The program develops the students' potential towards employment in the large variety of occupations and fields which deal with human behaviour.

Course: First Year 5061, Second Year 5062

Admission

Secondary School Graduation Diploma or Mature Student Status. Prior to final acceptance, all candidates will be interviewed.

Duration: Two Years

Content

Students will also be encouraged to do some volunteer work with at least one community agency.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Psychology	EF609A	3	1.5	1.5	3
Sociology	EF660A	3	1.5	1.5	3
Social Welfare & Social Services	EE001A	3	1.5	1.5	3
Group Dynamics I	EE010A	3	1.5	1.5	3
Community	EE020A	3	1.5	1.5	3
English	EF104A	3	1.5	1.5	3
Social History	EE021A	3	1.5	1.5	3
YEAR 2					
Human Relations II	EE052B	6	3	3	6
Recreation	EE030B	3	1.5	1.5	3
Social Problems & the Community	EE021B	3	1.5	1.5	3
Laboratory (for Recreation and Social Problems and the Community Classes)		4	1.5	1.5	3
Plus two of the following:					
Rehabilitation Worker	EE100B	6	3	3	6
Aging in our Society	EE110B	6	3	3	6
Property Management and Tenant Relations	EE120B	6	3	3	6
Counselling in Work Situations	EE130B	6	3	3	6
Community Development	EE140B	6	3	3	6

Subject Details

Psychology EF609A

Introduction to the study of human growth and behaviour. Basic concepts and methods of psychology, including: individual differences, learning, memory, thinking, sensation and perception, motivation, emotion, personality, with emphasis on the developmental processes. Special problems associated with adolescence, aging and physical and mental handicaps will be examined. The physical stages of bodily development, importance of nutrition and health practices and the psychosomatic concept of health and illness will be considered.

Sociology EF660A

An introduction to the basic concepts and methods of sociology, including: social organization, culture, socialization, group structure, social stratification, community structure, population and social change. Special emphasis will be placed on the functioning of the family.

Social Welfare and Social Services EE001A

An introduction to the broad field of social welfare as a basic institution of industrial society. Major groupings of social and health services will be examined with reference to: needs and problems of people in relation to industrial society; past and current social legislation in Canada and Ontario; federal-provincial-municipal relationships; patterns of financing and administration of services; and the roles people play in the principal types of organizations and agencies.

Group Dynamics I EE010A

An introduction to the study of small groups as they occur in the laboratory and in society. Concepts developed in classical small group experiments will be related to naturally occurring groups. Discussion will concentrate on leadership, hierarchy development and culture formation within the group.

Community EE020A

Lectures, discussions, seminars and field visits to introduce the student to the concept of a community as a living, functioning organism. Attention will be given to the primary objectives and functions of major community institutions—e.g. industry, commerce, organized labour, law, medicine, education, correction, etc.—and to relationships within and among these institutions. The dynamics of community power structures will be examined. Field observation visits will be made to a wide variety of organizations.

English EF104A

This course is aimed at assisting students to speak and write the English language more effectively. Methods of organizing and presenting professional material comprise a major consideration in this course. A further aim of the course is to involve students in an examination of North American society as North Americans view it and as others see it, a comparison of North American society with some other societies and, finally, a projection for the future of this society. Varied media (speakers, television, recordings, films, as well as books) will assist students in these pursuits.

Social History EE021A

A study of the forces which led to development of modern western society with particular initial focus on the industrial revolution, and the 20th century revolution in communications and urban life. The revolutionary forces will be examined from the point of view of their impact on western society, and in particular Canada. A comparison between Canada's social development and that of some other cultures of the world will also be examined.

Human Relations II EE052B

This class is in sequence with group dynamics I, offered in first year. An advanced study of human relations through an integrated approach involving the disciplines of sociology, psychology, social psychology and communications and using the "team teaching" method. Problems of human relations, and methods of dealing with them, will be examined in detail from a variety of points of view.

Recreation EE030B

A study of the developing role of the attitude toward leisure and recreation in our changing society. In addition to a philosophical look at the subject, the student will be exposed to a variety of activity skills in social, physical, creative, cultural and intellectual recreation. Special attention will be given to the developmental and remedial aspects of recreation in various organizations and agencies.

Social Problems and the Community EE021B

Seminars on major social problems e.g. mental illness, poverty, chemical dependencies, juvenile delinquency, crime, family conflict. The student will be expected to study at least one of the problems in considerable detail and to lead a seminar on his specialty. A review of the major techniques used to investigate social phenomena will be made as an integral part of the course.

Rehabilitation Worker EE100B

A study of the particular problems facing physical handicapped persons with emotional, mental, or addictive problems in relation to their ability to function in various settings e.g. the home, in employment, at school, in recreation, etc. A study will be made of the various methods and techniques by which handicapped persons can be helped to function at their maximum level in these settings.

Aging in Our Society EE110B

A study of the physical, psychological, economic and social factors present in the process of aging in our society. Attention will be given to ways in which persons can be helped to prepare for aging and retirement and to methods, techniques and services used to assist older persons according to their individual physical, psychological, social and economic capacities.

Property Management and Tenant Relations EE120B

A course of study designed to acquaint the student with the legal, administrative and physical aspects of property management and with the legal and human relations aspects of tenant relations, with particular attention to these factors as they relate to housing and apartment developments both public and private. Attention will also be given to personal and social needs of families and individuals such as recreation, day care services for children, problems of the "parent without a partner," etc.

Counselling in Work Situations EE130B

A course of study designed to acquaint the student with the effects which family and personal problems may have on an individual's ability to perform adequately on his or her job and vice versa, and with the basic methods and techniques by which a person may be helped to deal with these problems. Emphasis will be placed on methods of referral to community resources for assistance with any serious problems. Students will also be introduced to the basics of industrial and labour relations.

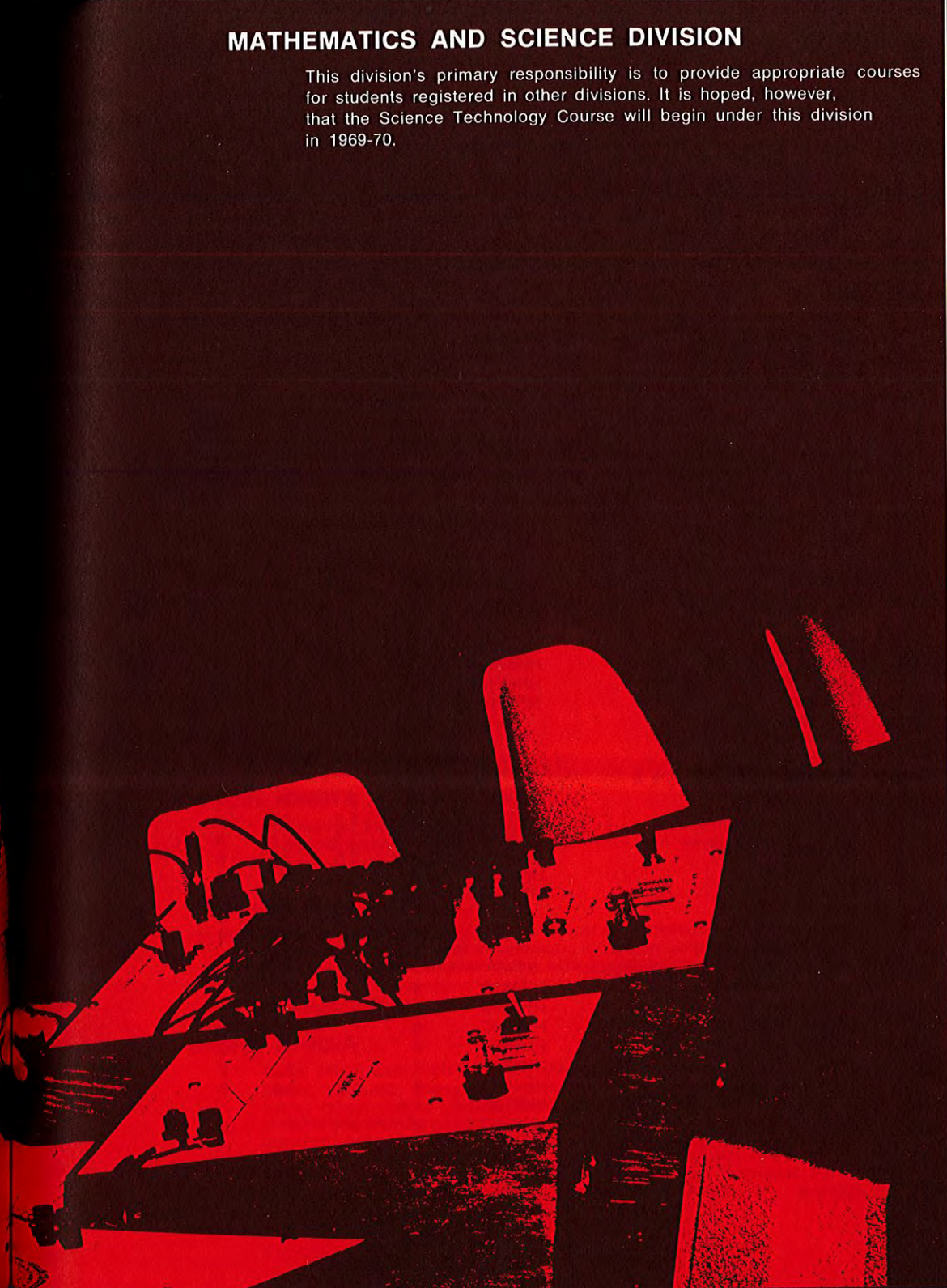
Community Development EE140B

A study of the basic methods and techniques by which neighbourhoods and other small communities can be assisted to deal with a variety of problems through cooperative action and self-help. In discussions and seminars attention will be given to community development projects of various kinds in many parts of the world.

Note: The ability of Fanshawe College to offer any of the elective courses described above may depend on the number of students desiring to enroll.

MATHEMATICS AND SCIENCE DIVISION

This division's primary responsibility is to provide appropriate courses for students registered in other divisions. It is hoped, however, that the Science Technology Course will begin under this division in 1969-70.



SCIENCE TECHNOLOGY
(Proposed Course)

Science Technology is a three-year program of studies aimed at producing a graduate with a sound basic knowledge of Mathematics, Physics, Chemistry and Biology. The potential employment market for graduates of Science Technology falls into four areas: (1) Applied research and development laboratories in industry, universities, and governmental departments; (2) Educational laboratories in universities, community colleges and secondary schools; (3) Process and quality control laboratories in industry; and (4) Technical sales. Present indications are that most graduates will find employment in applied research, development and educational laboratories.

Course Numbers: First Year 8011, Second Year 8012, Third Year 8013

Admission

Candidates must have a Secondary School Graduation Diploma and must have taken Physics and Chemistry in all years.

Duration: Three Years

Content

Throughout the course, emphasis is placed on practical training in laboratory techniques relevant to the physical, biological and physico-biological sciences. The first and second years of the course are common to all students. In the third year, students elect to follow a more concentrated program of studies in either Physics, Chemistry or Biology.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Mathematics	HH081A	4	2	2	4
Physics	HH801A	5	2.5	2.5	5
Chemistry	HH802A	5	2.5	2.5	5
Biology	HH803A	5	2.5	2.5	5
Electricity and Magnetism	HH804A	5	2.5	2.5	5
English	GF151A	2	1	1	2
Elective		2	1	1	2
		Total Units of Credit			28
YEAR 2					
Mathematics, Computers & Calculaters	HH081B	4	2	2	4
Physics	HH801B	5	2.5	2.5	
Chemistry	HH802B	5	2.5	2.5	5
Biology	HH803B	5	2.5	2.5	5
Electronics	HH804B	6	3	3	6
English	GF151B	2	1	1	2
Elective		2	1	1	2
		Total Units of Credit			29
YEAR 3 (PHYSICS)					
Experimental Design, Computers and Caliulaters	HH081C	4	2	2	4
Instrumentation	HH805C	6	3		3
Spectroscopy	HH806C	6		3	3
Physics	HH807C	2	1	1	2
Physics	HH808C	2	1	1	2
Physics Laboratory	HH809C	9	4.5	4.5	9
Tutorial	HH810C	1			
Optional Subject (One of)	HH811C HH812C HH815C HH816C	2	1	1	2
Elective		2	1	1	2
		Total Units of Credit			27

YEAR 3 (BIOLOGY)					
Experimental Design, Computers and Calculators	HH081C	4	2	2	4
Instrumentation	HH805C	6	3		3
Spectroscopy	HH806C	6		3	3
Biology	HH815C	2	1	1	2
Biology	HH816C	2	1	1	2
Biology Laboratory	HH817C	9	4.5	4.5	9
Tutorial	HH818C	1			
Optional Subject (one of)	HH807C HH808C HH811C HH812C	2	1	1	2
Elective		2	1	1	2
		Total Units of Credit			27
YEAR 3 (CHEMISTRY)					
Experimental Design, Computers and Caliulaters	HH081C	4	2	2	4
Instrumentation	HH805C	6	3		3
Spectroscopy	HH806C	6		3	3
Chemistry	HH811C	2	1	1	2
Chemistry	HH812C	2	1	1	2
Chemistry Laboratory	HH813C	9	4.5	4.5	9
Tutorial	HH814C	1			
Optional Subject (one of)	HH807C HH808C HH815C HH816C	2	1	1	2
Elective		2	1	1	2

Subject Details

Mathematics H H081A

Course under development.

Physics HH801A

Kinematics; force; work; energy; power; angular and linear momentum; simple harmonic motion; oscillating systems; waves and wave properties.

Accompanying laboratory course.

Chemistry HH802A

Classification of matter; chemical weight relationships and laws; valence; chemical equations; chemical equilibrium; ionization and ionic reactions; pH; solubility and methods of expressing concentration; atomic structure; the periodic table.

Accompanying laboratory course.

Biology HH803A

Cells; protoplasm; cell size and shape; cell structure including nucleus, cytoplasm, vacuoles, endoplasmic reticulum; ribosomes, Golgi apparatus, centrosome, mitochondria, plastids; fundamental processes including nutrituion and metabolism, transformation of energy, respiratory exchange, excretion, exchange between cell and environment; reproduction including mitosis and meiosis, sexual and asexual reproduction; conditions under which life exists. Representative plants and plant phylogeny: bacteria, viruses, rickettsias, slime moulds; algae; fungi; bryophytes, pteridophytes, spermatophytes.

Accompanying laboratory course.

Electricity and Magnetism HH804A

Circuit theory; circuit theorems; magnetism; electromagnetism; basic atomic theory; static electricity; electrical units; power and energy; D.C. series, parallel and complex circuits; resistance inductance; capacitance, time constants; generation of sinusoidal voltage; inductive and capacitive reactance; impedance; A.C. series, parallel and complex circuits; resonance; power factor; basic transformer theory.

Accompanying laboratory course.

English GF151A

First year technology students examine selected literature of the modern period. This course further aims at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Mathematics, Computers & Calculators HH081B

Course under development.

Physics HH801B

Thermometry; heat quantities; heat transfer; basic thermodynamics up to a qualitative discussion of entropy; geometrical optics; optical instruments.
Accompanying laboratory course.

Chemistry HH802B

Nomenclature; the principal aliphatic families; fats, carbohydrates; proteins, introduction to aromatic compounds; detergents and cleansers; plastics.
Accompanying laboratory course.

Biology HH803B

Classification of organisms: the naming of animals and plants; principals of classification.

Representative animals and animal phylogeny: stressing forms of economic importance; protozoa; coelenterates; sponges; flatworms; roundworms; annelids; molluses; arthropods; echinoderms; chordates.

Structure and function of flowering plants: structure of flowering plants; physiology of plants including nutrition, photosynthesis, respiratory exchange, excretion, necessity of water, transport, control and regulation of activity.

Accompanying laboratory course.

Electronics HH804B

Fundamentals of vacuum tubes and semiconductors; rectifiers, power supplies and filtering; small signal amplifiers and equivalent circuits; frequency response; negative feedback and its effects; power amplifiers; oscillators, detectors and modulators.

Accompanying laboratory course.

English GF151B

The literature of this course is aimed at enabling the student to achieve a better understanding of the individual in relation to: (1) himself (2) others (3) his religious experience. It is designed in three parts: (1) Man and Himself (2) Man and Others (3) Man and "God". Speaking and writing skills developed in first year English will be practised further. Each second year technological student must competently organize and present a written technological report of 2000-3000 words dealing with a subject related to his own main area of training.

Experimental Design, Computers and Calculators HH081C

Course under development.

Instrumentation HH805C

Direct and indirect measurement; errors, conversion of units; theory of dimensions; the primary measuring elements for recording and control of: weight, density, liquid level, viscosity, fluid flow, pressure, temperature. Resistance bridges; potentiometers, proper care of meters.
Accompanying laboratory course.

Spectroscopy HH806C

Theory of spectra; spectrometers — visual, infrared, ultra-violet; application of spectroscopy to physics, chemistry and biology; basic photography.

Accompanying laboratory course.

Physics HH807C

Physical optics: the wave nature of light; interference and diffraction; interferometers and gratings; coherence and non-coherence; lasers.

Physics HH808C

An introduction to modern and nuclear physics; kinetic theory; electrons; quantum radiation; protons; neutrons; radioactivity; properties of nuclear radiation; health physics.

Physics HH809C

A laboratory course accompanying HH807C and HH808C, and also interconnecting physics, chemistry and biology.

Tutorial HH810C

Tutorial period alloted to students for consultation on a project of individual study.

Biology HH815C

Structures and function of vertebrates: characteristics of vertebrates; tissues; skeleton; muscles; nutrition and digestion; respiration and respiratory systems; circulatory system and its physiology; excretion and the kidneys; reproductive system including endocrinological aspects; nervous system; endocrine organs; sense organs.

Biology HH816C

Mechanisms of heredity and the theory of evolution.

Biology HH817C

A laboratory course accompanying HH815C and HH816C and also interconnecting physics, chemistry and biology.

Biology HH819C

Tutorial period alloted to students for consultation on a project of individual study.

Chemistry HH811C

Properties of ideal gases; deviation from ideality; real gases, kinetic theory; heat capacity of gases; liquefaction; properties of liquids; viscosity, molar refraction, molar polarization, dielectric constant and dipole moments; solids, heat capacity.

Thermodynamics: heat of reaction, formation, combustion, reversible reactions.

Chemistry HH812C

The application of physico-chemical principles to biochemical systems. Carborydrates, liquids, and proteins, their classification, structure, reactions and chemical tests: photosynthesis, biological oxidation and glycolysis. Hormones and vitamins: chemical nature, tests and physiological roles. Enzymes and coenzymes; their nature mechanism and function, application in syntheses.

Chemistry HH813C

A laboratory course accompanying HH811 and HH812 and also interconnecting physics, chemistry and biology.

Tutorial HH814

Tutorial period alloted to students for consultation on a project of individual study.

SOCIAL SCIENCE AND HUMANITIES DIVISION

This division of the College has a twofold responsibility. In addition to servicing the other divisions with such subjects as English, economics, psychology, sociology, etc., it is responsible for the administration of the following courses:

MUNICIPAL ADMINISTRATION

This course was designed at the suggestion of the Ontario Department of Municipal Affairs to meet the need for trained personnel in the various departments of municipal government, especially Assessment and Treasury. Students follow a common first year but have wide options during the second year depending on the field of municipal government they plan to enter.

Course Numbers, First Year 6021, Second Year 6022

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration

Two years.

Content

This course provides training in those areas considered most necessary for participation in Municipal Government — especially clerk-treasury and assessment. These include English, Maths and Statistics, Politics, Data Processing, and specialty areas in accounts and assessment.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Politics and Government	FF501A	3	1.5	1.5	3
Public Administration	FF550A	7	3.5	3.5	7
Economics	FF401A	3	1.5	1.5	3
English	FF125A	3	1.5	1.5	3
Accounting	FC015A	4	2	2	4
Data Processing	FC061A	5	2.5	2.5	5
Mathematics and Statistics	FH060A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
(Assessment Option)					
Assessment Law	FF551B	5	2.5	2.5	5
Assessment Practice Field Work and Valuation	FF552B	10	0	5	5
Sketching	FG142B	2	1	1	2
(Clerk-Treasurer Option)					
Accounting	FC015B	4	2	2	4
Public Administration (Advanced)	FF555B	4	2	2	4
Dom. Prov. and Mun. Law	FF556B	4	2	2	4
(Common Subjects)					
Economics	FF402	4	2	2	4
Politics and Government	FF502	3	1.5	1.5	3
Data Processing	FC061B	3	1.5	1.5	3
English	FF125B	3	1.5	1.5	3
Mathematics and Statistics	FH060B	4	2	2	4

Subject Details

English FF125A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. Principles of good business writing and investigation of formats for professional writing also comprise a major consideration of this course.

Accounting FC015A

The balance sheet; profit and loss statement; purpose and form of accounts; general journal, work sheet, adjusting and closing entries; special journals; drafts and promissory notes; petty cash; cash control; payroll; practice set.

Mathematics FH060A

Mathematics; real number system; indices; logarithms and the use of six place mantissa tables; arithmetic and geometric progressions.

Mathematics of Finance; simple interest and discount; compound interest; present value; bonds; discount rates; sinking funds; annuities; mortgages; methods of depreciation.

Descriptive Statistics: graphic and pictorial display of data; frequency distributions; measurements of central tendency — mean, median and mode.

Economics FF401A

A general introduction to economics given with a brief survey of economic history; other areas: the economic role of government, price of factors of production; rent theory.

Data Processing I FC061A

The development of data processing methods and machines from earliest times; the data processing cycle; punched card data processing; introduction to the modern digital computer; coded data representation; input, output media and devices used in modern computer systems; computer programming; introduction to flow charts and decision tables, batch processing; on-line processing;

Politics and Government FF501A

To bring to the attention of the students the major political ideas and systems that have marked the story of mankind. A survey of the greatest of political thinkers from Plato to Lenin, combined with an examination of various experiments in governmental forms. The course concludes with a comparison of the contemporary American and Canadian forms of government.

Public Administration FF550A

A common course for students continuing on into either Clerk-Treasury work or Assessment Administration. The Course includes a brief history of municipal government in Canada; property assessment; municipal finance and accounting; community planning; administration and management; and public relations. It is hoped that students will be placed in suitable summer employment.

English FF125B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.

Mathematics FH060B

Descriptive Statistics (continued): measurement of dispersion — variance and standard deviation.

Inferential Statistics: testing of hypotheses; elementary correlation theory and applications; time series analysis.

Economics FF402B

A more specialized course with an emphasis upon the **economics of valuation;** the application of the theory of land economics in a regional and **local context.**

Data Processing II FC061A

Basic computer programming and systems design; flow charts and decision tables; programming of simple business problems on the 1130 computing system using a high level language; debugging and testing programs; systems analysis and procedure; basic processing methods; file organization techniques.

Politics and Government FF502B

A study of contemporary forms of government and especially those of Britain, Canada and the U.S.A. The relationship of Dominion to Provincial Government and of both to the municipalities of Canada.

Assessment Law FF551B

An explanation of The Assessment Act and Related Case Law; the assessor and the law; the assessor's responsibility during the revision of the assessment roll; the function of the assessment appeal tribunals.

Assessment Practice and Field Work & Valuation FF552B

Principles and practice — a course of study covering all aspects of the valuation of real property for the purposes of municipal assessment in Ontario. This course will consist of both classroom, (approximately four-fifths of the study time) and field work, (approximately one-fifth of the study time).

Subjects which will be considered in detail include economic analysis and assessment; quantity surveys; sales analysis, the translation of rental income into value; depreciation and obsolescence. Field work will include assessment of industrial, commercial, and residential property in both urban and rural locations.

Sketching

Method of layout sketching and measurement application (land and buildings). Method of plotting metes and bounds descriptions from legal deeds or other source data; understanding of building structural components, their terms, and their location as well as their function; roof design, types, and general mensuration; understanding of acceptable standards of construction — e.g., National building code standards, and C.M.H.C. standards; ability to measure in the field, and set up accurate scale detail drawings for all type structures.

Accounting FC015B

Public Finance, Municipal Finance and Accounting.

Public Administration (Advanced) FF553B

Personnel relations, administration and management techniques, public policy.

Dominion, Provincial, and Municipal Law

Rule of law, the judiciary, administrative law, legal powers and responsibilities of municipalities.

GENERAL ARTS

This course is intended to offer a broad base of training which will prepare its students for employment in those fields which require reading comprehension, some skill in drafting reports and general administrative tasks.

Course Numbers, First Year 6031, Second Year 6032

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Two Years

Content

The student is given a wide choice from: Geography, History, Economics, Sociology, Political Science, Psychology, in addition to English as the content of his course.

Hours and Credits

YEAR 1		Hours	Units of Credit		
Subject	Number	per Week	1st Term	2nd Term	Total
Economics	FF403A	4	2	2	4
*English	FF126A	4	2	2	4
Geography	FF701A	4	2	2	4
History	FF751A	4	2	2	4
Political Science	FF503A	4	2	2	4
Psychology	FF601A	4	2	2	4
Sociology	FF651A	4	2	2	4
*Elective Subject		2	1	1	2
General Science	FH723A	4	2	2	4
YEAR 2					
Economics	FF404B	4	2	2	4
*English	FF126B	4	2	2	4
Geography	FF702B	4	2	2	4
History	FF752B	4	2	2	4
Political Science	FF504B	4	2	2	4
Psychology	FF602B	4	2	2	4
Sociology	FF652B	4	2	2	4
*Elective Subject		2	1	1	2
General Science	FH723B	4	2	2	4

*The only compulsory subjects.

Subject Details

Political Science FF503A

A survey of political thought from Plato to the present.

Psychology FF601A

An introduction to various aspects of psychology. Social attitudes, language and communication, society and culture, group dynamics and the behaviour of the individual in the group. Various personality theories.

History FF751A - The 20th Century World

A study of the major social and political developments of this century with a view to understanding the world today. The origins and results of the two World Wars, the rise of the various "isms" and the roots of contemporary social problems will be dealt with in detail.

Geography FF701A - A Regional Geography of North America

This course will consist of a regional analysis of North America, north of the Rio Grande River. Special consideration will be given to economics, political and various cultural patterns in their respective natural settings and the geographical inter-relationships between the United States and Canada. Current problems of urbanization, pollution, and land resource utilization will form integral parts of the course.

Economics FF403A - Basic Principles of Economics

This is an introductory course in the principles of economics and will stress the nature of economic interrelations within a market exchange economy, the manner in which production of commodities is determined, the various uses of labour, capital and natural resources in production and the distribution of income among the various producing elements. This course is designed to explain the working of a market exchange economy rather than the institutions of the economy.

Sociology FF651A - An Introduction to Sociology

This course is divided into two major sections. The initial section will deal with basic concepts and perspectives of sociological analysis and method. The latter part will be devoted to an examination of selected areas of specialization in sociology including: the family, occupations and careers, bureaucracy, and industrial organization, political institutions, race and ethnic relations, deviant behaviour, and social change.

English FF126A

This course is a survey course of English and North American literature from Chaucer to Salinger.

General Science Courses FH723A

History of Science—a survey of the development of science by various cultures: The Greeks; The Romans; The Moslems; The Renaissance; Newton; Europe 1600-1850; Modern Science 1850-1900, 1900-1930, 1930 - present.

History FF752B

A detailed study of Canadian history since Confederation with emphasis on social, economic and external development.

Political Science FF504B

A study of contemporary forms of government, and especially those of Britain, Canada and the U.S.A., a survey of Canadian federal - provincial relationships, past, present and future.

Psychology FF602B

The nature of experimental psychology, with special reference to the genetic and environmental control of behaviour, the psychological and experimental determinants of perception and the mechanisms of learning and memory.

Geography FF702B - Political Geography

The role of spatial and environmental factors in the political geography of communities. The character of boundaries and frontiers and the relationships of resources and technology to political decisions.

Economics FF404B - Monetary and Business Cycle Theory

Especially as these are related to contemporary Canadian economic problems.

Sociology FF652B

A detailed examination of developmental theories and a study of the problem of culture and personality, social integration and solidarity.

English FF126B

Second year General Arts students will elect a course of their choice **each** semester from such possibilities as Creative Writing, Utopian Literature, the Journey-Quest-Theme in Literature, Pornography and Propriety, Science Fiction.

General Science FH723B

Philosophy of Science: Laws, Explanation and Probability; Induction and Logical Probability; the Experimental Method; Measurement and Quantitative Language; Measurement of Quantitative Concepts; Mass; Length: Time: Derived Magnitudes; The Structure of Space: Euclidean; Non-Euclidean; Space in Relativistic Theory; Causality and Determinism: Causality and Necessity; Determinism and Free Will; Theoretical Laws and Theoretical Concepts: Theories and non-observables; Analyticity in an Observation Language; Analyticity in a Theoretical Language. Beyond Determinism: Statistical Laws; Indeterminism in Quantum Physics.

RECREATION LEADERSHIP

This two year program seeks to develop, in the individual, those insights and skills which would make him an understanding, knowledgable, and effective leader in society. As society comes to enjoy more leisure time, it is necessary to provide creative uses of this time.

Course Numbers: First Year 6041, Second Year 6042

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Grade 12 Chemistry is obligatory.

Duration: Two Years

Content

This course provides training in leadership and group work skills, facility management, activity skills, community development techniques, program planning, operation and supervision. The graduate will work as Recreation leader in a variety of organizations, agencies and institutions.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Leadership and Group Dynamics	FF751A	2	1	1	2
Philosophy of Leisure	FF752A	2	1	1	2
Arts In The Life Of Man (includes field trips)	FF753A	2	1	1	2
English	FF127A	3	1.5	1.5	3
Sociology	FF663A	3	1.5	1.5	3
Psychology	FF612A	3	1.5	1.5	3
Introduction To Community Recreation	FF750A	3	1.5	1.5	3
*Field Visitation and Field Orientation	FF754A	3	1.5	1.5	3
Principles of Physical Recreation	FF755A	1	.5	.5	1
Recreation Skill Labs (includes electives) Swimming Physical Rec. Social Rec. Creative Activities	FF756A	5	1.5	1.5	3
Summer Field Assignment					2
YEAR 2					
English	FF127B	3	1.5	1.5	3
Community Organization	FF758B	3	1.5		1.5
Regional Development	FF759B			1.5	1.5
Education For The Full Life (Informal Education)	FF760B	2	1	1	2
Recreation Administration & Management	FF761B	3	1.5	1.5	3
Recreation Areas & Facilities	FF762B	2	1	1	2
Municipal Recreation	FF763B	2	1	1	2
Outdoor Recreation	FF764B	2		1	1
*Field Practice	FF765B	12	4	4	8
Recreation Skill Labs	FF766B	3	1	1	2

Subject Details

English FF127A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. Principles of good business writing and investigation of formats for professional writing also comprise a major consideration of this course.

Sociology FF663A

It is the perspective in which the sociologist views the structure and processes of human social life.

Psychology FF612A

The basic principles of psychology with regards to the personality development, individual differences in people, biological bases of behaviour, motivation, emotions, and learning are discussed.

Introduction to Community Recreation FF750A

This course introduces the student to the history, development, and future trends of community recreation, the agencies involved, their administration, leadership and program.

Leadership and Group Dynamics FF751A

An examination of the philosophies, theories, and application of leadership as related to group work. This course is also concerned with the implications of group dynamics and the role of groups in the community.

Philosophy of Leisure FF752A

Study of the dynamics of change in society with special emphasis given to the relationship between technological and social change.

Arts in the Life of Man FF753A

Study of the role of fine arts in Western civilization with particular emphasis on the contribution of arts in society today. The creative processes of the artist and the scientist will be compared and the practical implications of arts in industry, education, and entertainment will also be considered. (Field visits are also involved).

*Field Visitation and Field Orientation FF754A

The effectiveness of a recreation course relates to the students understanding of the community in general and the recreation community in particular. This is accomplished through field visitations and direct placement in recreation organizations and agencies.

Principles of Physical Recreation FF755A

Study of the principles and standards in the operation of physical recreation programs including an overview of the different philosophies related to various sports organizations and agencies.

Recreation Skill Labs FF756A

Involves introductory courses in social recreation, physical recreation, and various visual and performing arts.

English FF127B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.

Community Organization FF758B

A study of the process by which a community identifies and deals with these needs or objectives.

Regional Development FF759B

A study of the process of decentralization from the province to regional governments, and the effects on recreation.

Education for the Full Life (Informal Education) FF760B

The philosophies, principles and practices of Child and Adult Education, are examined in relation to Recreation as an informal education service.

Recreation Administration and Management FF761B

A study of the principles and practices of recreation administration and facility management.

Recreation Areas and Facilities FF762B

The relationship of various areas and facilities to programs, finance, leadership, and administration.

Municipal Recreation FF763B

A look at the organization and operation of municipal recreation in Ontario including study of the legislation affecting recreation.

Outdoor Recreation FF764B

Study of the growth and development of all outdoor recreation programs; including day camping, residential camping, family camping, playgrounds.

*Field Practice FF765B

Practical field work is intensified through continuous placements in community recreation agencies.

Recreation Skill Labs FF766B (Creative-Cultural Activities)

Included is a variety of activities in the performing and visual arts.

Note I Swimming

Students must have completed tests up to and including the Bronze Medallion by the time they graduate.

Note II Residential Training

In human relations, communications, arts and crafts will be interspersed throughout the two years.

Note III Recreation Summer Field Placement

The students will be employed in community recreation agencies between the first and second year under agency supervision and in consultation with the faculty co-ordinator.

*It is possible that the Recreation Leadership student will have to pay part or all of the cost of his field experience, special projects. This subject is being considered by Fanshawe College at the present time.

LAW AND SECURITY ADMINISTRATION

(PROPOSED COURSE 1969)

This course is designed to prepare students to enter the various police forces or to perform other security and custodial services. Students will receive a basic knowledge of law, government and police technology. Modern communication and human relationship skills will be stressed.

Course Number: First Year 6061, Second Year 6062

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Two Years

Content

The subjects covered in this course are designed to aid students in dealing with people — i.e., Psychology, Sociology and English. Other subjects, of a more technical nature, deals with legal and administrative matters: Ethics of Law Enforcement, Evidence Acts, etc.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
English	FF129A	3	1.5	1.5	3
Psychology	FF604A	3	1.5	1.5	3
Sociology	FF653A	3	1.5	1.5	3
Ethics of Law Enforcement	FF850A	3	1.5	—	1.5
Principles of Govt.	FF851A	3	1.5	—	1.5
Survey of Law Enforcement Agencies	FF852A	3	1.5	—	1.5
2 of these					
(Maths & Statistics		3	1.5	—	1.5
(Science Laboratory	FH722A	3	1.5	—	1.5
(Industrial Security Can. Sys. of Justice	FF855A	3	1.5	1.5	3
1 of these					
(Audio-Visual Techniques	FB050A	3	1.5	1.5	3
(Geography	FF703B	3	1.5	1.5	3
2 of these					
(History of Police Services	FF853A	3	—	1.5	1.5
(Logic of Law Enforcement	FF854A	3	—	1.5	1.5
(Introduction to Business	FC020	3	—	1.5	1.5
(Data Processing I	FC060A	5	—	1.5	1.5
YEAR 2					
English	FF129B	3	1.5	1.5	3
Socio-Psychology	FF655B	3	1.5	1.5	3
Politics	FF505B	3	1.5	1.5	3
Law Enforcement I (Can. & Ont. Evidence Acts)	FF856B	3	1.5	—	1.5
Law Enforcement II (Ind. and Commercial)	FF857B	3	—	1.5	1.5

YEAR 2 (continued)		Hours per	Units of Credit 1st	2nd	
Subject	Number	Week	Term	Term	Total
2 of these					
(Municipal Admin.	FF555B	3	1.5	1.5	3
(Accounting	FC015	4	1.5	1.5	3
(Geography	FF704B	3	1.5	1.5	3
(French	FF454	3	1.5	1.5	3
1 of these					
(Social Problems	FF858B	3	1.5	—	1.5
(Personnel Work	FF859B	3	1.5	—	1.5
(Surveying Computations and Drafting	FF860B	3	1.5	—	1.5
1 of these					
(Social Services	FF861B	3	—	1.5	1.5
(Community Studies	FF862B	3	—	1.5	1.5
(Driver Training	FF863B	3	—	1.5	1.5

Subject Details

English FF129A

This course involves students in the literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. Principles of good business writing and investigation of formats for professional writing also comprise a major consideration of this course.

Geography FF703A

A study of the influence of physical environment on human behaviour. Topics would include regional physical patterns such as climate, soils, vegetation, landforms, natural resources and conservation of resources. The study of natural resources would be related to the regional occupational and industrial uses. Training will be given in map making and reading, along with instruction in the use of the tools and techniques utilized in geographic studies.

Psychology FF604A

This is an introductory course in psychology. It aims at developing an understanding of the basic principles of psychology that underlie human behaviour. Practical application of these principles to life situations will be stressed. Student participation in problem solving and discussion will be encouraged.

Sociology FF653A

Topics to be studied will include culture; society and personality; cultural integration and cultural change; inter-group tensions in a multi-group society; marriage and the family; education; religion; economic systems and culture. The purpose of this course is to develop an understanding of groups, organizations, and institutions in society.

Survey of Law Enforcement Agencies FF852A

A study of the responsibilities, training and duties of law enforcement agencies. Also considered will be the structure and functions of the Mounted Police, Provincial Police, Municipal Forces, Interpol, F.B.I., Scotland Yard, and private security and investigating agencies.

Ethics in Law Enforcement FF850A

A survey of professional standards for ethical conduct, including attitude toward the profession, responsibility to the public, and limitations of authority.

Principles of Government FF851A

An introductory course in principles of Canadian government institutions and function. The machinery of government at the federal, provincial, and municipal levels will also be examined.

History of Police Services FF853A

A comparative historical study of methods employed to maintain public order in civilized nations of the world, such as Canada, Great Britain, United States, European Countries, and the U.S.S.R.

Logic of Law Enforcement FF854A

A course composed of seminars in critical thinking. It will encompass the presentation and refutation of arguments and the evaluation of the logic and validity of conclusions arrived at through reasoning.

The Canadian System of Justice FF855A

A course to familiarize students with a wide range of Canadian government publications, documents and regulations. Topics will include the functions of the Judiciary, and Canada's systems of courts; the Supreme Court, the Exchequer Court of Canada, the Provincial Court of Appeal and Superior Court of Ontario, the District and County Court; Surrogate Courts; Provincial Magistrates Courts; Justices of the Peace; Juvenile and Family Courts.

Optional Subjects

Introduction to Business FC020

Forms of business ownership; functions of management; personnel department; wage and salary administration; labour-management relations; office services and management; financial control; kinds of financing; Canadian securities; plant location; buildings and equipment; production planning and control; inventory control; industrial purchasing and quality control; channels of distribution; sales promotion and advertising.

Mathematics and Statistics FH061A

A course in the basic principles of algebra; numerical methods of computation using approximations, logarithms, etc., introductory statistics including graphical representation of statistical data. Sampling schemes and probability concepts will be stressed.

Data Processing I FC060A

The development of data processing methods and machines from earliest times; the data processing cycle; punched card data processing; input, output media and devices used in modern computer systems; computer programming; introduction to flow charts and decision tables, batch processing; on-line processing; file organization; systems analysis and procedures.

Audio-Visual Techniques FB050A

The prime objectives of this course will be to instruct students in the use and routine maintenance of machines and materials such as projectors, record players, filmstrips and tapes. The student will also receive some instruction in evaluation of content and in suitable presentation techniques. This course should be beneficial to those policemen who will be using movie projectors and tape recorders, etc., in connection with their lectures and speeches within the community.

2ND YEAR

English FF129B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.

Psychology - Sociology FF655B

Topics will include general principles of perception; motivation; emotions and attitudes; personal adjustment and mental hygiene; the social matrix of individual behaviour; communications as a social process; group processes; interpersonal behaviour; and psychology applied to problems in occupational situations.

Accounting FC015

The balance sheet; profit and loss statement; purpose and form of accounts; general journal, work sheet, adjusting and closing entries; special journals; drafts and promissory notes; petty cash; cash control; payroll; practice set.

Politics FF505B

An introduction to the principles, institutions, and practices of government and politics. Part One traces the ideas, ideals and objectives that philosophically and historically underlie twentieth century politics. Part Two describes how these ideas, ideals and objectives are applied in the government structures and political processes of the United States, Great Britain, France, Germany, the Soviet Union and the underdeveloped countries. In conclusion, some of the key aspects of present day international politics will be discussed.

Law Enforcement I FF856B

Areas of concentration in this course include: The Canada and Ontario Evidence Acts, rules of evidence, statements, admissions and confessions by accused, identification (science and law) and case preparation and presentation. It is expected that by the end of this course the student will become fully conversant with the law and rules of evidence.

Law Enforcement II FF857B

This course is of particular value to peace officers and those contemplating a career with the public police. Industrial and commercial law enforcement personnel will also find the topics of interest and value. Emphasis is placed on the Revised Statutes of Ontario and in particular on the traffic laws and on accident investigation.

Main topics of study include Selected Offences; Procedures Ontario Statutes; Selected Offences; Procedures Federal Statutes; searches with or without warrant, punishment, probation and parole, and public relations.

Geography FF704B

Topics will include studies of the effects of atmospheric changes, pressures and seasonal variations on regional patterns of behaviour in regard to traffic problems, seasonal suicides and effects on mental health. Studies of annual weather reports for the region will also be useful in predicting possible traffic problems, and should be helpful in the prevention of accidents in the interest of public safety.

Conversational French FF454B

A course designed to develop fluency in speaking French. A facility in the use of the language will be of value to graduates who may find employment in bilingual cultural areas.

Social Problems FF858B

This course is designed as a sociological review of the factors in such problems as addictions, crime, delinquency and suicides. Much of the study will be based on case presentations and seminars.

Personnel Work FF859B

This course will discuss the principles of personnel management as applied to the police enterprise, evaluation and promotion, discipline, training, employee welfare, problem solving and leadership.

EARLY CHILDHOOD TEACHER EDUCATION

(PROPOSED COURSE 1969)

This course is designed to equip students with the knowledge and understanding of the developmental principles related to the pre-school child. The teaching techniques appropriate to the needs of this age group, and the necessary social skills required to develop the child's emotional independence.

Course Numbers: First Year 6071, Second Year 6072

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Grade 12 Chemistry is obligatory.

Duration: Two Years

Content

The subjects which comprise this course are designed to enable the graduates to cope with any foreseeable situation involving the pre-school child. Some of these are: Child Development, Psychology, Sociology, Nursery School Practice, etc.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	**Number**	**Week**	**1st Term**	**2nd Term**	**Total**
English	FF130A	4	2	2	4
History of Education	FF950A	3	1.5		1.5
Sociology (Family Life)	FF658A	3		1.5	1.5
General Science	FH724A	3	1.5	1.5	3
Psychology	FF607A	3	1.5	1.5	3
Pre-School Education	FF951A	3	1.5	1.5	3
Nursery School Practice (Field Work)	FF952A	4	2	2	4
Child Development	FF953A	3	1.5	1.5	3
Elective **(one of these)**					
French	FF451A	3	1.5	1.5	3
Creative Writing	FF452A	3	1.5	1.5	3
Economics	FF406A	3	1.5	1.5	3
YEAR 2					
Audio-Visual Techniques	FB009B	2	1	1	2
English	FF130B	4	2	2	4
Government and Law	FF507B	3	1.5	1.5	3
Pre-School Education	FF954B	3	1.5	1.5	3
Field Work	FF955B	6	3	3	6
The Young Child	FF956B	2	1		1
Mental Health	FF957B	2		1	1
Sociology	FF659B	3	1.5	1.5	3
Psychology	FF608B	3	1.5	1.5	3

Subject Details

Sociology FF658A

An introductory course to a wide range of topics in the field of sociology. The students shall develop an increasing understanding of groups, organizations, and institutions in society. They will be given a familiarity with the basic tools of analysis and the methods employed in the "sociological approach". A study of such topics as social organization, social groups, social relations; the study of the family will be highlighted.

History of Education FF950A

A survey course to trace developments in education through the ages with particular emphasis on very young children. The ideas of such educators as Henbart, Bestalozzi, Montessori, and Bruner will be studied.

General Science FH724A

A course designed to introduce students to the historical and philosophical aspects of various sciences so as to provide a good background in science for the teacher of pre-school children. The relationship between science and the arts will be considered. The course will include such topics as space exploration, stars, planets and satellites, the nature of life, and the values of science and technological changes.

English FF130A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. Principles of good business writing and investigation of formats for professional writing also comprise a major consideration of this course.

Elementary Psychology FF607A

A foundation subject to acquaint the student with psychological concepts basic to an understanding of human behaviour and to introduce him to an objective psychological way of thought. A human rather than an experimental emphasis is advised, with meaningful application.

Child Development FF953A

A foundation subject dealing with the concept of human development, to include the study of fundamental changes in behaviour from infancy through adolescence. The purpose of the course is that the student view the child in a developmental context. Observations should be arranged at all ages in a variety of settings.

Pre-School Education I FF951A

A practical course which introduces the student to the essential elements of a daily program in a nursery school and to the teacher's role in each aspect of this program. The purpose is to prepare the student for initial participation. Observation and practice should accompany this course, and discussion should be related to experience.

Pre-School Education II FF951A

A practical course following Pre-school Education I dealing with the history of pre-school educating; comparative study of current approaches and methods of education; including the mentally retarded, physically handicapped, culturally disadvantaged and others. The overall purpose will be to widen the student's abilities and skills through extended knowledge of the ways and means of programming and practices.

Nursery School Practice FF952A

Observation and participation in a selected nursery school under approved supervision. Practice can be arranged on a weekly basis or in a concentrated period or as a combination of such. It is important that class and individual discussion accompany part if not all the practice period.

Government & Law FF507B

A study of democratic theory and practice through an examination of Canadian political institution and processes. The course will focus on government and law and topics dealt with will include: constitution, legislature, executive, judiciaries, pressure groups, political parties, representation, public opinion, and civil liberties.

English FF130B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.

Pre-School Education III FF954B

A practical course designed to complete the student's preparation as a teacher in pre-school education. Previous topics of study will be selected for more intensive investigation. These will fall in the following categories:

1. Special teaching situations (ex. music, creative play)
2. Principles and practices in special areas of development (ex. social, language, perceptual development)
3. Review of such matters as discipline approaches, balanced programming, individual programming; adaptation of method to a variety of child settings (hospitals, therapy groups, junior kindergartens). If possible, students should be involved in selection of topics and the program should center on student participation through discussion, presentations and workshops.

Psychology of the Pre-School Child FF608B

A foundation subject in depth with the psychological features significant to early childhood and with the principles of child guidance and education based on this child understanding. Emphasis will be on the young normal child (ages 2 years through 5 years) and on individual differences. Directed student observations are advised as part of this study; discussion should be linked with student experience.

The Young Child in the Home FF956B

A practical course dealing with features of family life which are critical to the young child's development. The purpose of the course is that the student realize differences in family background, understand something of the impact these have on the child, and become tolerant of such toward increased rapport with parents.

Mental Health FF957B

A foundation introducing a positive concept of mental health applicable to children and adults. Emphasis should be placed on adults toward an understanding of psychological strengths and weaknesses, particularly as they apply practically in teacher and parent roles and in interaction situations.

Sociology FF659B

An evaluation of the origin and importance of the family as a social institution in modern society. This should include the effects of automation and technology on the individual in society which should include such aspects as religion, politics, urbanization and nationalism. The role of education in society and how each interacts with the other.

Audio-Visual Techniques FB009B

This course will give an introduction to the use of audio-visual aids and a limited practical experience in working with motion pictures, filmstrips and slides, records and tape recordings, flat pictures, overhead transparencies, language laboratories and listening centres, educational television and teaching machines.

Field Work FF955B

Research Orientation in Child Study

A foundation subject introducing the student to the actualities of child study. The purpose is that the student realize the sources from which facts and theories emerge, and himself develop an objective approach in viewing the child and ways and means of education and guidance.

Observation and Special Practice

Observation of a variety of programs related to Pre-school Education II and some participation.

Orientation to Community Resources

A practical course in which the student is introduced to community services and agencies for the young child and his family other than pre-school education and day nurseries.

TEACHER ASSISTANT (PROPOSED COURSE)

Graduates of this course will, as educational resource personnel under the direction of a professional teacher and the supervision of the school principal will supplement the role of the teacher as technical, laboratory, supervisory, secretarial, library, classroom and office assistants.

Course Numbers: First Year 6081, Second Year 6082

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Special arrangements are made for mature candidates.

Duration: Two Years

Content

Consists of those subjects which are calculated to equip the graduate with the necessary skills and techniques to assist in as wide a range of educational activities as possible. viz — English; psychology; sociology; audio-visual, library and office practice; typing, etc.

Hours and Credits

YEAR 1		Hours	Units of Credit		
Subject	Number	per Week	1st Term	2nd Term	Total
Education I	FF901A	2	1	1	2
English	FF131A	5	2.5	2.5	5
Law and Government	FF506A	4	2	2	4
Psychology	FF606A	4	2	2	4
Social Work	FF656A	2	1	1	2
Audio-Visual	FB009A	2	1	1	2
Library Assistant	FF810A	2	1	1	2
Intro to Typing	FC010	4	2	2	4
1 of					
(School Office Admin.	FF905A	2	1	1	2
(Primary Assistant	FF902A	2	1	1	2
YEAR 2					
Economics	FF405B	4	2	2	4
Education II	FF903B	2	1	1	2
English	FF131B	5	2.5	2.5	5
Sociology	FF657B	4	2	2	4
2 of					
(Audio-Visual	FB009B	5	2.5	2.5	5
(Library Assistant	FB811B	5	2.5	2.5	5
(Primary Assistant	FF904B	5	2.5	2.5	5
(School Office Administration	FF906B	5	2.5	2.5	5

Subject Details

Education I FF901A

This will be a study of the role of the Education Assistant, the teacher, the principal, the superintendent or inspector, the board, the Department of Education; a historical development of Education in Ontario; the ethics of the teaching profession; class management and organization, stressing the human relations among education assistants, teachers and students; an appreciation of classroom techniques and suitable physical environment.

English FF131A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. Principles of good business writing and investigation of formats for professional writing also comprise a major consideration of this course.

Law and Government FF506A

A study of democratic theory and practice through an examination of Canadian political institutions and processes. The course will focus on government and law and topics dealt with will include: constitution, legislature, executive, judiciaries, pressure groups, political parties, representation, public opinion and civil liberties. Special attention will be paid to the effectiveness with which government can handle contemporary problems such as automation, poverty, and federalism, those aspects of law that cover the basic legal relationships. This will give the student the ability to recognize the legal problems that will require professional legal counsel.

Psychology FF606A

An introductory study of psychology and its application in modern life. Child development — study of changing behaviour from infancy to adolescence. Observation of different age groups with a study of research methods and findings in the child field. Each student could carry out a small research project. A study of the child in his family life. Mental health and appreciation of the professional team in this field, the psychiatrist, and the psychologist and the social worker.

Social Work FF656A

This course will indicate the philosophy of social welfare of the worth and the dignity of the individual and his right to service in health, education and welfare. It will examine the underlying concept and the methods of casework and group work as it applies to work with children and adults. The role of the practitioner and the process in the helping relationship will be studied. The techniques of interviewing and recording will be examined and developed.

Audio-Visual FB009A

This course will give an introduction to the use of audio-visual aids and a limited practical experience in working with motion pictures, filmstrips and slides, records and tape recordings, flat pictures, overhead transparencies, language laboratories and listening centres, educational television and teaching machines.

Library Assistant FF810A

An introduction to library organization and administration should form the major portion of the course. The student should also receive basic training in technical services, book selection, cataloguing and classification. Discussions and study of reference works, bibliographies and annotations should be a valuable part of the course.

Introduction to Typing FC010

Parts of typewriter; letters and characters of keyboard; centering; tabulation; letter style and punctuation; addressing envelopes; folding and inserting letters; carbon copy exercises; office standards; office organization; postal and banking services; filing procedures.

School Office Administration FF905A

During the first term, the course will include organization of a school office, functions of the school office and school office procedures. The second term will be devoted to school bookkeeping, school records, school forms, budget preparation, control and inventory and school funds.

Primary Assistant FF092A

Pursue the study of child development as applied to primary children including stages of growth and development, behaviour patterns, itnerests, etc. Emphasis will also be placed on the objectives of the primary school program in such areas as learning how to learn, developing competence to the limit of each child's potential in the various aspects of the curriculum, encouraging habits of inquiry and the skills essential to finding solutions, developing the ability to communicate effectively, nurturing creativity and originality.

Economics FF405B

The study of employer-employee relationships, contracts, property transactions. An examination of the price system, the business unit, personal finance, money and banking, taxation and consumer credit. An appreciation of modern economic systems, international trade, rich and underdeveloped countries, the welfare state and collective bargaining.

Education II FF903B

Will consist of an expansion and greater depth study of the topics covered in Education I.

English FF131B

In this course, the student will explore the roots of our society through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year student will prepare at least one piece of professional material of considerable challenge and scope.

Sociology FF657B

An evaluation of the origin and importance of the family as a social institution in modern society. This should include the effects of automation and technology on the individual in society which should include such aspects as religion, politics, urbanization and nationalism. The role of education in society and how each interacts with the other.

Audio-Visual FB009B

The purpose of this course is to develop competence in the technical aspects of the aids studied in the first year. Stress will be given to video-tape recorders, motion picture projectors, film storage, examination and repair, the production of overhead transparencies, slides and recordings. Study of a school audio-visual centre, its location, its contents and its program, and inventory and distribution techniques.

Library Assistant FB811B

In the second year the student becomes familiar with the background of librarianship and studies the role and administration of today's school library. Further study should be made in technical services, book selection, cataloguing and classification, reference work and bibliographies. The role of the library in special services becomes an important study in this course. Adequate time should be given to practical work in typical school libraries. Principles, problems and methods in developing library collections should be dealt with.

Primary Assistant FB904B

The child development study will be continued throughout this year. Understanding of the teacher's role in guiding children's learning in order to teach basic skills, to develop a program that will suit the needs of individual children within her class, to provide the learning experiences in harmony with the basic objectives set out in the school curriculum will be a part of the student's study.

School Office Administration FF906B

A study in depth of office administration will be carried out. The student will learn how to prepare all reports for the Department and the Board, pupil personnel records, tabulating, reporting and recording results, attendance records and procedures, how to handle school textbooks and lockers, data processing as it will be used in the school office, and supervision of secretarial staff.

TECHNICAL DIVISION

The Technical Division of Fanshawe College provides courses in three general areas. These are: Apprenticeship, Engineering Technology, and Engineering Technician.

The following information indicates the kind of courses available within these three jurisdictions.

Apprenticeship Courses — Apprentices (within trades regulated by the Industrial Training Branch of the Ontario Department of Labour) are directed to Fanshawe College for part of their training. Apprentice students receive a combination of on-the job, and in-college training. The length and frequency of in-college sessions will vary, but for most trades the college program is divided into a basic session of eight weeks, and subsequent intermediate and advanced sessions of seven weeks each.

Fanshawe College provides courses for the following apprenticeship trades: Motor Vehicle Repair, Class A; Auto Body and Fender Repair, Class B; Hairdressing; Electrical Wiring and Installation; Plumbing; Sheet Metal Work; Machine Trades.

Entry to these apprenticeship classes is restricted to those apprentices directed to the college by the Ontario Department of Labour.

Enquiries regarding apprenticeship should be sent to the Ontario Department of Labour, 74 Victoria St., Toronto or to the nearest local Industrial Training Branch of the Department of Labour.

Engineering Technician Programs — Engineering Technician programs are of two years duration, and normally are intended for grade twelve graduates of four year programs in secondary school. (See "admission requirements").

In some instances grade twelve graduation from a cognate S.T.&T. course is recommended.

Technicians are sometimes part of the design team; at other times they may be more concerned with the installation or maintenance of sophisticated devices or equipment.

Approximately half of the students time is spent on academic subjects and about half on specialty or major subjects. Students who complete the two year program successfully and who subsequently gain two years of relevant industrial experience, may be recognized as Senior Engineering Technicians. In addition, graduates with above average standing may be permitted to enter the second year of cognate engineering technology program.

Engineering Technology Programs — Engineering technology programs are of three years duration and are generally intended to produce graduates who will work closely with professional engineers as part of a design team. A common first year program is followed by two years of specialized instruction.

Entrance to Engineering Technology normally is limited to graduates of the fourth year of a five year program, although graduates of some four year program courses who have an average of at least 70% may be admitted.

Upon graduation, and after having completed two years of satisfactory industrial experience, students may receive professional accreditation as Certified Engineering Technologists.

APPRENTICESHIP PROGRAMS

MOTOR VEHICLE REPAIR

Recent advances in the design of automobiles have created dynamic changes in the Motor Vehicle Repair Trade.

Although dexterity with hand tools formerly was the main attribute of a mechanic, no longer is this the major criterion of excellence. The complexities of modern automobiles demand that repairmen now have diagnostic capabilities as well as possess superior workmanship.

Three courses in Motor Vehicle Repair are offered at Fanshawe College.

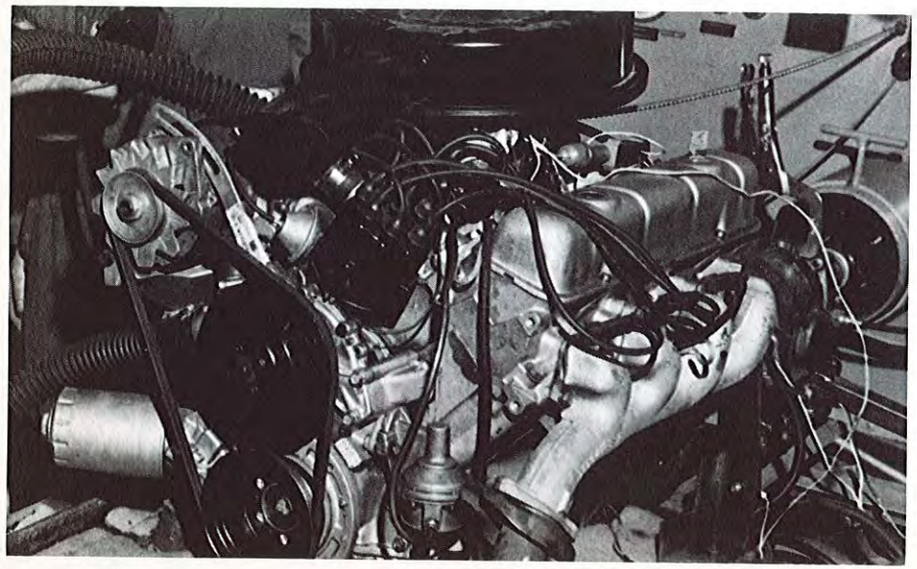
During the first two courses, a thorough study is made of all components in engines, running gear, chassis, electrical and fuel systems. Students are given an opportunity to apply classroom theory to practical assignments which are carried out in our modern shops.

In the final course, major emphasis is placed on the diagnosis and reconditioning of all system components. Students must gain a thorough understanding of all the principles of operation of modern vehicles to successfully perform static and dynamic vehicle testing.

All related subjects are closely geared to the major subject areas to provide the tools for a better understanding of the underlying principles of the automotive science and technology.

Subject Details

Subject Name	Hrs/wk
Engine and Machine Shop Theory	4
Engine and Machine Shop Practical	3
Running Gear and Drive System Theory	4
Running Gear and Drive System Practical	3
Electrical and Fuel Theory	4
Electrical and Fuel Practical	3
Applied Schematics	1
Welding	2
Applied English	2
Applied Mathematics	2
Applied Physics	2



BODY AND FENDER REPAIR

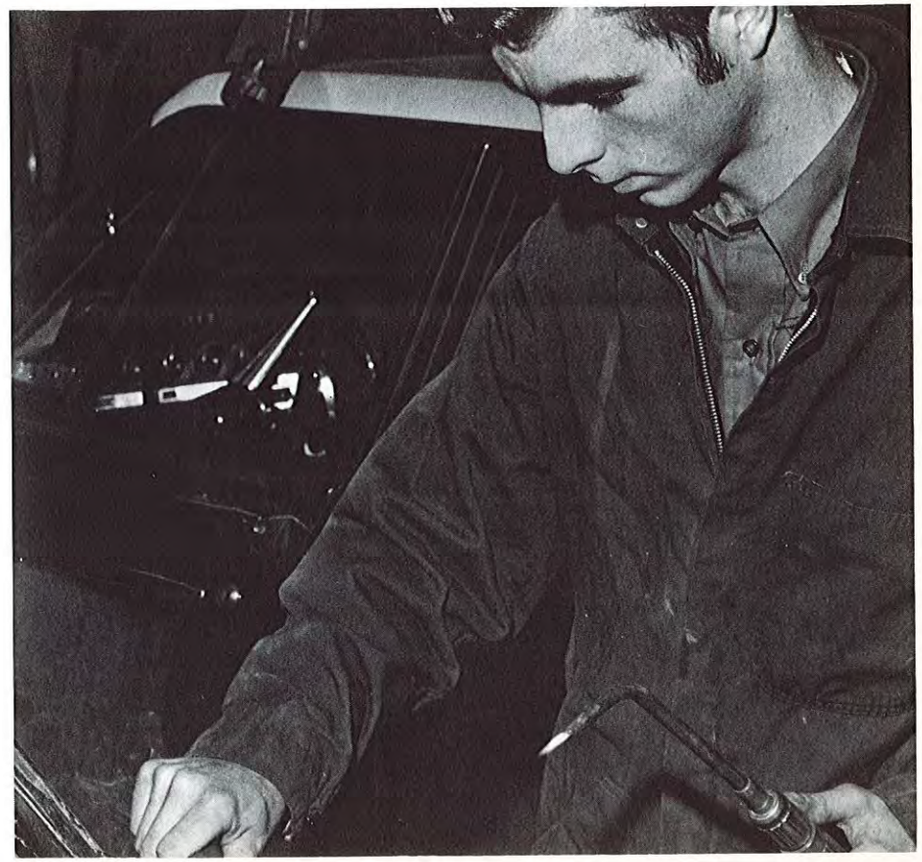
In order to execute properly the practices of auto body repair, a tradesman must be skilled, not only in sheet metal repair, but also in metal preparation and paint refinishing. He must, therefore, have an awareness of up to date theory and its practical application.

The two courses offered at the College cover such topics as welding, panel repair and replacement, radiator repair and recoring, frame straightening, estimating, and applied related subjects.

These skills, coupled with an understanding of modern refinishing techniques, combine to give the graduate of this program the attributes necessary to become a competent auto body journeyman.

Subject Details

Subject Name	Hrs/wk
Body Fender and Sheet Metal Theory	4
Body Fender and Sheet Metal Practical	6
Preparation and Refinishing Theory	4
Preparation and Refinishing Practical	6
Applied Estimating	1
Welding	3
Applied English	2
Applied Mathematics	2
Applied Physics	2



HAIRDRESSING

The school portion of the training of the Hairdressing Apprentice is concentrated into one course of twenty weeks. As close as possible to the starting date of employment, the apprentice will receive this course as part of the apprenticeship training. Basic techniques in all phases of the training are taught, first on mannequins and later, on live models. The theory and related subjects are taught from the outset of the training period. Thus, on completion of the course, the apprentice has obtained the skills, speed and accuracy necessary as a proper foundation for further training.

Instruction is not limited to that of hairdressing alone, but also includes a study of the operations of a shop or salon.

Subject Details

Subject Name	Hrs/wk
Hairdressing Practical	19
Hairdressing Theory	3
Business Practice	3
English	2
Science	2

Practical

Facial treatments, shampoos and rinses, hair tinting and bleaching, scalp treatment, hair-cutting, finger waving, permanent waving, hair styling, manicuring.

Theory

History of hairdressing, hygiene and personality, sterilization and sanitation, anatomy and physiology, diseases of skin, scalp and hair, electricity, depilatories, chemistry, beauty salon management.

ELECTRICAL CONSTRUCTION AND MAINTENANCE

The Construction Electrician of today enjoys the high rate of pay which is consistent with the degree of skill and knowledge required in his trade.

This is a trade demanding fast, accurate work, meticulous in all aspects. The apprentice and journeyman must be capable of absorbing and mastering new procedures, materials and installation practices.

Subject Details

Subject Name	Hrs/wk
Electrical Theory	13
Electrical Practice	8
Electrical Blue Print Reading	3
English	3
Mathematics	3

Basic Course Theory

Electron Theory, Ohm's Law, series circuits and parallel combination circuits, power, energy, efficiency, magnetism and electromagnetism, measuring instruments, sources of EMF, wire calculations, electric heating and lighting, introduction to single-phase AC, introduction to Ontario Electrical Code.

Basic Practical Projects

Fundamental electrical measurements, signal circuits, lighting circuits, heating controls, introductions to N.M.S.C. and A.C. wiring.

Intermediate Theory

Introduction to A.C. inductance and inductive reactance, capacitance and capacitive reactance, R-L-C series circuits, power and power factor, D.C. generators and motors, (construction and characteristics), D.C. motor controls.

Intermediate Practical Projects

Electrical wiring methods: electrical metallic tubing, rigid and flexible conduit, wiremould, multi-outlet, underfloor raceways, domestic services, industrial and commercial services.

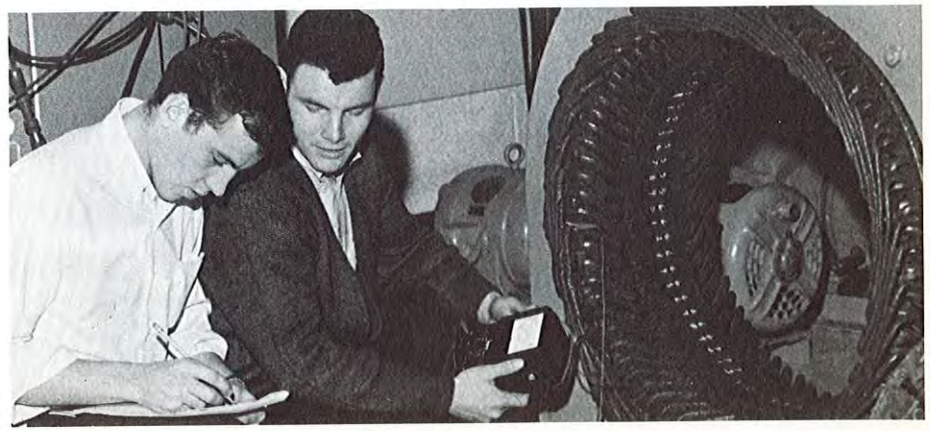
D.C. shunt, series and compound motors and generators, D.C. control wiring and trouble shooting.

Advanced Theory

R-L-C series and parallel circuits, three-phase A.C., A.C. instruments and meters, transformers, alternators, single phase and three phase motors.

Advanced Practical Projects

A.C. motor controls, transformer connections, rotating A.C. machine experiments.



PLUMBING TRADE

New techniques and technology, plus the introduction of new materials such as plastics, and the adaptation of the Plumbing Code throughout the province have caused the nature of this trade to change rapidly.

Pay rates for journeymen have risen to compensate for the increased knowledge and skills demanded in the industry. This has led many employees and joint councils to demand academic standards in excess of the grade 10 general requirements under the Apprenticeship and Tradesmen Qualifications Act. This trade now requires all journeymen to hold a Provincial Certificate of Qualification.

Subject Details

Subject Name	Hrs/wk
Plumbing Practical	7
Plumbing Theory	11
Blue Print Reading	2
Welding	2
English	2
Mathematics	2
Physics	2

Basic Course

Materials, heat transfer, simple drainage, simple venting theory and regulations; fixture units and hydraulic loads.

Intermediate Course

Heat, water and heat behaviour, expanded drainage and venting, valves, sumps, vent terminals and grease interceptors.

Advanced Course

Hot water installations (direct and indirect); pressure and head, pumps and rural water supplies, rural sewage disposal, testing, advanced drainage and venting.

SHEET METAL

The sheet metal trade of today is much different from that of the tinsmith of former years. The advent of warm air heating and air conditioning has raised this trade to one of great importance in the Construction Industry.

In housing, apartments, industry and commerce, the percentage of new buildings with air conditioning is growing.

The competent journeyman in this trade requires not only great hand skills, but also the ability of the draftsman. Pattern drafting and layout work covers a large percentage of the work of the skilled Sheet Metal Worker.

Subject Details

Subject Name	Hrs/wk
Sheet Metal Practical	5
Sheet Metal Theory	6
Pattern Drafting	7
Welding	2
English	2
Mathematics	2
Science	2
Blue Print Reading	2

Basic Course

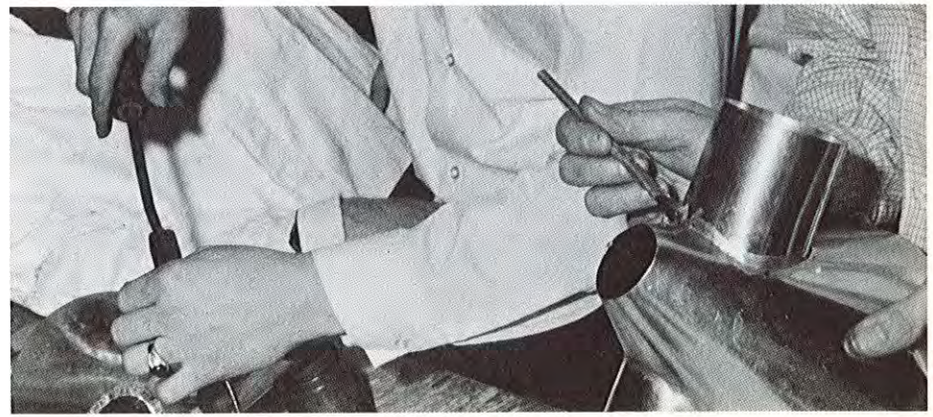
History of the sheet metal trade; metals of seams and cleats used in roofing and ductwork; soldering and fluxes; rivets and riveting; hard tools and their proper use; floor and bench machines; stakes of the trade; pattern drafting; geometry of the trade; parallel method of pattern drafting; making of fittings using knowledge gained from drafting and theory periods.

Intermediate Course

Manufacture and gauging of metals; plastics forming and welding; bend allowances for heavy gauge metals and aluminum alloys; expansion of metals effect and remedy; coping, flashing and seams used in metal roofing; air conditioning; process and comfort air conditioning; humidity and its effects; duct symbols and design; radical line method of pattern drafting; fittings construction using knowledge gained in drafting and theory periods.

Advanced Course

Duct construction materials; methods of fastening and hanging ducts; construction of high velocity ductwork; fans and fan laws — static and velocity pressure; commercial duct design; types of equipment used; pattern drafting — parallel radial and triangulation methods of pattern drafting; making up fittings using knowledge gained in previous and present drafting and theory periods.



MACHINE TRADES - TOOL MAKING AND MACHINING

In-school training for apprentices in the machine trades was introduced in Ontario in the fall of 1966. The program is similar to that for other trades having apprenticeship training.

Since many tool rooms and machine shops are equipped only with those machines required for the operations conducted in that plant, apprentices may not receive training on all types on the job. This course will enable the apprentice to receive practical training on all the types of machines likely to be encountered, or considered necessary for him to know to become a competent mechanic. Theory and related subjects are also part of the in-school program.

Subject Details

Subject Name	Hrs/wk
Theory	12
Practice	8
Mathematics	3
English	2
Blue Print Reading	4

Theory

Precision tools and applications: calipers vernier height gauge; micrometer; machine tool operations and functions; lathe, saws, shaper, drill press; speeds and feeds.

Intermediate Course - Tool Making and Machinist

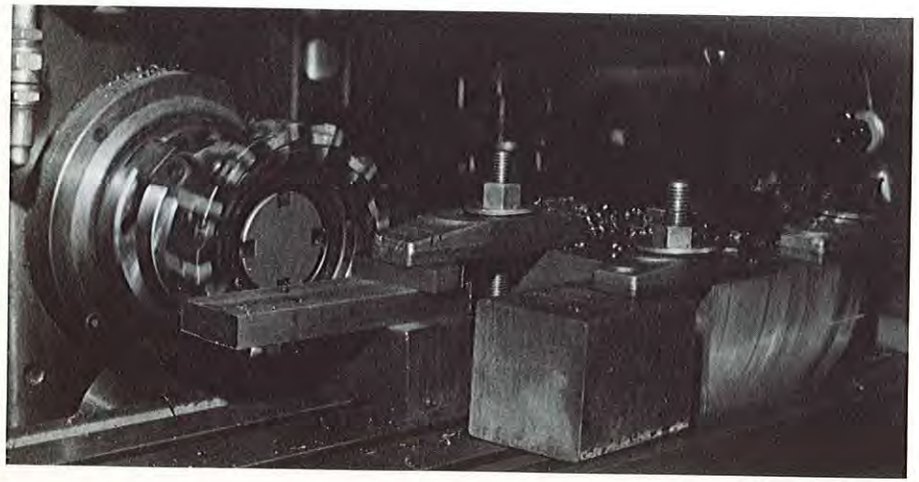
Measurement: systems of fits and tolerances, air and electronic gauges, surface finish; milling machine and applications: indexing methods, gearing, grinding: cylindrical, external and internal, surface, tool and cutter, wheel selection.

Advanced Course - Tool Making

Jigs and fixtures; jig borer; die making: die terminology, blank development, die clearance; metallurgy: iron carbide equilibrium diagram, heat treating processes, alloying elements and effects, non-ferrous metals; new machinery processes.

Advanced Course - Machinist

Metallurgy: iron carbide equilibrium diagram, heat treating processes, alloying elements and effects; electric discharge machinery; numerical control; eccentric turning, multiple start threading; jig boring.



CIVIL/SURVEY ENGINEERING TECHNICIAN

The continued development and growth of Canada depends largely on the establishment of industry and transportation facilities. Both industry and the inevitable residential development require municipal services: surveyed lots, water, sewage facilities and access routes.

Civil (Survey) Technician students must have the technical knowledge to help meet the demands in these areas. The construction industry, as well as consulting firms and provincial authorities provide opportunities for young technicians in legal and engineering surveys and in related drafting.

Course Numbers: First Year 7011, Second Year 7012 C & S

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

Duration: Two Years

Content

First year is common to both Civil and Survey with specialization taking place at the end of the first year.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Survey Computations and Drafting	GG001A	4/5	2	2	4
Plane Survey	GG002A	8/4	2.5	2.5	5
Materials & Methods	GG003A	2/4	1.5	1.5	3
Descriptive Geometry	GG004A	2	1	1	2
Physics	GH716A	5/0	2.5		2.5
Structural Mechanics	GG005A	0/6		3	3
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2 (Civil)					
Theory of Structures and Detailing	GG007B	8/6	3	3	6
Highway Design	GG008B	4	1.5	1.5	3
Municipal Services	GG009B	6	2.5	2.5	5
Descriptive Geometry	GG010B	2	1	1	2
Mathematics	GH070B	3	1.5	1.5	3
English	GF150B	2	1	1	2
Technical Report				1	1
Economics	GF410B	2	1	1	2
Elective		2	1	1	2
(Survey)					
Survey Computations and Drafting	GG011B	3/5	1.5	1.5	3
Advanced Plane Survey	GG012B	6/3	2	2	4
Municipal Services	GG013B	3	1.5	1.5	3
Photogrammetry	GG014B	2	1	1	2
Spherical Trigonometry and Astronomy	GG015B	2	1	1	2
Legal Surveying	GG016B	3	1.5	1.5	3
Mathematics	GH070B	3	1.5	1.5	3
Economics	GF410B	2	1	1	2
Technical Report				1	1
English	GF150B	2	1	1	2
Elective		2	1	1	2

Survey Computations and Drafting GG001A

Calculation of bearings and azimuths; six figures logarithms solution of triangles; DMD method for land area calculations; latitudes and departures; closures, plot of boundaries, types of plans, reducing field noted, contour plans, profiles, ink drawings, free hand and mechanical lettering, simple curve calculations; earthwork calculations.

Plane Survey GG002A

General principles and definitions; role of surveyor; steel tapes, corrections, sources of errors, accuracy, chaining methods; use and care of transits and levels, stadia; topographic surveys, traverses and field notes, including practical field problems.

Materials & Methods GG003A

A study of tests and evaluations of construction material applications.

Descriptive Geometry GG004A

Orthographic projection; principal views; auxiliary views; isometric sketching; basic principles involving points; lines and planes; true shapes found by auxiliary view and revolution methods; strike and dip stratum; apparent dip; skew bore holes; problems involving practical situations and drawing.

Physics GH716A

A general course which emphasizes optics, sound and the characteristics of waves. Other topics include kinematics, energy and power, temperature and heat and introduction to electronics.

Structural Mechanics GG005A

Status: resolution and composition of co-planar forces, moment of a force, couples, beam reactions, centers of gravity and moment of inertia.

Stress: Axial and shear stresses, strain, modulus of elasticity.

Structural Elements: shear forces and moment in beams; flexure formula, horizontal shear stress.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.
Algebra: functions and graphs; systems of linear equations; exponents and radicals logarithms; exponential functions; quadratic equations; ratio and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature project-ing experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Theory of Structures and Detailing GG007B

This course covers the fundamentals of structural detail drawing. These fundamentals are applied to the design and detailing of members and connections in elementary structures. The course considers the basic structural materials of wood, steel and concrete. The detailing and design of members of these materials is based upon the standard practises of the construction industry.

Highway Design GG008B

Horizontal and vertical curves, transition curves, highway location, route plans and profiles, curve selection, plans, specifications, design of highways cross sections, grades, cut and fill signs, signals and marking as related to highway and traffic engineering, photogrammetric interpretation.

Municipal Services G009B

Hydraulics; a study of water flow; factors; Manning's formula; pipes - types, manufacture, laying, backfilling, hydraulic characteristics; storm and sanitary sewers; hydrology; runoffs; appurtenances; control schemes for flood control; sewage plants; watermain location; pumps; valves; filtration plants; municipal street design.

Descriptive Geometry GG010B

The location of points and lines in a plane; the slope of a plane; problems involving skew lines; intersection of two planes; intersection of lines and planes; dihedral angles; intersection of surfaces - plane and curved; cutting planes; location of workings; intersection of views; faults; outcrops; profiles and sections; contours; cuts and fills along level roads and along a grade road; practical problems and drawing practice; revolution and counterrevolution methods of solving practical problems.

Mathematics GH070B

Analytic Geometry: the straight line; conic sections.

Differential Calculus: functions and limits; differentiation from first principles; differentiation by rule; problems involving gradients, tangents, maxima, minima and curve sketching; practical problems.

Integral Calculus; The differential and the integral: summation and definite integration; practical applications.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates; Newton's method of determining roots volume by integration; centroids and moments.

Economics GF410B

A general introduction to economics given with a brief survey of economic history; other areas: the economic role of government; price of factors of production; rent theory.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in the first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

Survey Computations and Drafting GG011B

Curve problems including compound, reversed, transition curves, intersection problems, vertical curves, adjustments and balancing, computer imput, preparation of all types of legal plans, plotting of cross-sections, borrow pits, quantities; topographic drawing.

Advanced Plane Survey GG012B

Survey reports, field methods and procedures for land surveys, subdivision surveys, right-of-way, construction, location, underground and hydrographic surveys; second order traverses using precise theodolites and electronic measuring equipment, including sources of error and calibration.

Municipal Services GG013B

Hydrology, hydraulics, municipal planning, codes and specifications, land drainage, stream discharge, measurements, schemes for flood protection and conservation, municipal drainage act. Construction of sewers, water mains, streets, curbs and gutters.

Photogrammetry GG014B

Stereoscopic vision and observation; photography and stereophotography, survey cameras, flight planning and navigation, ground control, mapping from aerial photographs, rectification and mosaics.

Spherical Trigonometry and Astronomy GG015B

Derivation of formula and solution of spherical triangles, celestial sphere, spherical coordinates, P. Z. S. triangles, aximuth, time and latitude from polaris and the sun, convergance, star cards, astronomical observations.

Legal Surveying GG016B

General principles and laws, responsibilities of surveyor, importance of field notes, legal aspects of land surveying, township systems, surveys act, relevant acts and common law, court room proceedings, rules of evidence and boundary location. A study of real estate transactions in Ontario with regard to Registry Office, Land Titles Office, types of documents, extent of title, expropriation, municipal and legal descriptions.

CONSTRUCTION TECHNICIAN

The program is designed to prepare the student for a career in the construction industry. Graduates will find employment opportunities as junior take off men, assistants to construction engineers, trainee superintendents and technical representatives of equipment and building materials suppliers. Many of these jobs lead to senior management positions as the applicant gains experience.

Course Numbers: First Year 7021, Second Year 7022

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

Duration: Two Years

Content

This course was offered in response to a request from the General Contractors Association (who advised on its content). The Construction Technician is concerned with the technical and theoretical aspects of the construction industry, both on job sites and in the estimating and engineering departments. The course is not intended to develop the skills of the building tradesman, but to train personnel who will occupy senior and supervisory positions in the industry.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Materials and Methods	GG017A	3	1	1	2
Construction Survey	GG018A	3/2	1	1	2
Construction Methods and Drafting	GG019A	5	2	2	4
Quantity Survey	GG020A	4	2	2	4
Mechanical Installations	GG021A	0/2		1	1
Statics	GG006A	4/0	2		2
Mechanics of Materials	GG035A	0/4		2	2
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Contracts and Specifications	GG022B	4	2	2	4
Quantity Survey and Estimating	GG023B	5	2.5	2.5	5
Construction Methods and Drafting	GG024B	7/6	2.5	2.5	5
Mechanical Installations	GG025B	3	1.5	1.5	3
Physics	GH703B	0/4	1	1	2
Mathematics	GH070B	3	1.5	1.5	3
English	GF150B	2	1	1	2
Building Economics	GF411B	3/2	1	1	2
Technical Report				1	1
Elective		2	1	1	2

Materials and Methods GG017A

A study of tests and evaluations of construction material applications.

Construction Survey GG018A

Principles of chaining; levelling; traversing; errors; mistakes and checks, earthwork computation; azimuths and bearings; horizontal and vertical control of building operations; care of the instruments; field exercises in differential, profile, cross-sectional and contour work; with emphasis on construction site work.

Construction Methods and Drafting GG019A

Site preparation, building layout, excavation, wood frame construction, masonry construction; subsoil exploration; classification of soil. Design and control of concrete mixtures. Projects with wood and concrete.
Drafting: line conventions, lettering, projection principles, preparation of detail and working drawings.

Quantity Survey GG020A

Introduction to quantity surveying; building material units; abbreviations; general principles and basic rules for taking-off; takeoff sheets and booking dimensions, mensuration; areas of formula; blueprint reading.
Practice: Measuring concrete work; formwork; masonry; carpentry; finishes and excavations.

Mechanical Installations GG021A

Principles and practices — municipal water supply systems; pressures; piping; valves; building water supply; fixtures; heaters; sprinkler systems; municipal sewage treatment plants; storm and sanitary drainage; materials; roughing-in; venting; fixtures.

Statics GG006A

Forces: characteristics, types of force systems, vector addition, components, resultant, coplanar force systems, moments, couples, point loads, distributed loads, equilibrium conditions, reactions.
Trusses: method of joint resolution, method of sections.
Friction: Static friction on flat surfaces.
Centroids: simple geometric areas, composite areas.
First and Second Moment of Area: simple areas, parallel axis theorem, composite areas, radius of gyration.

Mechanics of Materials GG035A

Stress and Strain: stress, strain, elastic moduli, experimental curves.
Riveted and Welded Joints: modes of failure, structural joints, boiler joints, joint efficiency.
Torsion: introduction
Beam Theory: statically determinate beams, bending moment and shear force diagrams, tensile, compressive and shear stresses, beam deflections by formula and by area — moment methods for symmetrical loads.
Columns: combined bending and direct stress, slenderness ratio, Euler's formula, stress columns, wood columns, eccentric loading.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.
Algebra: functions and graphs; systems of linear equations; exponents and radicals; logarithms; exponential functions; quadratic equations; ratio and proportions.
Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.
Optional topics: complex numbers; binomial theorem; determinants.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Contracts and Specifications GG022B

Principles and practice — contract law; construction contracts; contract forms; construction insurance; tendering procedures; contract bonds; critical path method of planning, scheduling and controlling, construction organization-management, labour legislation, publications and associations, financing, costing, specifications — standard format inspection, special contracts.

Quantity Survey and Estimating GG023B

Principles and theories of estimating, classification of work; and quantity survey techniques applied to medium commercial, institutional; industrial and heavy construction projects. The analysis and determination of costs of construction operations including applicable indirect and overhead costs and the preparation of bid proposals. Take-offs will be made of local projects, selected to suit the instruction needs.

Construction Methods and Drafting GG024B

Formwork for concrete structures; principles of structural steel erection and timber construction; application of construction methods to advanced projects in wood, steel and concrete.
Drafting: preparation of drawings for concrete formwork and placing of reinforcing steel.

Mechanical Installations GG025B

Principles and practices — heating, warm air, hot water, steam and electrical; air conditioning; ventilation; electrical equipment; fixtures and distribution systems.

Physics GH703B

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.
Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts, pipes, fans and fan laws.
Thermodynamics: Boyles, Charles, Avogadro's and Dalton's Laws, Equation of State, phase diagrams; psychrometrics.
Wave Propagation of Energy: fundamentals of wave properties, qualities of sound and light.
Note: Only those topics that are pertinent to a particular Technician's program are considered.

Building Economics GF411B

Elements of Economics: Laws of Supply and Demand; factors of production, division of labour, the entrepreneur; types of business organization; markets; money and public finance, distribution of income, international trade.
Building Economics: Organization of the building industry; developer; budget, capital, land values; Governmental development, financing; cost in use of buildings; cost comparisons of alternative materials and installation.

Mathematics GH070B

Analytic Geometry: the straight line; conic sections.
Differential Calculus: functions and limits; differentiation from first principles; differentiation by rules; problems involving: gradients, tangents; maxima, minima and curve sketching; practical problems.
Integral Calculus: the differential and the integral: summation and definite integration; practical applications.
Calculus of logarithmic, exponential and trigonometric functions.
Optional Topics: Polar coordinates; Newton's method of determining roots; volume by integration; centroids and moments.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in the first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

ADVANCED CONSTRUCTION CONTRACTING TECHNICIAN

There is a great demand in the construction industry for persons highly qualified in the technical aspects of building. This course is designed to graduate persons who will be capable of producing complete quantity surveys, estimates and construction progress schedules, with a minimum of supervision. Graduates should find openings in estimating and contract departments of General Contractors, assisting construction superintendents and engineers on the site and in architectural firms as job inspectors and cost estimators. The course will also be of assistance to students who are working toward the final examination of the Canadian Institute of Quantity Surveyors.

Course Numbers, Third Year 7023

Admission

Candidates must be graduates of the Construction Technician Course. Special arrangements will be made for mature candidates with equivalent industrial experience.

Duration: One Year

Hours and Credits

YEAR 1

Subject	Number	Hours per Week	Units of Credit 1st Term	2nd Term	Total
Construction Technology	GG118C	6	2.5	2.5	5
Management and Accountancy	GG119C	3	1.5	1.5	3
Law in Relation to Building	GG120C	3	1.5	1.5	3
Estimating of Buildings	GG121C	3	1.5	1.5	3
Heavy Construction and Building Quantities	GG122C	6	2.5	2.5	5
Electrical and Mechanical Installations	GG123C	2	1	1	2
Architects' Estimating Methods	GG124C	2	1	1	2
Industrial Psychology	GF619C	2	1	1	2
Elective		2	1	1	2

Subject Details

Construction Technology GG118C

Reinforced Concrete: Design of beams, slabs, and columns, detailing of working drawings, preparation of reinforcing steel schedules.

Timber: Design of structural members, sawed and glued-laminated timber; split-ring and bolted connectors; roof trusses, preparation of shop drawings, plywood structural units.

Management and Accountancy GG119C

Construction planning; purchasing; plant and vehicles; work study; personnel; office organization and method; critical path.

Bookkeeping and office routine; cost control; budgetary control (cost flow), final contract accounts.

Law in Relation to Building GG120C

Law of land; leases; dilapidations (and reports); mortgages; easements; fixtures and fittings.

Building contracts and sub-contracts; union contracts; labour laws and negotiating machinery; torts; negligence, nuisance and trespass; building regulation and by-laws; building insurances; lien laws; law of arbitration.

Estimating of Buildings GG121C

The analysis of labour costs, material prices and equipment expenses of a variety of schemes ranging from well point systems and pile driving for foundations to high-rise concrete structures. Tenders will be prepared on a selected number of construction projects.

Heavy Construction and Building Quantities GG122C

Earthworks, pile foundations, jetties and wharves, culverts, bridges, timber trestles, concrete silos, reservoirs, and treatment plants, Schools, factories, apartments, institutional buildings, banks and hotels.

Electrical and Mechanical Installations GG123C

Lighting design and systems; electrical circuits; refrigeration; psychometrics and air conditioning design; heating systems; elevators and escalators; acoustics.

Architects' Estimating Methods GG124C

Approximate estimating; preliminary estimates; cost plans and control; factors which affect cost.

Industrial Psychology GF619C

Motivation in industry, perception of people and situations, learning and change, attitudes and morale, frustration and mental health, communication and decision making, leadership, personnel selection.

ARCHITECTURAL DRAFTING TECHNICIAN

Opportunities may be found as a Draftsman with Architects and Consulting Engineering firms. Furthermore many industries and corporations maintain drafting departments to assist in the planning of plant additions and alterations. Graduates should also consider opportunities in estimating and take-off of materials, and sales of equipment and materials manufactured for the building industry.

Course Numbers: First Year 7031, Second Year 7032

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

*A special technician preparatory course will be offered during the summer for students who did not specialize in the corresponding course at a secondary school.

Duration

Two years.

Content

This two year course introduces the student to modern building methods, and to structural and mechanical trades related to the construction industry. Through the completion of working drawings for both residential and commercial buildings, the course assists the development of architectural drafting skills.

Employment opportunities are open to the graduate in municipal offices, architectural offices, engineering offices and in related industries.

Hours and Credits

YEAR 1		Hours	Units of Credit		
Subject	Number	per Week	1st Term	2nd Term	Total
Architectural Drafting	GG026A	8	3	3	6
Materials and Methods	GG027A	2	1	1	2
Mechanical Installations	GG028A	3	1.5	1.5	3
Surveying	GG029A	4/0	2		2
Presentation Drawing	GG030A	0/4		2	2
Statics	GG006A	4/0	2		2
Mechanics of Materials	GG035A	0/4		2	2
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Architectural Drafting	GG031B	9	3.5	3.5	7
History of Architecture	GG032B	2	1	1	2
Materials and Methods	GG033B	4/0	2		2
Contracts and Cost Control	GG034B	2	1	1	2
Structural Design and Detailing	GG036B	3	1	1	2
Physics	GH703B	0/4		2	2
Mathematics	GH070B	3	1.5	1.5	3
English	GF150B	2	1	1	2
Technical Report				1	1
Building Economics	GF411B	2	1	1	2
Elective		2	1	1	2

Subject Details

Architectural Drafting GG026A

Foundations, typical wall sections; details of door, windows, stairs, fireplaces, and cabinet work; floor plans, elevations, design and complete working drawings of a residence.

Materials & Methods GG027A

Materials used in concrete, masonry and frame construction; windows, doors, fireplaces, chimneys, interior and exterior finishes, stairs.

Mechanical Installations GG028A

Principles and practices of air conditioning. Warm air, hot water, steam and electrical heating. Electrical equipment, fixtures and circuits. Heating, ventilating and air conditioning; plumbing.

Surveying GG029A

Levelling; contours; cross sections; profiles; transits; field notes; site and construction surveys; deed description; certificates; notes and legends.

Presentation Drawing GG030A

Shades and shadows; freehand sketching; rendering in various media, one and two point perspectives; presentation drawings of residences designed by students.

Statics GG006A

Forces: characteristics, types of force systems, vector addition, components, resultant, coplanar force systems, moments, couples, point loads, distributed loads, equilibrium conditions, reactions.

Trusses: method of joint resolution, method of sections.

Friction: static friction on flat surfaces.

Centroids: simple geometric areas, composite areas.

First and Second Moment of Area: simple areas, parallel axis theorem, composite areas, radius of gyration.

Mechanics of Materials GG035A

Stress and Strain: stress, strain, elastic moduli, experimental curves.

Riveted and Welded Joints: modes of failure, structural joints, boiler joints, joint efficiency.

Torsion: introduction.

Beam Theory: statically determinate beams, bending moment and shear force diagrams, tensile, compressive and shear stresses, beam deflections by formula and by area — moment methods for symmetrical loads.

Columns: combined bending and direct stress, slenderness ratio, Euler's formula, steel columns, wood columns, eccentric loading.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.

Algebra: functions and graphs; systems of linear equations; exponents and radicals; logarithms; exponential functions; quadratic equations; ratio and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Architectural Drafting GG031B

The design and working drawings of commercial and industrial buildings incorporating the use of load bearing construction and structural systems. Projects will include the coordination of structural, electrical, heating and plumbing requirements.

History of Architecture GG032B

Egyptian, Asiatic, Greek, Roman, Gothic, Renaissance, and Contemporary Architecture.

Materials and Methods GG033B

Concrete, masonry, structural steel and timber construction; curtain walls; stairs.

Contracts and Cost Control GG034B

Legal aspects of contracts; contract documents; tenders; general conditions; specifications for various trades.

Definitions of building cost, estimated cost, approximate estimating; requirements of a cost plan; comparisons of building schemes; preliminary cost plans; the cost plan; elemental cost analysis; cost studies.

Structural Design and Detailing GG036B

Design and detailing of beams, columns, and connections in wood and steel structures; design of base plates, footings; erection diagrams; application of structural design to students' working drawings.

Physics GH703B

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.

Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts; pipes, fans and fan laws.

Thermodynamics: Boyles, Charles, Avogadro's and Dalton's Laws, thermal conductivity, transfer and expansion, heat cycles and thermo nuclear reaction.

Wave Propagation of Energy: fundamentals of wave properties, qualities of sound and light.

Equation of State: phase diagrams; psychrometrics.

Note: Only those topics that are pertinent to a particular Technician's program are considered.

Mathematics GH070B

Analytic Geometry; the straight line; conic sections.
Differential Calculus: functions and limits; differentiation from first principles; differentiation by rule; problems involving: gradients, tangents, maxima, minima and curve sketching; practical problems.

Integral Calculus: the differential and the integral; summation and definite integration; practical applications.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates; Newton's method of determining roots; volume by integration; centroids and moments.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

Building Economics GF411B

Elements of Economics: Laws of Supply and Demand; factors of production, division of labour, the entrepreneur, types of business organization; markets; money and public finance, distribution of income, international trade.

Building Economics: Organization of the building industry; developer, budget, capital, land values; Governmental development, financing; cost in use of buildings; cost comparisons of alternative materials and installations.

MECHANICAL DRAFTING TECHNICIAN

The rapidly expanding industry and the advancing technology of our age will provide interesting employment opportunities for graduates of this course. Mechanical Drafting Technicians assist engineers in the challenging fields of designing, analyzing, planning and drawing of mechanical equipment and machinery.

Course Numbers: First Year 7041, Second Year 7042

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

*A special technician preparatory course will be offered during the summer for students who did not specialize in the corresponding course at a secondary school.

Duration: Two Years

Content

This program of study has been developed to give the student a firm foundation in engineering principles, design concepts and drafting skills. In addition, there is the related academic curriculum, which covers the theoretical needs of the modern technician.

Hours and Credits

		Hours per	Units of Credit		
YEAR 1					
Subject	**Number**	**Week**	**1st Term**	**2nd Term**	**Total**
Descriptive Geometry	GG073A	2	1	1	2
Materials Science	GG074A	2	1	1	2
Manufacturing Methods and Processes	GG075A	2	1	1	2
Mechanical Drafting	GG076A	8	3	3	6
Workshop Technology	GG077A	3	1	1	2
Statics	GG006A	4/0	2	—	2
Mechanics of Materials	GG035A	0/4	—	2	2
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Descriptive Geometry	GG078B	3/0	1.5	—	1.5
Machine Design	GG079B	2	1	1	2
Mechanical Drafting	GG080B	7	2.5	2.5	5
Structural Drafting	GG081B	3	1	1	2
Workshop Technology	GG082B	0/4	—	2	2
Electrical Fundamentals	GH706B	4/0	2	—	2
Mathematics	GH070B	3	1.5	1.5	3
Physics	GH703B	0/4	—	2	2
Economics	GF410B	2	1	1	2
English	GF150B	2	1	1	2
Technical Report				1	1
Elective		2	1	1	2

Subject Details

Descriptive Geometry GG073A

Analysing and reading of multiview engineering drawings; construction methods and problems involving auxiliary views and auxiliary-adjacent views; properties of points and lines in space; slope and bearing of skew lines and planes. Properties of plane surfaces and single curved surfaces. Graphical layout and applications of intersections and developments of prisms, cylinders and cones.

Materials Science GG074A

Properties of metals, their crystalline structure, phase diagrams, metallurgical techniques of micro-macro and non destructive testing. Effects of structure on physical properties.

Manufacturing Methods and Processes GG075A

The study of manufacturing methods and processes; casting process, powder metallurgy, plastics and rubber, primary metal working e.g. rolling-cold drawing-tube manufacture-forging-extrusion, metal shearing and forming, welding and allied processes, measurement and inspection, material removal processes, process planning, machine tool design principles, surface finishing and cleaning operations, chemical-electrical-mechanical operations, screw thread and gear manufacture, automation.

Mechanical Drafting GG076A

Review of basic drafting skills and concepts; sketching and pictorial drawing; dimensioning of systems, fits, tolerances, surface finishes; preparation of design, detail and assembly working drawings; use of tables and catalogues; threads and fasteners; materials and manufacturing processes; gear and cam design; welding and brazing; design projects.

Workshop Technology GG077A

Machine and welding applications.

Statics GG006A

Forces: characteristics, types of force systems, vector addition, components, resultant, coplanar force systems, moments, couples, point loads, distributed loads, equilibrium conditions, reactions.

Trusses: method of joint resolution, method of sections.

Friction: Static friction of flat surfaces.

Centroids: simple geometric areas, composite areas.

First and Second Moment of Area: simple areas, parallel axis theorem, composite areas, radius of gyration.

Mechanics of Materials GG035A

Stress and Strain: stress, strain, elastic moduli, experimental curves.
Riveted and Welded Joints: modes of failure, structural joints, boiler joints, joint efficiency.

Torsion: introduction.

Beam Theory: statically determinate beams, bending moment and shear force diagrams, tensile, compressive and shear stresses, beam deflections by formula and by area — moment methods for symmetrical loads.

Columns: combined bending and direct stress, slenderness ratio, Euler's formula, stress columns, wood columns, eccentric loading.

Mathematics GH070B

Analytic Geometry; the straight line; conic sections.

Differential Calculus: functions and limits; differentiation from first principles; differentiation by rule; problems involving; gradients, tangents, maxima, minima and curve sketching; practical problems.

Integral Calculus: the differential and the integral; summation and definite integration; practical application.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates; Newton's method of determining roots; volume by integration; centroids and moments.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

Descriptive Geometry GG078B

Geometric vector analysis and practical applications of: coplanar vectors, velocity and relative motion, coplanar concurrent forces, coplanar non-concurrent forces, equilibrium forces systems; principles of revolution; advanced theory and applications of intersections and developments.

Machine Design GG079B

Graphical layout of mechanism motion and displacements. Functional design of mechanisms. Graphical analysis of mechanism velocities and accelerations, involving methods of effective components, centroids and relative vector diagrams. Applications of sliding and rotating linkages, rolling bodies, quick return mechanisms, intermittent motion mechanisms, epicyclic mechanisms, cams and followers. mechanisms involving Coriolis's Law. Theory and problems on kinematic design of regular and epicyclic gear trains. Practical applications of mechanisms, linkages and mechanical controls.

Mechanical Drafting GG080B

Advanced projects in drafting and design: Each project represents a complete mechanical design unit consisting of: a stress analysis, design layouts; theory of design and related design calculations; shop working drawings; customer-engineering-drafting-manufacturing communication methods and systems; production processes; specifications from tables and catalogues.

Types of project units include: pneumatic and hydraulic devices; gear, belt and chain drives; cam and follower mechanisms; drives involving couplings and clutches; projects involving the planning and statistical analysis on tabular and standard drawing systems.

Structural Drafting GG081B

Review of basic statics: detailing and detailing practice; use of structural steel and standard connections. Calculations of simple connections; graphical analysis.

Workshop Technology GG082B

Metrology — gauge blocks, sine law, production gauging etc. Machine tool operations.

Workshop calculations, threads, gears and gearing etc.

Electrical Fundamentals GH706B

Review of simple atomic structure as a basis for electrical and magnetic theory. D.C Theory: the common electrical and magnetic units of measurement and mathematical laws; theoretical concepts of resistance, capacitance and inductance in D.C. circuits. Related problems.

A.C. Theory: the sine wave, instantaneous, peak, effective and average values; theoretical concepts of resistance, capacitance and inductance in A.C. circuits. Basic principles of transformers. Related problems.

Physics GH703B

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.

Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts, pipes, fans and fan laws.

Thermodynamics: Boyles, Charles, Avogadro's and Dalton's Laws, Equation of State, phase diagrams, psychrometrics.

Economics GF410B

A general introduction to economics given with a brief survey of economic history; other areas: the economic role of government; price of factors of production; rent theory.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.

Algebra: functions and graphs; systems of linear equations; exponents and radicals, logarithms; exponential functions; quadratic equations; ratio and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

ELECTRICAL TECHNICIAN

Graduates will probably find many opportunities with original equipment manufacturers in either installation or sales and service. More specifically, graduates could find careers with electrical contractors or distributors, or in equipment servicing and maintenance, or in areas of manufacturing quality control and inspection. Public utilities in electrical power distribution will also be an area of employment opportunities.

Course Numbers, First Year 7051, Second Year 7052

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

*A special technician preparatory course will be offered during the summer for students who did not specialize in the corresponding course at a secondary school.

Duration: Two Years

Content

Growth of the Electrical Industry in recent years has created an increased need for the man with theoretical knowledge of electricity, along with the ability to maintain complex electrical/electronic, pneumatic and hydraulic systems. An added requirement is that the man have sufficient fundamental knowledge to adapt to new systems and techniques, as these appear on the industrial scene. The Electrical Technician program offers a course of study which emphasizes these fundamentals, along with applications to familiarize the student with the practical aspects of the theory. As the outline above indicates, over half the time the student attends is spent in the study of electrical and electronic subjects. The remainder of the time is spent in the study of related subjects.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
AC/DC Theory	GG038A	6/0	3.0	0	3.0
Industrial Electronics I	GG039A	6/0	0	3.0	3.0
DC Machines I	GG040A	5/0	2.5	0	2.5
DC Machines II	GG041A	0/5	0.0	2.5	2.5
Electrical Measurements	GG042A	3	1.5	1.5	3.0
Electrical Drafting	GG043A	3	1.5	1.5	3.0
Mathematics	GH070A	4	2.0	2.0	4.0
Physics	GH704A	0/4		2.0	2.0
Mechanics	GH707A	4/0	2.0	0	2.0
English	GF150A	3	1.5	1.5	3.0
Elective		2	1.0	1.0	2.0
YEAR 2					
Power Distribution	GG044B	3	1.5	1.5	3.0
AC Machines I	GG045B	4/0	2.0	0	2.0
AC Machines II	GG046B	0/4	0	2.0	2.0
Industrial Electronics II	GG047B	6/0	3.0	0	3.0
Industrial Control Systems	GG048B	0/6	0	3.0	3.0
Electrical Drafting	GG049B	3	1.5	1.5	3.0
Mathematics	GH070B	3	1.5	1.5	3.0
Modern Physics	GH705B	3	1.5	1.5	3.0
Economics	FF410B	2	1.0	1.0	2.0
English	GF150B	2	1.0	1.0	2.0
Elective		2	1.0	1.0	2.0
Technical Report	GG050B	1	0	1.0	1.0

Subject Details

AC/DC Theory GG038A

The AC/DC theory course is basic to all other electrical courses and deals with fundamental and advanced aspects of circuit theory. Some of the topics are listed below:

Electrical units, power and energy, series, parallel and complex circuits, wire size and resistance calculations, circuit theorems, magnetic circuits, inductance, capacitance, time constants, AC values, inductive and capacitive reactance, impedance, vector algebra, AC series, parallel and complex circuits, resonance, power and power factor, transformer principles and vector diagrams.

Industrial Electronics I GG039A

Industrial Electronics I is a basic course dealing with vacuum tube and semiconductor theory, power supplies and amplifiers. Some of the topics covered are:

Thermionic emission, rectification, time constants, filters, vacuum tube characteristics, biasing, loadline analysis, distortion, energy levels, forming junctions, transistor biasing, transistor amplifiers, transistor self-biasing, circuit theory and operation of the oscilloscope, multivibrators, oscillators.

DC Machines I GG040A

DC Machines I provides the first year student with a foundation of generator principles. The course provides an appreciation of fundamental design, as well as practical experimentation. Some of the topics included are:

Dynamo construction, generator principles, commutation, armature reaction, interpoles and compensating windings, separately excited and self excited generators, series, shunt and compound characteristic curves, parallel operation, efficiency and losses, amplidyne, trouble shooting and preventative maintenance techniques.

DC Machines II GG041A

DC Machines II extends the generator course in familiarizing the student with design principles and operating characteristics of rotating machines. DC motor control is emphasized, illustrating modern industrial applications.

Electrical Measurements GG042A

The Electrical Measurements course provides one of the mainstays of the Electrical Technician program, as the knowledge gained is applied in all other subjects where measurements must be made. Some of the topics included are:

DC instruments; electrical units, galvanometers, ammeter, voltmeter, ohmmeter, Wheatstone bridge, Kelvin bridge, megger, potentiometers.

AC instruments; iron vane, rectifier type meters, thermal types, wattmeters, synchroscope, instrument transformers, Maxwell, Hay, Owen, Schering bridges, universal impedance bridge, oscilloscope.

Electrical Drafting GG043A

The Electrical Drafting courses are designed to provide basic skills in drafting, but of greater importance is the phase of the course dealing with planning and estimating electrical requirements. The courses include the following topics:

Drafting principles, orthographic projections, oblique and isometric pictorials, floor plans, commercial wiring practice, wiring diagrams.

Mathematics GH070A

Introductory: fundamental slide rule operations, applied geometry, review of algebra, review of basic trigonometry, review of computations by logarithms.

Algebra: functions and graphs, systems of linear equations, exponents and radicals, logarithms, exponential functions, quadratic equations, ratio and proportions.

Trigonometry: analytical trigonometry, oblique triangles, angular measurement, properties of triangles and circles, trigonometric equations, graphs of trigonometric functions.

Optional topics: complex numbers, binomial theorem, determinants.

Physics GH704A

Fundamental Wave Properties: wavespeed, wavelength, amplitude, standing waves, resonance, doppler effect, reflection, refraction, diffraction, polarization. Water, sound and light waves are used to illustrate these properties.

Thermodynamics: measurement of heat and temperature, change of state, gas laws and the kinetic theory of matter, heat capacity, heat transfer, first and second laws of thermodynamics.

Mechanics GH707A

Units: Conversion and use of MKS and British Engineering system of units.

Statics: Resolution and composition of force vectors, equilibrium conditions.

Dynamics: Distance, speed, acceleration, and time relationships in straight line motion. Newton's laws of motion. Gravitation and Motion of bodies in a circle. Angle, angular velocity, angular acceleration and time relationships in rotational motion. Work, energy and power relationship. Impulse and Momentum.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Power Distribution GG044B

Power Distribution is a course which introduces industrial power distribution systems. Some of the topics studied are: Polyphase voltages, currents, and power in balanced and unbalanced systems, 3, 4 and 5 wire systems, power factor improvement; transformer construction, characteristics, leakage reactance, equivalent circuits and vector analysis, voltage regulation, efficiency, testing for core losses, polarity tests and marking, star and delta connections, Scott-T connections; potential and current transformers, auto transformers, power transmission lines, transmission potentials, line protection, polyphase metering, basic relaying principles.

AC Machines I GG045B

AC Machines I is mainly a course in alternating current generators. Some of the topics covered are: Alternator construction: frequency of alternating current generators, revolving field, generated voltage in an alternator, armature windings, coil pitch and pitch factor, distribution factor, alternator regulations, alternator phasor diagram, synchronous reactance, synchronous impedance, alternator efficiency, operation of alternators in parallel. Polyphase Synchronous Motors: synchronous motor construction, exciters, principles of operation, characteristics, starting synchronous motors, loading synchronous motors, power factor adjustment, applications.

AC Machines II GG046B

AC Machines II is the follow up course to AC Machines I and deals with alternating current motors. Some of the topics are as follows:

Polyphase induction motors: stator winding, revolving field, slip, rotor speed, generated voltage and frequency, rotor current and power, starting torque, efficiency, blocked rotor test, operation characteristics of squirrel cage motor and wound rotor motor, speed control of induction motors.

Single Phase Motors: Universal motor, shaded pole motor, repulsion start induction run, hysteresis motor, split phase.

Industrial Electronics II GG047B

The course deals with more advanced devices and basic circuit applications, preparing the student to readily read complex schematics and electronics and understand control devices. Emphasis is placed on the characteristics of phanatron, VR tubes, thyratrons, timer circuits, phase shift circuits, ignition, zener diodes, NPN-PNP transistors, field effect transistor, unijunction transistor, silicon controlled rectifier, triacs, diacs, saturable reactors, magnetic amplifiers, and aplidyne.

Industrial Control Systems GG048B

This course is, in essence, a continuation of Industrial Electronics II. After the student has mastered the characteristics of electronic devices, these concepts are applied to electronic control devices such as half-wave and full-wave thyratron speed control of DC motors, half-wave and full-wave silicon control rectifier speed control of DC motors, spot welder sequence control, static switching and, or, not gate circuits, synchro control devices and basic servo-mechanism control.

Electrical Drafting GG049B

The second year stresses design and material estimates for industrial applications. The course includes the following topics:

Primary study of plan, schematic symbols, schematics, conduit layouts, conduit schedules, feeder duct layouts, starter panels, starter sizes and CEMA ratings, lighting layouts, foot candle calculations, bills of material, plans of circuits, wiring diagrams, estimating.

Mathematics GH070B

Analytic Geometry: the straight line, conic sections.

Differential Calculus: functions and limits, differentiation from first principles, differentiation by rule, problems involving gradients, tangents, maxima, minima and curve sketching, practical problems.

Integral Calculus: the differential and the integral, summation and definite integration, practical applications.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates, Newton's method of determining roots, volume by integration, centroids and moments.

Modern Physics GH705B

Three hours per cycle for two semesters.

Electric and magnetic field theory, properties of the electron, wave and quantum theory of electro-magnetic waves, gaseous discharges, atomic structures, molecules and solids, electrical conduction in solids, the P-N junction, masers and lasers.

Economics FF410B

A general introduction to economics given with a brief survey of economic history, other areas: the economic role of government, price of factors of production, rent theory.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

ELECTRONICS TECHNICIAN

Employment opportunities exist with manufacturers, distributors, and service companies. Initial positions can be expected to include installation, repair, or replacement work on electronic equipment.

In manufacturing, a graduate might expect to work as a junior team member in design, research and development, quality control, or inspection of communications and/or sensing devices.

Course Numbers: First Year 7061, Second Year 7062

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

*A special technician preparatory course will be offered during the summer for students who did not specialize in the corresponding course at a secondary school.

Duration: Two Years

Content

The Electronic Technician program offers training in fundamental aspects of many phases of electronics, thus preparing a student for a wide variety of employment prospects in the electronics field.

A list of a few general types of work done by technicians includes installation and servicing customer equipment, selling electronic equipment, working with engineers and technologists on circuit design and proto-type assembly, working in a manufacturing industry on problems of production, and many others.

The main emphasis of the second year is towards the branch of electronics dealing with transmitters and receivers of various types; however, a significant portion of the second year program is devoted to the theory underlying computers.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Passive Cct Analysis	GG051A	6/0	3.0	0	3.0
Electronic Circuits	GG052A	0/6	0	3.0	3.0
Electronic Devices	GG053A	4/0	2.0	0	2.0
AM and FM Receivers	GG054A	0/4	0	2.0	2.0
Practical and Test Equipment	GG055A	4	1.5	1.5	3.0
Mathematics	GH070A	4	2.0	2.0	4.0
Physics	GH704A	0/4	0	2.0	2.0
Mechanics	GH707A	4/0	2.0	0	2.0
English	GF150A	3	1.5	1.5	3.0
Elective		2	1.0	1.0	2.0
YEAR 2					
Pulse Circuits	GG056B	6/0	3.0	0	3.0
Communication Systems	GG057B	0/6	0	3.0	3.0
Television Systems	GG058B	7/0	3.0	0	3.0
Microwave Theory	GG059B	0/7	0	3.0	3.0
Computer Techniques	GG060B	4	2.0	2.0	4.0
Electronic Drafting	GG061B	1	.5	.5	1.0
Mathematics	GH070B	3	1.5	1.5	3.0
Modern Physics	GH705B	3	1.5	1.5	3.0
Economics	FF410B	2	1.0	1.0	2.0
English	GF150B	2	1.0	1.0	2.0
Elective		2	1.0	1.0	2.0
Technical Report		0	0	1.0	1.0

Subject Detail

Passive Circuit Analysis GG051A

This is a lecture and laboratory course dealing with the analysis of passive DC and AC circuits.

Types of circuits analyzed include resistive series, parallel, series-parallel potentiometer, voltage divider, inductive, capacitive, resonant, transformer and filter. Analysis techniques include the use of Ohm's Law, Kirchhoff's Voltage and Current Laws, Thévenin's Theorem, Norton's Theorem and Delta-Wye transformation. AC analysis uses the j operator in both polar and rectangular forms. Magnetic principles are covered.

Electronic Circuits GG052A

A lecture-laboratory course concerned with the application of electronic devices under operating conditions. The device is used in amplifiers and oscillators.

The basic design of the circuit, and system, is considered.

Applications include power rectification, modulation, demodulation of both FM and AM, audio and R.F. power and signal amplification, gain and response characteristics, and input-output relationships.

Electronic Devices GG053A

This is a lecture-laboratory course introducing the parameters and physical concepts necessary for understanding electronic control devices. The emphasis is on the volt ampere characteristics of the device and device analysis.

Control devices include: the vacuum tube, semiconductor diode, silicon controlled rectifier, zener diode, tunnel diode, field effect transistor, integrated circuits and state-of-the-art devices.

AM and FM Receivers GG054A

The AM and FM receiver course provides an opportunity to study amplifiers, oscillators and power supplies acting together in an electronic system. Some of the topics studied are: heterodyne principles, AM and FM detectors, automatic gain control circuits, automatic frequency control circuits, oscillator and amplifier alignment.

Practical and Test Equipment GG055A

This course is offered to provide knowledge of theory and use of basic test equipment and of prototype circuit assembly. Some of the topics included are: theory of operation and use of vacuum tube voltmeter, service type of oscilloscope, audio generator, r.f. generator, sweep and marker generator; circuit layout, printed circuit techniques, power supply construction and testing, audio amplifier construction and testing.

Mathematics GH070A

Introductory: fundamental slide rule operations, applied geometry, review of algebra, review of basic trigonometry, review of computations by logarithms.

Algebra: functions and graphs, systems of linear equations, exponents and radicals, logarithms, exponential functions, quadratic equations, ratio and proportions.

Trigonometry: analytical trigonometry, oblique triangles, angular measurement, properties of triangles and circles, trigonometric equations, graphs of trigonometric functions.

Optional topics: complex numbers, binominal theorem, determinants.

Physics GH704A

Fundamental wave properties: wavespeed, wavelength, amplitude, standing waves, resonance, doppler effect, reflection, refraction, diffraction, polarization.

Water, sound and light waves are used to illustrate these properties.

Thermodynamics: measurement of heat and temperature, change of state, gas laws and the kinetic theory of matter, heat capacity, heat transfer, first and second laws of thermodynamics.

Mechanics GH707A

Units: Conversion and use of MKS and British Engineering systems of units.

Statics: Resolution and composition of force vectors, equilibrium conditions.

Dynamics: Distance, speed, acceleration, and time relationships in straight line motion. Newton's laws of motion. Gravitation and Motion of bodies in a circle. Angle, angular velocity, angular acceleration and time relationships in rotational motion. Work, energy and power relationship. Impulse and Momentum.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Pulse Circuits GG056B

The Pulse Circuits Course introduces the fundamentals of circuit response to square, triangular and saw tooth waves. Once this knowledge is in hand, circuits used to generate square, triangular and sawtooth waveforme are studied in detail. Some of the topics included are: Pulse circuits, transient analysis, differentiator circuits, integrator circuits, limiters clampers, multivibrators, sawtooth generators, blocking oscillators.

Communication Systems GG057B

In the Communication Systems Course, AM and FM transmitter and receiver systems are studied along with the antennas required to propagate and receive. Some of the topics covered are: Transmitting tubes, power supplies, amplifiers, oscillators, analysis of amplitude modulation, methods of amplitude modulation, AM receiver, principles of single side band, theory of frequency modulation, methods of modulation, bandwidth, deviation, pre-emphasis, de-emphasis, methods of demodulation, detailed study of a solid state mobile transceiver.

Television Systems GG058B

This subject equips the student with a thorough understanding of the broadcast television system and a closed circuit television system. A random interlace camera and black and white receiver are used for student laboratory work. Colour television is covered by demonstrations. Some topics are: Camera tubes, composite video signal, picture elements, broadcast standards, video amplifiers, video IF strip, VHF and UHF tuner, sweep circuits, synchronizing circuits, basic colourimetry, chrominance signals, colour killer, colour demodulators, picture tube circuitry.

Microwave Theory GG059B

Microwave Theory course presents the theory of transmission lines, wave guides and microwave tubes. To co-ordinate the knowledge gained, this course concludes with a brief study of a radar system. Some of the topics included are: The Klystron, transmission line constants, standing waves, coaxial lines, wave guide propagation, wave guide components, cavities, travelling wave tube and radar system.

Computer Techniques GG060B

The computer Systems Course is a first or basic course in the subject. Some time is spent studying numbering systems before beginning to assemble logic blocks into sub-systems. A few of the topics studied are: Binary arithmetic, boolean algebra, logic problems, counters, decoders, storage and shift registers, adders, subtractors, computer terminology, arithmetic unit, memory units, input and output devices, clamps and gates, DA converter.

Electronic Drafting GG061B

Electronic Drafting is an introductory course providing an opportunity to learn basic skills and specialized drafting techniques peculiar to Electronics.
Topics studied in the course include: Instruments and materials, technical lettering, electronic symbols, schematic diagrams and elements, charts, graphs, diagrams, othographic projection, dimensioning, partial and hidden views, sections, printed circuit layouts.

Mathematics GH070B

Analytic Geometry: the straight line, conic sections.

Differential Calculus: functions and limits, differentiation from first principles, differentiation by rule, problems involving gradients, tangents, maxima, minima and curve sketching, practical problems.

Integral Calculus: the differential and the integral, summation and definite integration, practical applications.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates, Newton's method of determining roots, volume by integration, centroids and moments.

Modern Physics GH705B

Time — three hours per cycle for two semesters.

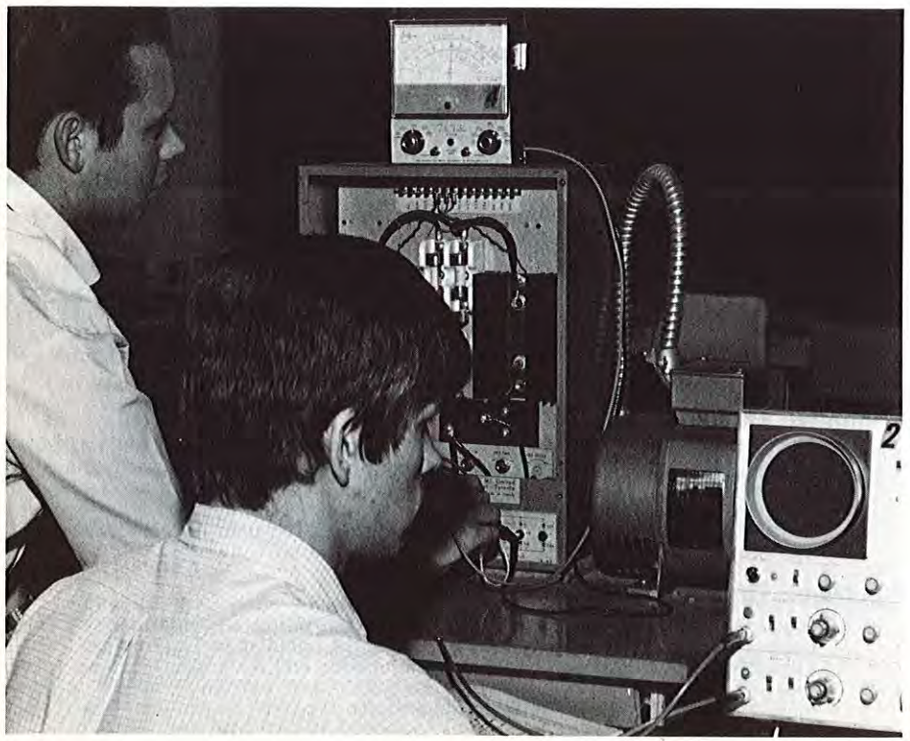
Electric and magnetic field theory, properties of the electron, wave and quantum theory of electromagnetic waves, gaseous discharges, atomic structures, molecules and solids, electrical conduction in solids, the P-N junction, masers and lasers.

Economics FF410B

A general introduction to economics given with a brief survey of economic history, other areas: the economic role of government, price of factors of production, rent theory.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year technical student must completely organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.



REFRIGERATION & AIR CONDITIONING TECHNICIAN

Employment opportunities exist in development and testing laboratories, in production engineering and estimating departments of air conditioning and refrigeration manufacturers.

Graduates will be of value to equipment component manufacturers for further training as sales and service representatives for specialties such as electrical and pneumatic controls, expansion valves, and compressors. Consulting engineers and larger contractors involved in their own estimating and equipment selection need persons with this training for load estimating, purchasing, troubleshooting, supervision and junior management.

Course Numbers: First Year 7071, Second Year 7072

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

Duration: Two Years

Content

The course initially entails the mechanical and electrical construction of the more common makes of systems, as well as the general principles of servicing all refrigeration equipment. It then covers the more advanced concepts of heat transfer, thermodynamics, psychrometric properties of air, principles of air flow, refrigeration cycles in relation to Mollier-Charts, compressor efficiency, electric relay and pneumatic control panels, and refinements of system processing. Laboratory type of equipment is used in analyzing system performance during the second year.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Air Distribution	GG083A	4/0	2		2
Blue Print Reading	GG084A	0/3		1.5	1.5
Refrigeration: Lab Practice—Electrical	GG085A	6	2.5	2.5	5
Load Estimating	GG086A	2	1	1	2
Thermodynamics	GG087A	3/0	1.5		1.5
Psychrometrics	GG088A	0/3		1.5	1.5
Statics	GG006A	0/4		2	2
Electrical Fundamentals	GH706B	4/0	2		2
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Refrigeration: Lab Practice—Thermodynamics	GG089B	6	2.5	2.5	5
Applied Electricity	GG090B	5	2	2	4
Electrical & Pneumatic Controls	GG091B	5/0	2		2
Psychrometrics	GG092B	0/4		2	2
Mechanics of Materials	GG035A	0/4		2	2
Physics	GG703B	4/0	2		2
Mathematics	GH070B	3	1.5	1.5	3
Economics	GF410B	2	1	1	2
English	GF150B	2	1	1	2
Technical Report				1	1
Elective		2	1	1	2

Subject Details

Air Distribution GG083A

Air handling apparatus, fan laws; air flow measurement with pilot tubes, gauges and electronic meters; air duct design; equal friction method with problems, velocity reduction in general, Bernoulli's theorem, static regain; duct fittings and air diffusion equipment; filters.

Blue Print Reading GG084A

Lettering; linework; scales; orthographic projection; auxiliary views; sections; pictorial drawings; architectural and mechanical symbols; blue print reading related to residential, industrial and commercial buildings.

Refrigeration: Lab Practice - Electrical GG085A

Use of tools; flare fittings, flaring, swaying, production bending. Safety rules for oxy-acetylene equipment; eutectic purging, sealing pressurized tubes. Types of vacuum gauges and pumps; use and testing of pressure gauges; leak detectors, torque measurements. Types of condensers, evaporators, compressors, receivers; crankcase and evaporator pressure controls, hot gas by-pass valves; all metering devices with automatic and thermostatic expansion valve operation in detail; refrigerant migration experiments; trade journal assignments.

Making of thermocouples, actual use of thermometers, temperature millivoltmeters, resistance and thermister, temperature bridges, temperature-millivolt manual and automatic potentiometers. Electric psychrometers and electronic humidity indicators. Ohmmeters, wheatstone bridges and meggers. Wiring of voltmeters, ammeters and wattmeters for power factor measurement. Oil failure safety switches; overloads, current and potential starting relays.

Load Estimating GG086A

Orientation of building, use of space, dimensions, construction materials, design conditions and maximums. Outdoor loads; sun rays; solar heat gain, shading devices, storage of radiant heat; haze, altitude, dewpoint and latitude corrections to peak solar heat gain; equivalent temperature differences for walls and roofs; structure weight and daily range corrections; thermal resistances of building materials, air films and air spaces. Transmission coefficients for walls, roofs, floors, and glass. Ventilation and infiltration. Internal loads, people, lights, motors, and appliances.

Thermodynamics GG087A

Themperature scales and conversion, work, power, specific heat; kinetic and potential energy, forms of atomic motion, intermolecular forces, internal energy; convertibility of energy mechanical equivalent of heat; vapour pressure.

Temperature-enthalpy charts, triple point experiment. Heat transfer by convection, conduction and radiation. Absolute pressure, Boyles and Charles law, basis of absolute temperature; deriving perfect gas equation, gas constants, Avogadro's law, Dalton's law, general equation of state; specific volume by mole volume. Derivation of specific humidity. Heat content; partial pressure and general gas law problems related to refrigeration.

Psychrometrics GG088A

Derivation of specific humidity from thermodynamics; vapour pressure specific and relative humidity, dry bulb, wet bulb cause and effect, enthalpy of air-water mixtures, dew point, relation among DB, WB, DP, RH and enthalpy. Concept of adiabatic saturation. Developing psychrometric charts from vapour pressures. Apparatus dew point, sensible heat factor, condition line, deviation lines; solution of practical air conditioning problems.

Statics GG006A

Forces: characteristics, types of force systems, vector addition, components, resultant, coplanar force systems, moments, couples, point loads, distributed loads, equilibrium conditions, reactions.

Trusses: method of joint resolution, method of sections.

Friction: static friction on flat surfaces.

Centroids: simple geometric areas, composite areas.

First and Second Moment of Area: simple areas, parallel axis theorem, composite areas, radius of gyrations.

Electrical Fundamentals GH706B

Review of simple atomic structure as a basis for electrical and magnetic theory. D.-C. Theory: the common electrical and magnetic units of measurement and mathematical laws; theoretical concepts of resistance, capacitance and inductance in D.-C. circuits. Related problems.

A.-C. Theory: the sine wave, instantaneous, peak, effective and average values; theoretical concepts of resistance, capacitance and inductance in A.-C. circuits. Basic principles of transformers. Related problems.

Refrigeration: Lab Practice - Thermodynamics GG089B

System cleanout methods, moisture problems, dry-air supplies, evactuation purging and charging. Refrigerant velocity and pressure drop, pipe sizing layout for oil return, oil separators, heat exchangers. Thermostatic expansion valve sizing and selection. Restrictor tube design principles. Overcharge, undercharge, capacity balance, migration problems, pump-down control; pulldown testing; ammonia systems.

The second law of thermodynamics; heat engine in reverse; the compression refrigeration cycle; entropy concept; pressure—enthalpy Mollier diagrams; displacement, volumetric efficiency coefficient of performance. Construction and analysis of a Mollier diagram using data from an operating system in a psychrometric test room. Mollier basis for "Hi-Re-Li" system; heat pump theory. Analysis of a large tonnage system.

Applied Electricity GG090B

This course is a continuation of the basic electrical fundamentals taken by the Refrigeration Technician the first year. Here a practical approach is used to familiarize the students with electrical devices such as direct current generators and motors, alternating current equipment, three phase and single phase. Considerable time is spent on reading electrical schematics which include basic electrical symbols, AC motor control diagrams and refrigeration control schematics.

Electrical and Pneumatic Controls GG091B

Timed two-position control; proportional control. Resistance sensors, bridge action with T1, T2, and T3 outside compensation sensors; phase discriminator principles for two-position and modulating action; electrical means for providing throttling range, differential, percent authority, summer-winter compensation, calibration and set point.

Operating principles of pneumatic actuators, valves, thermostats, sensors, pressure regulators, day-night set back controls, solenoids and switching relays; limit controls; flow controls; fail-safe provisions; master-submaster control and percent authority. Laboratory work on controls and analysis of complete operating air conditioning system.

Psychrometrics GG092B

Humidex, comfort chart, effective temperature. Basic sensible and latent heat equations, air mixing equations; contact and by-pass factors, coil design factors. Coil apparatus dew point by mathematics and sensible heat factor. Effective and grand sensible heat factor; outside and return air C.F.M., face and bypass, return air bypass, reheat. Complete psychrometric analysis with direct expansion coil selection; partial load problems. Evaporative cooling and limitations. Warm air heating and humidification.

Mechanics of Materials GG035A

Stress and Strain: stress, strain, elastic moduli, experimental curves.
Riveted and Welded Joints: modes of failure, structural joints, joint efficiency.
Torsion: introduction.

Beam Theory: statically determinate beams, bending moment and shear stresses, beam deflections by formula and by area — moment methods for symmetrical loads.

Columns: combined bending and direct stress, slenderness ratio, Euler's formula, stress columns, wood columns, eccentric loading.

Physics GH703B

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.

Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts, pipes, fans and fan laws.

Thermodynamics: Boyles, Charles, Avogadro's and Daltons Laws, Equation of State; phase diagrams; psychrometrics. Thermal conductivity, transfer and expansion, heat cycles and thermo-nuclear reation.

Wave Propagation of Energy: fundamentals of wave properties, qualities of sound and light.

Note: Only those topics that are pertinent to a particular Technician program are considered.

Economics GF410B

A general introduction to economics given with a brief survey of economic history; other areas; the economic role of government; price of factors of production; rent theory.

TOOL DESIGN TECHNICIAN

The Tool Designer is rapidly gaining a privileged status in industry as the demand for his skill increases. The field has expanded to such a degree that specialization is now possible in certain areas. A few of these are: plastic injection moulding, powder metallurgy, progressive die designing and special purpose machine designing. Automation has increased the demand for this technician as more and more automated processes are installed.

Course Numbers: First Year 7081, Second Year 7082

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

*A special technician preparatory course will be offered during the summer for students who did not specialize in the corresponding course at a secondary school.

Duration: Two Years

Content

The Tool Design Technician assists the Professional Engineer in analyzing, planning, designing and applying the equipment, tools, dies, machines, jigs and fixtures for the mechanical production of industrial and consumer goods. His occupation is within a specialized form of engineering. This technician interprets concepts into practical manufacturing functions.

In addition to academic subjects, the course involves the study of tools and machines, metallurgy and methods of production, as well as the economics involved. Considerable drafting experience is gained so that the working drawings of the tool can be produced.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	**Number**	**Week**	**1st Term**	**2nd Term**	**Total**
Tool Design Theory, Manufacturing Methods and Processes	GG093A	3	1.5	1.5	3
Tool Design Practice	GG094A	8	3	3	6
Materials Science	GG095A	2	1	1	2
Workshop Technology	GG096A	3	1	1	2
Statics	GG006A	4/0	2		2
Mechanics of Materials	GG035A	0/4		2	2
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Tool Design Theory, Manufacturing Methods and Processes	GG097B	3	1.5	1.5	3
Tool Design Practice	GG098B	8	3	3	6
Materials Science	GG099B	2	1	1	2
Workshop Technology	GG100B	3	1	1	2
Electrical Fundamentals	GH706B	4/0	2		2
Mathematics	GH070B	3	1.5	1.5	3
Physics	GH703B	0/4		2	2
Economics	GF410B	2	1	1	2
English	GF150B	2	1	1	2
Technical Report	GG142B			1	1
Elective		2	1	1	2

Subject Details

Tool Design Theory, Manufacturing Methods and Processes GG093A

Design considerations general; tooling economics; reports; design theory of jigs, fixtures, gauges, cutting tools, related machine tools, function controls and manufacturing processes.

Tool Design Practice GG094A

The design and drawing of jigs, fixtures and gauges in conjunction with the theory; blue print reading and visualization exercises.

Materials Science GG095A

The extraction process of producing; Ferrous materials; Copper and Aluminum. The physical metallurgy of Iron and Steel including constitutional diagrams, dislocation theory, recrystallization, and slip-planes. Metallurgical techniques of micro; macro and non-destructive analysis.

Workshop Technology GG096A

Metrology — study and use of precision measuring tools, steel rules, micrometers, verniers, Height Gauge, protractor layout.

Metal removal principles, tool bit geometry H.S.S. Basic machine tool operations. Bench work. Workshop calculations, RPM, Screw threads, etc. Jig and Fixture making.

Statics GG006A

Forces: characteristics, types of force systems, vector addition, components, resultant, coplanar force systems, moments, couples, point loads, distributed loads, equilibrium conditions, reactions.

Trusses: method of joint resolution, method of sections.

Friction: static friction on flat surfaces.

Centroids: simple geometric areas, composite areas.

First and Second Moment of Area: simple areas, parallel axis theorem, composite areas, radius of gyration.

Mechanics of Materials GG035A

Stress and Strain: stress, strain, elastic moduli, experimental curves.
Riveted and Welded Joints: modes of failure, structural joints, boiler joints, joint efficiency.

Torsion: introduction.

Beam Theory: statically determinate beams, bending moment and shear force diagrams, tensile, compressive and shear stresses, beam deflections by formula and by area — moment methods for symmetrical loads.

Columns: combined bending and direct stress, slenderness ratio, Euler's formula, steel columns, wood columns, eccentric loading.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.

Algebra: functions and graphs; systems of linear equations; exponents and radicals, logarithms; exponential functions; quadratic equations; ratio and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Tool Design Theory, Manufacturing Methods & Processes GG097B

Tooling economics; reports; design theory of dies (progressive, cutting, forming, draw, extrusion, etc.); moulds (diecasting, plastic); tooling for miscellaneous applications: e.g., welding dies, cold roll forming, form rolling, joining and casting; pneumatic; hydraulics; related machine tools, function, controls and manufacturing processes.

Tool Design Practice GG098B

The design and drawing of various dies and moulds in conjunction with the theory; blue print reading and visualization exercises.

Materials Science GG099B

Isothermal transformation diagrams, heat treatment, phase analysis; fault analysis; constitutional diagrams of certain non ferrous alloys; and effects of alloys in Iron and Steel.

Plastics — base material properties; behaviour and uses. Material selection.

Workshop Technology GG100B

Metrology: (continued) optical flats, mechanical and optical comparators gauge blocks, sine law, production gauging. Advanced machine tool operations. Special machining process. Workshop calculations, gears, gearing, indexing, jig bore calculations etc. Die making.

Electrical Fundamentals GH706B

Review of simple atomic structure as a basis for electrical and magnetic theory.
D.C. Theory: the common electrical and magnetic units of measurement and mathematical laws; theoretical concepts of resistance, capacitance and inductance in D.C. circuits. Related problems.
A.C. Theory: the sine wave, instantaneous, peak, effective and average values; theoretical concepts of resistance, capacitance and inductance in A.C. circuits. Basic principles of transformers. Related problems.

Mathematics GH070B

Analytic Geometry; the straight line; conic sections.

Differential Calculus: functions and limits; differentiation from first principles; differentiation by rule; problems involving; gradients, tangents, maxima, minima and curve sketching; practical problems.

Integral Calculus: the differential and the integral; summation and definite integration; practical applications.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates; Newton's method of determining roots; volume by integration; centroids and moments.

Physics GH703B

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.

Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts; pipes, fans and fan laws.

Thermodynamics: Boyles, Charles, Avogadro's and Dalton's Laws, thermal conductivity, transfer and expansion, heat cycles and thermo nuclear reaction.

Wave Propagation of Energy: fundamentals of wave properties, qualities of sound and light.

Equation of State: phase diagrams; psychrometrics.

Note: Only those topics that are pertinent to a particular Technician's program are considered.

Economics GF410B

A general introduction to economics given with a brief survey of economic history: other areas: the economic role of government; price factors of production; rent theory.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.
Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

TOOL MAKING TECHNICIAN

A tool maker deals with construction of equipment for the mechanical production of industrial and consumer goods. This requires the use of precision equipment and the ability to work to the finest limits. The occupation requires specialized skills for the manufacture of intricate and accurate mechanical devices for use in manufacturing processes.

People involved in the field should have an interest in mechanics and like to work with hand tools and machines, they must be able to understand written and oral instructions, and have the ability to work to close tolerances. Good eye-hand coordination and manual dexterity are also important. Pride in craftsmanship, self-reliance, and integrity are important personal traits.

Tool making and its allied skill of Die Making commands the highest position of the skilled trades.

Course Numbers: First Year 7091, Second Year 7092

Admission

Candidates must have a Secondary School Graduation Diploma. See the admissions information for additional details.

*A special technician preparatory course will be offered during the summer for students who did not specialize in the corresponding course at a secondary school.

Duration: Two Years

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Mechanical Drafting	GG101A	2	1	1	2
Metrology	GG126A	4/0	2		2
Material Science	GG102A	0/4		2	2
Tool Making Practice	GG103A	9	3	3	6
Workshop Technology	GG104A	2	1	1	2
Statics	GG006A	2	1	1	2
Mechanics of Materials	GG035A	0/4		2	2
Mathematics	GH070A	4	2	2	4
English	GF150A	3	1.5	1.5	3
Elective		2	1	1	2
YEAR 2					
Material Science	GG105B	2	1	1	2
Tool Design Fundamentals	GG106B	2	1	1	2
Tool Making Practice	GG107B	8	3	3	6
Workshop Technology	GG108B	3	1.5	1.5	3
Electrical Fundamentals	GG706B	4/0	2		2
Mathematics	GH070B	3	1.5	1.5	3
Physics	GH703B	0/4		2	2
Economics	GF410B	2	1	1	2
English	GF150B	2	1	1	2
Technical Report				1	1
Elective		2	1	1	2

Subject Details

Mechanical Drafting GG101A

Basic drafting skills and concepts; shape description and dimensioning. Sketching and pictorial drawing; visualization exercises; preparation of simple detail and assembly working drawings; blue print reading.

Metrology GG126A

Reasons for measurement, inch vs meter vs decimal inch. Inspection, layout and measurement, amplification by screw threads, use of gauge blocks, high amplification comparators, pneumatic measurement, calibration, measurement with optical flats, reference planes, angle measurement, etc.

Material Science GG102A

The extraction process of producing; Ferrous materials; Copper and Aluminum. The physical metallurgy of Iron and Steel including constitutional diagrams, dislocation theory, recrystallization, and slip-planes. Metallurgical techniques of micro; macro and non-destructive analysis.

Tool Making Practice GG103A

Drill presses; drilling; lathes; shaper; milling machines; copy mills; grinding; job-boring; heat treatment of tools and dies; bench-work technology of layout; filing and scraping techniques; shearing technology; technology of drilling and reaming, arbor press techniques; basic welding.

Workshop Technology GG104A

Principles of Machining — what happens when metal is cut; effect of the cutting process, cutting tools-rake and inclination angles; force, work, and power in machines, tool life-measurement and control, machinability of metals, machinability versus microstructure, cutting fluids, surface quality. Machine tools types and functions, tool construction-jigs-fixtures, dies etc.

Statics GG006A

Forces: characteristics, types of force systems, vector addition, components, resultant, coplanar force systems, moments, couples, point loads, distributed loads, equilibrium conditions, reactions.

Trusses: method of joint resolution, method of sections.

Friction: static friction on flat surfaces.

Centroids: simple geometric areas, composite areas.

First and Second Moment of Area: simple areas, parallel axis theorem, composite areas, radius of gyration.

Mechanics of Materials GG035A

Stress and Strain: stress, strain, elastic moduli, experimental curves.

Riveted and Welded Joints: modes of failure, structural joints, boiler joints, joint efficiency.

Torsion: introduction.

Beam Theory: statically determinate beams, bending moment and shear force diagrams, tensile, compressive and shear stresses, beam deflections by formula and by area — moment methods for symmetrical loads.

Columns: combined bending and direct stress, slenderness ratio, Euler's formula, steel columns, wood columns, eccentric loading.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry; review of algebra; review of basic trigonometry; review of computations by logarithms.

Algebra: functions and graphs; systems of linear equations; exponents and radicals, logarithms; exponential functions; quadratic equations; ratio and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Material Science GG105B

Isothermal transformation diagrams, heat treatment, phase analysis; fault analysis; constitutional diagrams of certain non ferrous alloys; and effects of alloys in Iron and Steel.

Plastics — base material properties; behaviour and uses. Material selection.

Tool Design Fundamentals GG106B

Tool design principles and economics; design theory of cutting tools, jigs, fixtures, gauges and elementary dies; practical design of related tooling; blueprint reading and visualization exercises (continued).

Tool Making Practice GG107B

Lathe; milling machine and grinding practice; tool grinding; tool and die making; jigs and fixtures; heat treatment; everything encountered in an average toolroom; steel rule dies; and special machines.

Workshop Technology GG108B

Mechanics and theory of cutting and forming, as applied to blank, pierce, trim, cut-off, form and draw dies. Basic fluid power and fluidics, programming for numerical-controlled machine tools, miscellaneous topics in precision measurement and new manufacturing methods, plastic technology.

Electrical Fundamentals GG706B

Review of simple atomic structure as a basis for electrical and magnetic theory. D.C. Theory: the common electrical and magnetic units of measurement and mathematical laws; theoretical concepts of resistance, capacitance and inductance in D.C. circuits. Related problems.

A.C. Theory: the sine wave, instantaneous, peak, effective and average values; theoretical concepts of resistance, capacitance and inductance in A.C. circuits. Basic principles of transformers. Related problems.

Mathematics GH070B

Analytic Geometry; the straight line; conic sections.

Differential Calculus: functions and limits; differentiation from first principles; differentiation by rule; problems involving; gradients, tangents, maxima, minima and curve sketching; practical problems.

Integral Calculus: the differential and the integral; summation and definite integration; practical applications.

Calculus of logarithmic, exponential and trigonometric functions.

Optional Topics: Polar coordinates; Newton's method of determining roots; volume by integration; centroids and moments.

Physics GH703B

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.

Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts; pipes, fans and fan laws.

Thermodynamics: Boyles, Charles, Avogadro's and Dalton's Laws, thermal conductivity, transfer and expansion, heat cycles and thermo nuclear reaction.

Wave Propagation of Energy: fundamentals of wave properties, qualities of sound and light.

Equation of State: phase diagrams; psychrometrics.

Note: Only those topics that are pertinent to a particular Technician's program are considered.

Economics GF410B

A general introduction to economics given with a brief survey of economic history: other areas: the economic role of government; price factors of production; rent theory.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further.

Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

AIR POLLUTION FIELD TECHNICIAN

Air pollution is growing yearly in severity and complexity and if uncontrolled, will present a threat to the nation's health, welfare and economy. The Pollution Technician will assist the Pollution Engineer in investigating complaints and air pollution problems, in recommending corrective measures and in preparing reports.

Course Numbers: First Year 7101, Second Year 7102

Admission

Candidates must have completed Grade 12 of any 4 or 5 year program. Grade 12 Chemistry is obligatory.

Duration: Two Years

Content

A technician in this program will have a general knowledge of air quality management and will be trained in depth in field survey, sampling procedures and measurement techniques. In preparation for second year, summer employment related to air pollution investigation and control is strongly recommended.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	Number	Week	1st Term	2nd Term	Total
Air Pollution Meteorology	GH717A	3		1.5	1.5
Elements of Air Quality Management	GG110A	3	1.5		1.5
Mechanical Drafting	GG111A	3	1	1	2
Electrical Fundamentals and Measurements	GG112A	4	1.5	1.5	3
Chemistry	GH714A	5	2	2	4
Physics	GH703A	5	2	2	4
English	GF150A	3	1.5	1.5	3
Mathematics	GH070A	4	2	2	4
Elective		2	1	1	2
YEAR 2					
Air Pollution Control	GG113B	3	1.5	1.5	3
Air Flow Calibration and Ambient Sampling	GG114B	4	2		2
Air Pollution Source Sampling	GG115B	4		2	2
Air Pollution Seminar	GG116B	2	1	1	2
Field Orientation	GG117B	4		2	2
Radiobiology Protection		4		2	2
English	GF150B	3	1.5	1.5	3
Mathematics	GH077B	4	2	2	4
Instrumental Methods of Chemical Analysis	GH715B	3	2		2
Introduction to Data Processing	GC060B	4	2		2
Technical Report				1	1
Elective		2	1	1	2

Subject Details

Chemistry GH714A

Matter and atomic theory of matter; chemical symbols and equations; energy and chemical reactions; gaseous, liquid and solid states; gas laws; oxidation-reduction; reaction rate and chemical equilibrium. General principles of fundamental organic reactions as the basis for systematic analysis and identification of organic compounds; the hydrocarbons aliphatics and aromatics.

Mechanical Drafting GG111A

Review of basic drafting skills and concepts; sketching and pictorial drawing; dimensioning of systems, fits, tolerances, surface finishes; preparation of design detail and assembly working drawings.

Elements of Air Quality Management GG110A

Composition and sources of air pollution; meteorology and ambient air quality; effects of air pollution; methods for air pollution sampling and evaluation; procedures and equipment for abatement; air pollution control legislation.

Air Pollution Meteorology GH717A

Weather and motion systems of the atmosphere; wind, atmospheric stability and topographic influences; atmospheric diffusion and transport of air pollutants; natural cleansing processes; meteorological factors in plant location, design and operation; meteorological instrumentation.

Electrical Fundamentals and Measurements GG112A

This course is designed to provide the student with basic knowledge of pollution instrumentation and includes such subject areas as: Electrical and magnetic circuit theory, series, series-parallel circuits, basic measuring instruments, with emphasis on electrical concepts dealing with circuits and instruments used in air and water pollution investigations.

Physics GH703A

Dynamics: rectilinear motion, rotational motion, Newton's Laws, work, energy and power.

Fluid Mechanics: hydrostatics and hydraulics; head loss in ducts; pipes, fans, and fan laws.

Thermodynamics: Boyles, Charles, Avogadro's and Dalton's Laws, Equation of State, phase diagrams, psychrometrics; thermal conductivity, transfer and expansion, heat cycles and thermo nuclear reaction.

Wave Propagation of Energy: Fundamentals of wave properties, qualities of sound and light.

English GF150A

This course involves students in literature of twentieth century North America, twentieth century literature from other areas of the world, and literature projecting experience beyond the twentieth century. This course aims too at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Mathematics GH070A

Introductory: fundamental slide rule operations; applied geometry review of algebra; review of basic trigonometry; review of computations by logarithms.

Algebra: functions and graphs; systems of linear equations; exponents and radicals; logarithms; exponential functions; quadratic equations; ratio and proportions.

Trigonometry: analytical trigonometry; oblique triangles; angular measurement; properties of triangles and circles; trigonometric equations; graphs of trigonometric functions.

Optional topics: complex numbers; binomial theorem; determinants.

Air Pollution Control GG113B

Theory, equipment and practices related to the control of particulate emissions; cyclones, inertial separators, filters, electrostatic precipitators, wet scrubbers.

Theory, equipment and practices related to the control of gaseous and vapour emissions; odour control.

Air Flow Calibration and Ambient Sampling GG114B

Principles and instruments of air flow metering; quantity and rate meters; calibration of sampling equipment air flow; theory and devices for collecting ambient particulate matter, gases and vapours; methods of evaluation of air samples.

Air Pollution Source Sampling GG115B

Theory, techniques, calculations and instruments for collection of particulate and gaseous samples from air pollution sources; methods of processing and evaluation of source samples.

Air Pollution Seminar GG116B

Guest speakers' and students' presentations and discussions of selected topics relating to the elements of air pollution, its evaluation and control.

Field Orientation GG117B

Field trips for the purpose of observing the operation of air pollution control programs, installations and equipment; reports and discussions.

Radiobiology Protection

Ionizing radiation and measurement; the biological effects on normal tissues; permissable radiation exposures and radiation hazards; minimizing radiation and means of protection, radiation monitoring, electrical hazards; health for radiation workers; principles of radiation therapy and use of radioactive isotopes in medical treatment.

English GF150B

In this course, the student will explore the roots of life in twentieth century North America through representative literature of preceding periods. Speaking and writing skills developed in first year English will be practised further. Each second year technical student must competently organize and present a written technical report of 2000-3000 words dealing with a subject related to his own main area of training.

Mathematics GH077B

Descriptive Statistics: graphic and pictorial display of data and interpretation; frequency distribution; measurements of central tendency, mean, median and mode.

Inferential Statistics: testing of hypothesis; elementary correlation theory and applications.

Instrumental Methods of Chemical Analysis GH715B

Course under development.

Introduction to Data Processing GC060B

The development of data processing methods and machines from earliest times; the data processing cycle; punched card data processing; introduction to the modern digital computer; coded data representation input, output media and devices used in modern computer systems; computer programming; introduction to flow charts and decision tables, batch processing; on-line processing; file organization; systems analysis and procedures.

PRODUCTION ENGINEERING TECHNOLOGY

The field of production is probably the broadest of any of the technologies, since any product designed by electrical, mechanical or other branches of engineering, or any commodity refined or processed from a natural state, passes through a production engineering department in its transformation into a consumer item. With the development of Canada as an industrial nation, the demand for competent technologists must increase.

Course Numbers: First Year 7501 (Common), Second Year 7522B, Third Year 7523C

Admission

Candidates should have a Secondary School Graduation Diploma from grade twelve of a 5 year program with a minimum of 60% average (having taken Mathematics throughout the course, Physics in Grade 11 and Chemistry in Grade 12). Applicants from a 4 year course with 70% average will be considered.

Duration: Three Years

Content

The development of production engineering has been mainly through the consumer goods metal working industries. The introduction of modern mass production methods and tooling, work study and control, and other developments in plant management and operation have meant that the production technologist must be vitally interested in the technology of controlling a manufacturing enterprise. The initial program must, therefore, provide an adequate foundation on which to build experience, and later specialization. This means that the production technologist must be familiar with the organizational and commercial aspects of industry, as well as with the pure technologies. From an educational standpoint, this familiarity will be developed by the options offered in the third year of the program.

Hours and Credits

YEAR 1		Hours per	Units of Credit 1st	2nd	
Subject	**Number**	**Week**	**Term**	**Term**	**Total**
Mathematics	GH075A	5	2.5	2.5	5
Chemistry	GH711A	5	2	2	4
Electricity and Magnetism	GH712A	5	2	2	4
Physics	GH710A	8/0	3.5		3.5
*Modern Physics	GH713A				
*Applied Mechanics	GG139A	0/8		3.5	3.5
English	GF151A	4	2	2	4
Elective		2	1	1	2

*Student to select subject depending upon Technology Specialization.

YEAR 2					
Machine Tools & Processes	GG125B	4	2	2	4
Tool Design (I & II)	GG138B	5	2	2	4
Mechanics of Materials	GG127B	3	1.5	1.5	3
Control Engineering	GG128B	3	1.5	1.5	3
Electrical Machines	GG129B	3/0	1.5		1.5
Metrology	GG130B	0/3		1.5	1.5
Materials Science	GG131B	3	1.5	1.5	3
Mathematics	GH075B	4	2	2	4
English	GF151B	3	1.5	1.5	3
Elective		2	1	1	2

YEAR 3					
Machine Tools & Processes	GG132C	4	2	2	4
Work Study	GG133C	3/4	1.5	1.5	3
Welding Technology	GG134C	3	1	1	2
Material Handling & Plant Layout	GG135C	0/4		2	2
Production Management	GG136C	4/0	2		2
Computer Programming & Application	GG140C	4/0	2		2
Management of Men	GG137C	3/0	1.5		1.5
Engineering Economics	GF412C	0/4		2	2
Industrial Psychology	GF619C	2	1	1	2
Mathematics (Statistics)	GH075C	5	2.5	2.5	5
Technical Report				1	1
Elective		2	1	1	2

Subject Details

Mathematics GH075A

Computations with measured quantities, scientific notation, error and relative error, use of slide rule and mathematical tables, dimensional analysis. Functions, formation and solution of equations; exponents and logarithms; engineering application; review of algebra and its applications; trigonometric functions; identities and analytical trigonometry; operations with complex numbers, powers and roots, applications; equations of first degree, systems of linear equations, equations by use of determinants; quadratic equations and applications to engineering problems; analytic geometry of straight line and conic section; differential calculus: limits, average and instantaneous rates of change, differentiation of algebraic, exponential and logarithmic and trigonometric functions, applications: relative maxima and minima, motion analysis, related rates; differentials; integral calculus: indefinite and definite integration, integration as a summation process; applications.

Chemistry GH711A

The lecture course will include atomic theory and structure, periodic table; principles of element bonding, solution concentrations; properties of gases, liquids and solids, the kinetic molecular theory, volumetric calculations; ionization, acids and bases, pH and buffers, introduction to electrochemistry and thermochemistry.

The laboratory work will be on qualitative and quantitative techniques related to the lecture course.

Electricity and Magnetism GH712A

Fundamental electric quantities; direct current circuits; circuit network theories; fundamental magnetic quantities; magnetic circuits; inductance and capacitance; alternating current circuits; electric and magnetic field theory; laboratory assignments.

Physics GH710A

Principles of measurement; linear and circular motion; force, work, energy and power; linear and angular momentum; simple harmonic motion; temperature, heat and thermodynamics; travelling and stationary waves; reflection, refraction and diffraction of waves; characteristics of sound; optics and optical instruments; laboratory assignments.

*Modern Physics GH713A

Electric and magnetic fields; introduction to special relativity; elementary Bohr Theory of the atom; wave-particle duality.

Electrical properties of metals, semiconductors and insulators with particular attention on p-n junctions and transistor action.

Magnetic properties of solids: paramagnetism, diamagnetism and ferromagnetism.

*Applied Mechanics GG139A

Statics: Vector addition, coplanar forces, friction, centroid of area, centre of gravity of geometric solids, moment of inertia, radius of gyration, section modulus.

Dynamics: motion velocity and acceleration, Newton's Laws.

Rectilinear motion, rotational motion: work, energy and power relationships, mechanical advantage, velocity ratio, efficiency. Momentum, impact. Relative velocity, vectorial difference of two velocities applied to machine linkage, simple mechanisms.

English GF151A

First year technology students examine selected literature of the modern period. This course further aims at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Machine Tools and Processes GG125B

Design, function and machining capabilities of the more common standard shop machine tools; generation of shapes; cutting theory; gears and gear production; more common industrial processes.

Tool Design (I & II) GG138B

Practical design and supporting theory of jigs, fixtures, gauges and cutting tools, especially as used in batch and flow production. Metal forming, presses, standard parts, dies, (shearing, piercing, blanking, compound etc.)
Bending, forming and drawing dies. Roll forming, brake forming, forging dies, die casting dies.

Mechanics of Materials GG127B

Stress and Strain: stress, strain, elastic moduli, Poisson's ratio, experimental survey, temperature stresses, non-homogeneous materials.

Riveted and Welded Joints: modes of failure, structural and boiler joints, joint efficiency, thin-walled pressure vessels. Torsion: polar moment of inertia, torque, horizontal stresses, solid and hollow shafts, couplings, power transmission, vertical springs.

Beam Theory: statically determinate beams, B.M. and S.F. diagrams, bending stresses, deflections by formula and area-moment methods for symmetrical and asymmetrical loads.

Columns: combined bending and direct stress, slenderness ratio, Euler, steel columns, wood columns, eccentric loading.

Control Engineering GG128B

Instruments (principles of electrical, mechanical and optical instruments for indicating and recording) data processing, data transmission, control systems, servos, power amplification, feedback etc.) machine controls, process control.

Electrical Machines GG129B

This course is to familiarize the mechanical technology student with various types of direct current and alternating current drives which one may find on a machine. Fundamentals of three phase and single phase drive motors such as induction, wound rotor, synchronous motors and associated basic control are also covered. Basic power distribution and transformers are also included in the course.

Metrology GG130B

Measurement standards, tolerance and limit systems, principles of measurement, measuring instruments, amplifying devices, optical measurement, alignment.

Materials Science GG131B

Structure of metals, slip, plastic deformation, recrystallization, alloys and constitutional diagrams.

Structures of iron and steel in the solid state.

Principles of Heat treatment. Heat treatment methods and effects.

Alloy Steels; control and testing, non-ferrous metals, plastics.

Mathematics GH075B

Differential Calculus: review of differentiation; differentiation of algebraic, trigonometric, logarithmic and exponential functions, problems in maxima and minima, related rates.

Integral Calculus: review of integration, methods of integration; method of substitution, integrated by parts, use of integral tables, definite integral and use of binomial expansions, applications.

Calculus of hyperbolic functions; power series; Taylor and Maclaurin's expansions, engineering applications.

Matrices: operations with matrices, determinants, solution of system of simultaneous equations, engineering applications.

Computer programming and numerical analysis: introduction to digital computers, Fortran programming language, numerical analysis; error analysis in computation, Newton-Rapson method, trapezoidal and Simpson's rule, curve fitting and matric problems.

English GF151B

The literature of this course is aimed at enabling the student to achieve a better understanding of the individual in relation to: (1) himself (2) others (3) his religious experience. It is designed in three parts: (1) Man and Himself (2) Man and Others (3) Man and "God". Speaking and writing skills developed in first year English will be practised further. Each second year technological student must competently organize and present a written technological report of 2000-3000 words dealing with a subject related to his own main area of training.

Machine Tools & Processes GG132C

Machine tools analysis (generation and geometry, deflection, vibration, kinematic problems, friction) machine tools application (analysis of complex workpieces) more complex machine tools, plastics and processing, E.C.M., E.D.M. sitering.

Work Study GG133C

Workstudy, work simplification (method study, motion study, motion economy, method development, flow charts). Work measurement, work evaluation, incentives, control of performance.

Welding Technology GG134C

Production Technology related to the fabrication of parts and equipment must consider welding process equipment, procedures, and techniques used to produce a consumer product. The days of three or four joining processes is now part of our industrial history, we now are exposed to nearly 100 different joining processes. Industry requires competent technicians capable of taking advantage of technological advancements in process equipment. To fill this demand, a workable knowledge of joining by welding is part of a well-trained production technologist.

Material Handling & Plant Layout GG135C

M.H. Fundamentals; types of equipment and selection conveyors, cranes, docks, road, rail, air and sea transport, shop vehicles, bulk handling, module units, pneumatic handling. Plant Layout; services, office layouts, site selection, systematic planning, facilities planning, practical layout problems.

Production Management GG136C

Industrial Management; management and organization, control, capital, industrial law, labour relations.

Management of Production; research, production, product design, process planning, estimating, progress and material control.

Computer Programming & Application GG140C

Problem analysis by flow chart; programming with Fortran application for Production Control etc. Student programming practice.

Management of Men GG137C

Art of Directing Human Activities; authority and responsibility; training for management.

Communication: dissemination of information; compilation of reports; conduct and records of meetings.

Labour management: trade unions structure; collective bargaining; handling of disputes; recruitment and selection; labour turnover; welfare, health, safety; industrial law, labour relations.

Remuneration: salaries and wages; incentives; fringe benefits; promotion policies.

Engineering Economics GF412C

Cost accounting, economy allowance depreciation, break even, comparison of alternatives, evaluation of existing operations, evaluation of replacements, utilization of personnel, evaluation of development.

Industrial Psychology GF619C

Motivation in industry, perception of people and situations, learning and change, attitudes and morale, frustration and mental health, communication and decision making, leadership, personnel selection.

Mathematics (Statistics) GH075C

Statistical methods and application to quality control, Gaussian distribution, presentation of numerical data, sampling and normal distribution, significance and confidence limits, statistical quality control, operational research.

ELECTRONIC TECHNOLOGY

The Technologist must have a firm grasp of the fundamentals of Electronics and, having this basic knowledge, he may choose his area of specialty in electronics. The technologist often will work closely with an engineer as part of a design and development team, or he may become an electronic sales representative, or be part of the production management group of a manufacturer of electronic components or equipment. These suggestions by no means exhaust the possibilities for varied and demanding employment; in fact, it is probable that graduates will be engaged in specialties that today do not even exist, but for which their knowledge of fundamentals will make them well prepared.

Course Numbers, First Year 7501 (Common), Second Year 7512, Third Year 7513

Admission

Candidates should have a Secondary School Graduation Diploma from a five year program, with a minimum average of 60% having taken Mathematics throughout the course. Physics in Grade 11 and Chemistry in Grade 12.
Applicants from a four year course with 70% average will be considered.

Duration: Three Years

Content

The Electronic Technology program is patterned for the student who has an interest in circuit design, using proven engineering techniques and in accurate measurement, using complex test equipment.
The course outline below shows the subject division in the program, along with the approximate time spent studying each subject. The laboratory portions of courses require the student to design from given general requirements, many of the circuits to be tested, and then to carry out tests to determine the actual performance of the circuit.

Hours and Credits

YEAR 1

Note: Common year for Technologies		Hours per	Units of Credit		
Subject	**Number**	**Week**	**1st Term**	**2nd Term**	**Total**
*Applied Mechanics	GG139A	8	0	3.5	3.5
Mathematics	GH075A	5	2.5	2.5	5.0
Physics	GH710A	8	3.5	0	3.5
Chemistry	GH711A	5	2.0	2.0	4.0
Electricity and Magnetism	GH712A	5	2.0	2.0	4.0
*Modern Physics	GH713A				
English	GF151A	4	2.0	2.0	4.0
Elective		2	1.0	1.0	2.0

*Student to select subject, depending upon Technology Specialization

YEAR 2

Electric Circuits	GG063B	6	3.0	3.0	6.0
Electronic Devices	GG064B	7	3.5	0	3.5
Electronic Circuits I	GG065B	7	0	3.5	3.5
Electrical Measurement	GG066B	4	2.0	2.0	4.0
Mathematics	GH075B	4	2.0	2.0	4.0
Modern Physics	GH705B	3	1.5	1.5	3.0
English	GF151B	3	1.5	1.5	3.0
Elective		2	1.0	1.0	2.0

YEAR 3

Pulse Circuits	GG067C	6	3.0	0	3.0
Digital Circuits	GG068C	6	0	3.0	3.0
Communication Networks	GG069C	6	3.0	3.0	6.0
Electronic Circuits II	GG070C	9	4.5	0	4.5
Electronic Systems	GG071C	9	0	4.5	4.5
Mathematics	GH075C	4	2.0	2.0	4.0
Elective		2	1.0	1.0	2.0

Subject Details

Mathematics GH075A

Computations with measured quantities, scientific rotation, error and relative error, use of slide rule and mathematical tables, dimensional analysis. Functions, formation and solution of equations; exponents and logarithms; engineering application; review of algebra and its applications; trigonometric functions; identities and analytical trigonometry; operations with complex numbers, powers and roots, applications; equations of first degree, systems of linear equations, equations by use of determinants; quadratic equations and applications to engineering problems; analytic geometry of straight line and conic section; differential calculus: limits, average and instantaneous rates of change, differentiation of algebraic, exponential and logarithmic and trigonometric functions, applications: relative maxima and minima, motion analysis, related rates; differentials; integral calculus: indefinite and definite integration, integration as a summation process; applications.

Chemistry GH711A

The lecture course will include atomic theory and structure, periodic table; principles of element bonding, solution concentrations; properties of gases, liquids and solids, the kinetic molecular theory, volumetric calculations; ionization, acids and bases, pH and buffers, introduction to electrochemistry and thermochemistry.

The laboratory work will be on qualitative and quantitative techniques related to the lecture course.

Electricity and Magnetism GH712A

Fundamental electric quantities; direct current circuits; circuit network theories; fundamental magnetic quantities; magnetic circuits; inductance and capacitance; alternating current circuits; electric and magnetic field theory; laboratory assignments.

Physics GH710A

Principles of measurement; linear and circular motion; force, work, energy and power; linear and angular momentum; simple harmonic motion; temperature, heat and thermodynamics; travelling and stationary waves; reflection, refraction and diffraction of waves; characteristics of sound; optics and optical instruments; laboratory assignments.

*Modern Physics GH713A

Electric and magnetic fields; introduction to special relativity; elementary Bohr Theory of the atom; wave-particle quality.

Electrical properties of metals, semiconductors and insulators with particular attention on p-n junctions and transistor action.

Magnetic properties of solids: paramagnetism, diamagnetism and ferromagnetism.

*Applied Mechanics GG139A

Statics: Vector addition, coplanar forces, friction, centroid of area, centre of gravity of geometric solids, moment of inertia, radius of gyration, section modulus.

Dynamics: motion velocity and acceleration, Newton's Laws. Rectilinear motion, rotational motion, project work, energy and power relationships, mechanical advantage, velocity ratio, efficiency. Momentum, impact. Relative velocity, vectorial difference of two velocities applied to machine linkage, simple mechanisms.

English GF151A

First year technology students examine selected literature of the modern period.

This course further aims at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Electric Circuits GG068B

Electric Circuits is a two semester program in the study of direct and alternating currents, single and polyphase. A substantial portion of the second semester is devoted to rotating machines, both D.C. and A.C.

Some of the topics studied follow:

Review of D.C. theory, inductance, capacitance, time constants, complex impedance and phasor notation, Thévenin's and Norton's theorems, network theorems, resonance, coupled circuits, polyphase systems, direct current generator construction and characteristics, direct current motor characteristics, alternating current generators, alternating current motors.

Electronic Devices GG064B

Electronic Devices is a lecture and laboratory course which introduces the control device as it affects circuit operation. A major portion of the course deals with the volt ampere characteristics of common control devices. Some of the topics included are: Energy levels, the P-N junction, the zener diode, transistor action, transistor leakage currents, basic power supplies, F.E.T. characteristics, S.C.R. characteristics and use, vacuum tube theory and characteristics.

Electronic Circuits I GG065B

Electronic Circuits combines alternating current theory with knowledge of electronic devices of the third semester, to provide insight into the design of low frequency, high and low power electronic circuitry. Some of the topics studied follow: Fixed bias circuit, current feedback principles, voltage feedback biasing, developing the h-parameters, properties of low-frequency amplifiers, transformer coupling, RC coupled circuits, frequency effects in audio amplifiers, low-frequency large-signal amplifiers, the AM tuner.

Electrical Measurements GG066B

Electrical Measurements is a detailed survey of basic instruments and their uses, including the galvanometer, dynamometer, potentiometer, bridge circuits and electronic instruments. Some of the topics studied follow:

Instrument terminology, error evaluations, characteristics of galvanometers, damping methods, design of current, voltage and resistance measuring devices, Wheatstone bridge, Kelvin bridge, potentiometer, A.C. indicating devices, oscilloscope, A.C. bridges, measurement of Q.

Mathematics GH075B

Differential Calculus: review of differentiation, differentiation of algebraic, trigonometric, logarithmic and exponential functions, problems in maxima and minima, related rates.

Integral Calculus: review of integration, methods of integration, method of substitution, integration by parts, use of integral tables, definite integral and use of binomial expansions, applications.

Calculus of hyperbolic functions: power series, Taylor and Maclaurin's expansions, engineering applications.

Matrices: operations with matrices, determinants, solution of system of simultaneous equations, engineering applications.

Computer programming and numerical analysis: introduction to digital computers, Fortran programming language, numerical analysis, error analysis in computation, Newton-Rapson method, trapezoidial and Simpson's rule, curve fitting and matrix problems.

Modern Physics GH713B

Electric and magnetic fields, introduction to special relativity, elementary Bohr Theory of the atom, wave-particle duality, electrical properties of metals, semiconductors and insulators with particular attention on P-N junctions and transistor action.

Magnetic properties of solids: paramagnetism, diamagnetism and ferromagnetism.

English GF151B

The literature of this course is aimed at enabling the student to achieve a better understanding of the individual in relation to: (1) himself (2) others (3) his religious experience. It is designed in three parts: (1) Man and Himself (2) Man and Others (3) Man and "God". Speaking and writing skills developed in first year English will be practised further. Each second year technological student must competently organize and present a written technological report of 2000-3000 words dealing with a subject related to his own main area of training.

Pulse Circuits GG067C

The Pulse Circuits program of studies prepares the student with the fundamental knowledge required in the study of circuits, using square, pulse, triangular and sawtooth waveforms. Topics included in this course are as follows: The sine-, exponential-, ramp-, and step-functions, transistor switching characteristics, RC differentiating and integrating circuits, clipping, clamping, multivibrators, sawtooth generators, Miller integrator circuits.

Digital Circuits GG068C

Digital Circuits is a continuation of the Pulse Circuits Course into circuit applications of pulse circuits as used in electronic counters and computers. Some of the topics included in the course are:

Number systems, counting circuits, shift register, adders and subtractors, accumulators, storage, input and output systems, frequency counting techniques, the arithmetic unit, D-A conversion, interfacing.

Communication Networks GG069C

Communication Networks extends the study of electrical and electronic circuits into the specialized field of communications. The course includes such topics as: Fourier analysis, LaPlace transformations, network design, transmission line theory, microwave transmission, electromagnetic waves, antennas and propagation, stochaistic processes and channel capacity.

Electronic Circuits II GG070C

Electronic Circuits is a continuation of the fourth semester subject and in general deals with circuits used at radio frequency. The student will learn to design many of the circuits studied. Some of the topics to be studied are as follows:

Video amplifier, grounded grid amplifier, AM and FM modulation circuits, AM and FM detection circuits, radio frequency amplifiers. Class C power amplifier, use of feedback in amplifiers, radio frequency oscillators, regulated power supplies.

Electronic Systems GG071C

Electronic Systems provides an opportunity to bring together knowledge gained in many courses to explain the operation of a television system. A major part of the course is devoted to the television receiver, but some time is spent on the camera and transmitting equipment. A sampling of the topics studied follows: Elements of a television transmitting system, scanning, composite video signal, camera tubes, video switcher, synchronization, receiver alignment, receiver trouble-shooting, introduction to colour television receiver.

Mathematics GH075C

Revision of differentiation and integration, formulation of simple differential equations and applications. Revision of hyperbolic and inverse functions: revision of methods of integration.

Partial differentiation: definition of partial derivatives, higher order derivatives, total derivative and application to physical problems. LaPlace transforms, expansion by power series, discussion of convergence, Maclaurin's expansion and application of power series.

Complex numbers: review of rectangular and polar forms, application to vectors, exponential form of complex numbers, DeMoivre's theorem, roots of a complex number, application to integrals. Boolean Algebra standard formulae, application to switching circuits.

ELECTRONIC CONTROL TECHNOLOGY

Initially, a graduate would be a junior member of a design, production or maintenance group, and as his experience and personal characteristics allow, he should progress to senior technical positions in management or sales.

Course Numbers, First Year 7501, Second Year 7532, Third Year 7533

Admission

Candidates should have a Secondary School Graduation Diploma from a five year program, with a minimum of 60% average, having taken Mathematics throughout the course, Physics in Grade 11 and Chemistry in Grade 12.

Applicants from a four year course with 70% average will be considered.

Duration

Three years.

Content

The Electronic Control Technology program provides a student with fundamental knowledge of Industrial Electronics and Control. The graduate would find employment in the areas of process control, instrumentation, aviation systems, control of machine tools, power distribution and applications of the computer to industrial processes.

The first year of the program is taken in common with other technologies and the second year in common with the Electronic Technology group.

The third year is one of specialization.

Hours and Credits

YEAR 1		Hours per	Units of Credit		
Subject	**Number**	**Week**	**1st Term**	**2nd Term**	**Total**
Note: Common year for Technologies					
*Applied Mechanics	GG139A	0/8	0	3.5	3.5
Mathematics	GH075A	5	2.5	2.5	5.0
Physics	GH710A	8/0	3.5	0	3.5
Chemistry	GH711A	5	2.0	2.0	4.0
Electricity and Magnetism	GH712A	5	2.0	2.0	4.0
*Modern Physics	GH713A				
English	GF151A	4	2.0	2.0	4.0
Elective		2	1.0	1.0	2.0
*Student to select subject, depending upon Technology Specialization.					
YEAR 2					
Electric Circuits	GG063B	6	3.0	3.0	6.0
Electronic Devices	GG064B	7	3.5	0	3.5
Electronic Circuits I	GG065B	7	0	3.5	3.5
Electrical Measurements	GG066B	4	2.0	2.0	4.0
Mathematics	GH075B	4	2.0	2.0	4.0
Modern Physics	GH713B	3	1.5	1.5	3.0
English	GF151B	3	1.5	1.5	3.0
Elective		2	1.0	1.0	2.0
***YEAR 3**					
Pulse Circuits		4			
Industrial Electronics		5			
Power Distribution		4			
Computers		4			
Industrial Electronic Control		5			
Fluids and Pneumatic Control		2			
Mathematics		4			
Elective		2			
*Proposed Curriculum		30			
(Curriculum details now being developed for third year)					

Subject Details

*Applied Mechanics GG139A

Statics: Vector addition, coplanar forces, friction, centroid of area, centre of gravity of geometric solids, moment of inertia, radius of gyration, section modulus.

Dynamics: motion velocity and acceleration, Newton's Laws. Rectilinear motion, rotational motion, project work, energy and power relationships, mechanical advantage, velocity ratio, efficiency. Momentum, impact. Relative velocity, vectorial difference of two velocities applied to machine linkage, simple mechanisms.

Mathematics GH075A

Computations with measured quantities, scientific notation, error and relative error, use of slide rule and mathematical tables, dimensional analysis. Functions, formation and solution of equations; exponents and logarithms; engineering application; review of algebra and its applications; trigonometric functions, identities and analytical trigonometry; operations with complex numbers, powers and roots, applications; equations of first degree, systems of linear equations, equations by use of determinants; quadratic equations and applications to engineering problems; analytic geometry of straight line and conic section; differential calculus: limits, average and instantaneous rates of change, differentiation of algebraic, exponential and logarithmic and trigonometric functions, applications: relative maxima and minima, motion analysis, related rates; differentials; integral calculus: indefinite and definite integration; integration as a summation process; applications.

Physics GH710A

Principles of measurement; linear and circular motion; force, work, energy and power; linear and angular momentum; simple harmonic motion; temperature, heat and thermodynamics; travelling and stationary waves; reflection, refraction and diffraction of waves; characteristics of sound; optics and optical instruments; laboratory assignments.

Chemistry GH711A

The lecture course will include atomic theory and structure, periodic table; principles of element bonding, solution concentrations; properties of gases, liquids and solids, the kinetic molecular theory, volumetric calculations; ionization, acids and bases, pH and buffers, introduction to electrochemistry and thermochemistry.

The laboratory work will be on qualitative and quantitative techniques related to the lecture course.

Electricity and Magnetism GH712A

Fundamental electric quantities; direct current circuits; circuit network theories; fundamental magnetic quantities; magnetic circuits; inductance and capacitance; alternating current circuits; electric and magnetic field theory; laboratory assignments.

*Modern Physics GH713A

Electric and magnetic fields; introduction to special relativity; elementary Bohr Theory of the atom; wave-particle duality.

Electrical properties of metals, semiconductors and insulators with particular attention on p-n junctions and transistor action.

Magnetic properties of solids: paramagnetism, diamagnetism and ferromagnetism.

English GF151A

First year technology students examine selected literature of the modern period. This course further aims at assisting students to write and speak English more effectively. Methods of organizing and presenting technical material also comprise a major consideration of this course.

Electric Circuits GG063B

Electric Circuits is a two semester program in the study of direct and alternating current circuits, single and polyphase. A substantial portion of the second semester is devoted to rotating machines, both D.C. and A.C. Some of the topics studied follow:

Review of D.C. theory, inductance, capacitance, time constants, complex impedance and phasor notation, Thévenin's and Norton's theorems, network theorems, resonance, coupled circuits, polyphase systems, direct current generator construction and characteristics, direct current motor characteristics, alternating current generators, alternating current motors.

Electronic Devices GG064B

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Energy levels, the P-N junction, the zener diode, transistor action, transistor leakage currents, basic power supplies, F.E.T. characteristics, S.C.R. characteristics and use, vacuum tube theory and characteristics.

Electronic Circuits I GG065B

Electronic Circuits combines alternating current theory with knowledge of electronic devices of the third semester, to provide insight into the design of low frequency, high and low power electronic circuitry. Some of the topics studied follow: Fixed bias circuit, current feedback principles, voltage feedback biasing, developing the h-parameters, properties of low-frequency amplifiers, transformer coupling, RC coupled circuits, frequency effects in audio amplifiers, low-frequency large-signal amplifiers, the AM tuner.

Electrical Measurements GG066B

Electrical Measurements is a detailed survey of basic instruments and their uses, including the galvanometer, dynamometer, potentiometer, bridge circuits and electronic instruments. Some of the topics studied follow: Instrument terminology, error evaluations, characteristics of galvanometers, damping methods, design of current, voltage and resistance measuring devices, Wheatstone bridge, Kelvin bridge, potentiometer, A.C. indicating devices, oscilloscope, A.C. bridges, measurement of Q.

Mathematics GH075B

Differential Calculus: review of differentiation, differentiation of algebraic, trigonometric, logarithmic and exponential functions, problems in maxima and minima, related rates.

Integral Calculus: review of integration, methods of integration, method of substitution, integration of parts, use of integral tables, definite integral and use of binomial expansions, applications.

Calculus of hyperbolic functions: power series, Taylor and Maclaurin's expansions, engineering applications.

Matrices: operations with matrices, determinants, solution of system of simultaneous equations, engineering applications.

Computer programming and numerical analysis: introduction to digital computers, Fortran programming language, numerical analysis, error analysis in computation, Newton-Rapson method, trapezoidal and Simpson's rule, curve fitting and matrix problems.

Modern Physics GH713B

Electric and magnetic fields, introduction to special relativity, elementary Bohr Theory of the atom, wave-particle duality, electrical properties of metals, semiconductors and insulators with particular attention on P-N junctions and transistor action.

Magnetic properties of solids: paramagnetism, diamagnetism and ferromagnetism.

EXTENSION DIVISION

Purpose

The Extension Division is responsible for conducting a program of continuing education for adults. This phase of education is a link in the continuous learning process which takes place throughout life. Adult education is a growing field, striving to develop programs that meet the needs and interests of adults in a changing society. The program of the Extension Division is built on the premise that the teaching-learning process is a human transaction involving the teacher, learner and learning groups in a set of dynamic relationships. The courses are developed to assist the adult student who wishes to return to the classroom to increase his general education, to improve vocational skills and learn new techniques and to make more creative use of his leisure time.

Courses

These purposes are fulfilled through credit, special interest and co-operative courses. The program is designed to cover several areas of study including business, technical, social sciences and humanities, health and welfare, applied arts, electricity and electronics, industrial management, advanced technical evening classes, recreation and self improvement courses.

Credit

The regular Fanshawe College diploma, as issued to full-time day students, can be obtained through extension credit courses by taking a series of subjects over a stipulated period. It is expected that diploma and certificate courses related to all divisions will be offered in September, 1969.

Men and women can select a wide range of individual credit subjects that are identical to subjects offered in the day school program. Many special interest subjects are offered related to specific topics.

Admission

An adult can register for a credit course if he has completed Grade 12 or **qualifies under the mature student clause.** The mature student 19 years or older is admitted to courses with less than grade 12, after an admissions counsellor is satisfied he can benefit from the course.

Adult students are encouraged to enrol in qualifying subjects in English, Mathematics and Science if it is felt this preparation is needed to enter a diploma or certificate program.

Admission requirements do not apply to special interest courses. This program consists of non-credit subjects and is open to anyone who is not attending a secondary school.

Locations

In addition to the extension courses offered at Fanshawe College in London, the Extension Division offers credit and special interest courses in secondary schools at Woodstock, Ingersoll, Tillsonburg, Delhi, Simcoe, Port Dover, Waterford, St. Thomas, Aylmer, West Lorne and Strathroy.

The office of the Extension Division is located in suite I, lower mall, Wellington Square in downtown London. This central location enables the Division to serve the adults of Elgin, Oxford, Norfolk and Middlesex Counties more effectively with registration and information services. Information is available for **both extension classes and the regular day school courses.** Course counselling is available for extension programs during the regular office hours or by appointment in the evenings.

Further Information

Further information regarding content of course, fees, date, etc. may be obtained from the Extension Division. An Extension Division calendar will be available in June upon request.