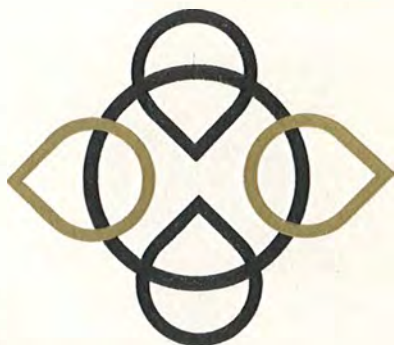


**ONTARIO  
VOCATIONAL  
CENTRE**

**LONDON**

**1966-1967  
CALENDAR**



### ABOUT OUR SYMBOL - - -

The symbol on the cover is the winning design from a competition among local art students. It was submitted by Kenneth J. Henry. He explains the symbol in these words:—

“This design, incorporating the letters O, V, and C, was drawn in such a way that it might symbolize the function and purpose of the ONTARIO VOCATIONAL CENTRE. The Centre, a place of learning, is represented by the circle, which in itself is a stable unit. The two **converging** tear shapes lack in tonal strength and represent incoming students. The two **diverging** tear shapes represent graduating students who have come through the Centre and have absorbed all that the school has to offer. Both are outward bound with stronger potential and direction.”



**THE HONOURABLE WILLIAM DAVIS, Q.C., B.A.**  
Minister of Education

# **ONTARIO VOCATIONAL CENTRE LONDON**

1460 Oxford Street East

Box 4005, Stn. C. London

451-7270

The Ontario Department of Education  
Technological and Trades Training Branch

ACADEMIC YEAR

1966 - 1967

Minister of Education — The Hon. William G. Davis

Deputy Minister of Education — Dr. Z. S. Phimister

Assistant Deputy Minister — Mr. W. R. Stewart

Director, Technological and Trades Training Branch — Mr. N. A. Sisco

Administrator, Technical Centres — Mr. S. A. Norton

Principal, Ontario Vocational Centre — Mr. H. Rawson



**H. RAWSON**  
Principal

## FOREWORD

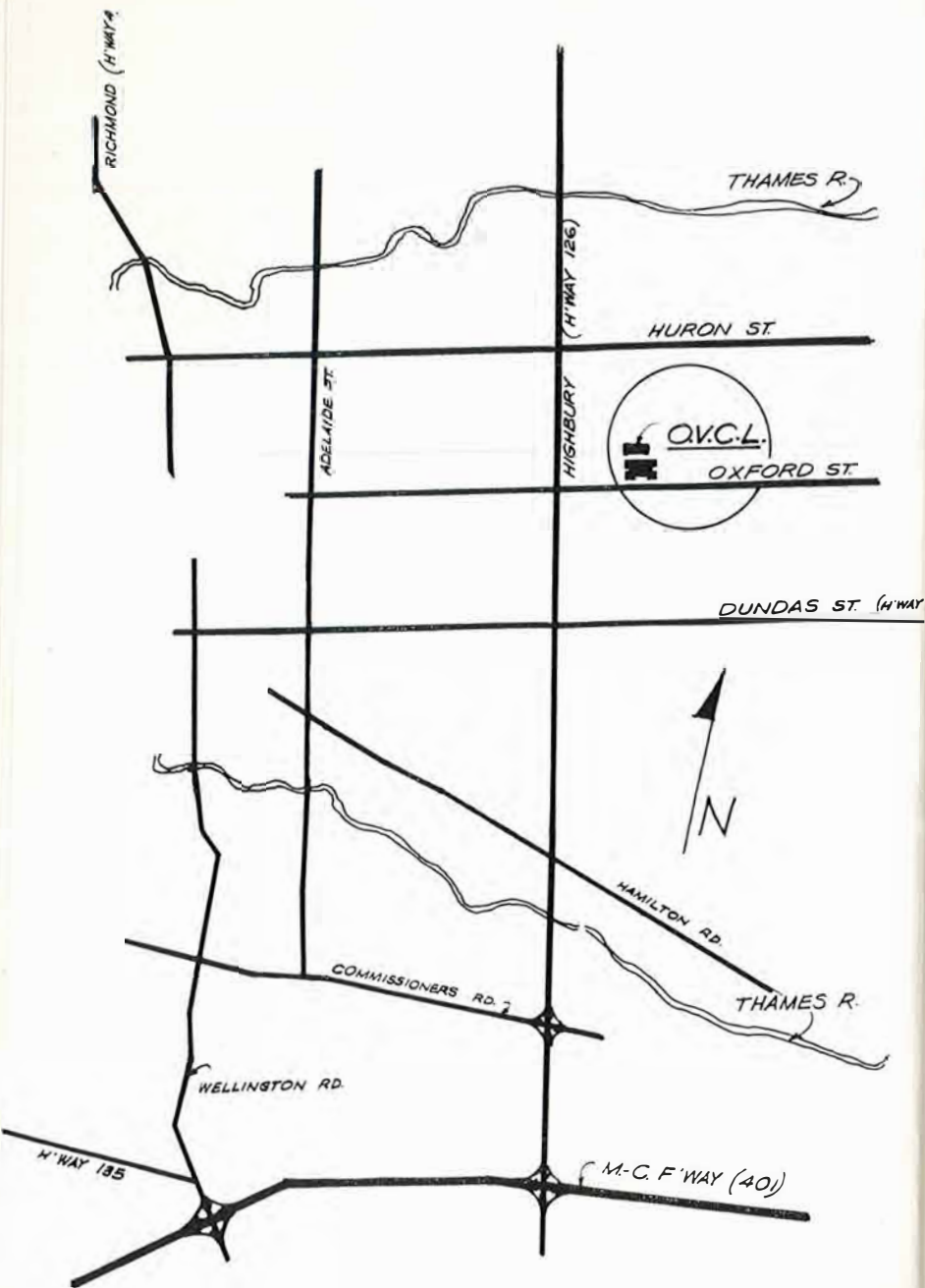
The Ontario Vocational Centre, London, built with federal and provincial funds under terms of the Technical and Vocational Training Agreement, opened for classes in September 1964.

Our centre has been given the opportunity of providing a wide variety of courses geared to the requirements of industry and business. To train young men and women for entry into the challenging and satisfying occupations that are provided by the business or industrial community is a heartening and indeed a rewarding task. Yet, to limit our role to one of preparing students with only occupational competence would be to disregard an educational responsibility of some magnitude.

As a vocational centre, we are concerned, naturally, about the occupational competence of our graduates. We are no less concerned that the measure of our graduates will be taken, not only by their employers, but also by society. We believe, then, that we can no more avoid alerting students to their responsibilities to society than can the students refrain from accepting such responsibilities.

Ability, capacity for hard work, and desire should characterize our applicants. If we can hone these attributes, and couple with them an acquired capacity to perform specialized vocational tasks, then our graduates surely should meet the challenges which inevitably will confront them.

*H. Rawson.*



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## CALENDAR OF EVENTS

1966-1967

1966

JULY	AUGUST	SEPTEMBER
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
OCTOBER	NOVEMBER	DECEMBER
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

1967

JANUARY	FEBRUARY	MARCH
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
APRIL	MAY	JUNE
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

Classes Begin .....	September 6, 1966
Thanksgiving Day .....	October 10, 1966
Remembrance Day .....	November 11, 1966
2nd Apprenticeship Intake .....	November 21, 1966
Fall Term Ends .....	December 22, 1966
Winter Term Commences .....	January 3, 1967
3rd Apprenticeship Intake .....	February 6, 1967
Winter Term Ends .....	March 24, 1967
Spring Term Commences .....	April 6, 1967
4th Apprenticeship Intake .....	April 10, 1967
Victoria Day .....	May 22, 1967
Spring Term Ends — Technician Program .....	June 9, 1967
— Trades & Business Program .....	June 16, 1967
— Apprenticeship Program .....	June 23, 1967



## STAFF MEMBERS ONTARIO VOCATIONAL CENTRE — LONDON

SHAMAS, Andrew, B.A. ..... Vice-Principal  
 McHUGH, William T. .... Registrar  
 STOUT, William G. .... Bursar

### DIRECTORS

ARNSBY, Philip V. .... Technical Program  
 BROWN, David R., B.A. .... Business Program  
 LOFT, Harry, B.A.(H) .... Academic Program

### TEACHING STAFF

BALL, George E., B.A.Sc., P.Eng.	Mathematics
BEE, Huntley J.M.	Motor Vehicle Repair
BIGELOW, Robert S., B.A., C.A.	Business Subjects
BROCK, Miss Myrtle M., M.A.	English
CAVALLIN, Raymond J.	Drafting
CODY, Mervin H., B.A.(H), P.Eng.	Refrigeration
COGHILL, John A.	Electronics
CORYELL, John W.	Electronics
CROOK, John C.	Head, Drafting
DAY, Edward M., B.A., C.L.U.	Business Subjects
DESTUN, Robert S., B.A.	English
DIMITRICK, Adam J., B.Sc.	Science
GEDIES, Gerhardt W.	Motor Vehicle Repair
GLOIN, Beverly G., B.S.A., B.A.Sc., P.Eng.	Science
HAINDL, Hannes W.	Hairdressing
HALE, Mrs. M. June, B.A.	English
HEGGARTY, Gerard A.	Auto Body and Fender Repair
HEGGIE, Kenneth A. C., A.M.I., Mech.E.	Mathematics
HIGGINS, John	Electronics
HINDS, Russell A., B.A.	Construction
HUBERT, Adam	Sheet Metal
JARVIS, Brian H., O.N.C.	Drafting
JENDRAL, Hans G.	Welding
KANTER, Hans	Construction
LISKA, Dennis O.	Electricity
MAJOOR, Rudolph	Drafting
MENHART, Arthur O., M.A.	English
McCOMB, Roy W., B.A.	Science
McDOWELL, Leslie E.	Science
McKELLAR, Mrs. Shirley B., B.A. Sec. Sc.	Business Subjects
NEWMAN, Mrs. Susan, B.A. Sec. Sc.	Business Subjects
NEWNHAM, Robert W.	Electricity
NEWPORT, F. Rex	Tool Design
NORTON, S. Thomas, B.A.	English
PEDDIE, William R.	Motor Vehicle Repair
PINNANCE, Robert O.	Plumbing
RICE, William H.	Hairdressing
ROLLS, Claude A.	Motor Vehicle Repair
ROWE, J. Stanley	Head, Motor Vehicle Repair
SCHIEGEL, Casey R.	Tool Making
SMALL, Miss Ann	Business Subjects
STAMMLER, Ewald	Machine Shop
SUNSETH, John R., B.A.Sc., P.Eng.	Electronics
TOMLINSON, John D., B.A.	Business Subjects
TRUMPER, Karl H.	Welding
WARD, John	Electricity
ZOLTAI, Leslie, L.L.B., B.A.	Physical Education

4746253 TOTAL



**GENERAL INFORMATION**  
**EDUCATIONAL REQUIREMENTS FOR ADMISSION - GENERAL**

1. Educational requirements for individual courses are listed with each course.
2. Where Secondary School graduation is required, this will refer to the Ontario Secondary School Graduation Diploma of either 4 or 5 year programs.
3. Equivalent standing from other provinces or other countries will be accepted.

Generally these are as follows:—

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

4. Where Grade 10 is required, the following will be accepted:—
  - a. A statement of standing.
  - b. The Intermediate Certificate.
  - c. The Lower School Certificate.
5. Equivalent credits for experience will be considered. Students without the full qualifications outlined in paragraphs 1 to 4 above, who wish to claim consideration for admission on the strength of work experience should apply to the Registrar for a special proof of experience form.

All applications for admission should be accompanied by a proof of education form, issued with the application or by actual certificates issued by the Department of Education or School Board.

Applications will be reviewed by an Admission Committee, which is empowered to reject or defer the admission of any candidate whose qualifications are, in the opinion of the Committee, not adequate to the demands of the course in which the candidate wishes to register.

**FEES**

An application fee of \$10.00 must accompany every application for admission for each year of each course. The application fee is not refundable unless the application is rejected.

**FEE SCHEDULE**

Application fee .....	\$ 10.00	
Tuition .....	90.00	
Activity fee .....	\$ 2.00	
Publication fee .....	2.00	
Accident insurance .....	1.00	5.00
		\$105.00
Laboratory fee (refundable at end of course) .....	15.00	
		\$120.00

All fees are payable in full on or before the opening date of the fall term. Registration in classes cannot be completed until all fees are paid.

All fees must be paid in cash, by money order or by certified cheque, payable to ONTARIO VOCATIONAL CENTRE, LONDON.

Students must be prepared for additional expenditures for such items as text books, instruments, supplies and special clothing for shop and gymnasium activities. These will vary, depending on the course from \$35.00 to \$95.00. Since no subject exemptions are permitted, students must be prepared to purchase all required textbooks.

**REFUND SCHEDULE**

1. As previously stated, the application fee of \$10.00 (applicable to all courses and all years) will not be refunded unless the application is rejected by the centre.
2. If withdrawal from the centre takes place prior to November 15, 1966, 50% of the tuition fee is refunded.
3. If withdrawal from the Centre takes place between November 15, 1966 and December 21, 1966 inclusive, 33-1/3% of tuition fee will be refunded.
4. After December 1966 no refund of fees will be made.



### FIELD TRIPS

Field trips to selected establishments whose activities are closely related to the subjects of various courses are encouraged by this Centre. Such trips are usually made in rented buses. Students are expected to pay their own expenses on such trips, including their share of the bus cost.

### FINANCIAL ASSISTANCE

The Canada Student Loan Plan applies to Students at this Centre enrolled in courses requiring secondary school graduation for entrance.

This Plan, instituted by the Federal Government in 1964, was introduced to provide loans to supplement the resources of a student and/or the parents where, in the absence of such aid, a student would be unable to pursue a post-secondary education. A student should apply for a loan under this plan only if educational expenses will be beyond his own or his family's means. The institution to which application is made will determine the amount of loan required in each case.



Borrowers under this Plan are required to repay principal and to pay interest, but no payments are required while the student is in full-time attendance at an eligible institution and for six months thereafter. Interest charges during this period are paid by the Federal Government which also guarantees the loan principal. After the interest-free period, repayment of principal and simple interest charges at 5¾% on the outstanding balance are required in regular monthly payments to the bank from the borrower. The maximum amount which may be advanced under this Plan to one student is \$1,000.00 in one year. The maximum total indebtedness under this Plan is \$5,000.00.

Application should be made in the first instance to The Registrar. When a loan is approved, the institution will issue a Certificate of Eligibility which authorizes the student to make arrangements for the loan with any branch of any chartered bank in Canada.

### LIVING ACCOMMODATION

Although the Centre does not have on-campus living accommodation, information regarding nearby boarding or rooming facilities is available in the office. Students will make their own arrangements. Rates vary according to location and type of accommodation from \$15.00 to \$20.00 per week for room and board.

The Cafeteria provides a hot meal at noon only.

### OFFICE HOURS

The Centre's office is open daily Monday to Friday from 8.30 a.m. until 5:00 p.m. Telephone enquiries should be directed through 451-7270.

Classes commence at 9:00 a.m. and cease at 3:45 p.m. daily except Saturday and Sunday throughout the school year.

### EXAMINATIONS AND REPORTS

Mid-year and final examinations will be written by all students unless they have the Principal's written permission to be excused.

Mid-year examinations are concluded in January. A mid-year report will be mailed to each student's home address.

The final examinations will be conducted at the end of the spring term. A final report will be mailed to the student's home address.

A student will be admitted to final examinations provided that:

- a. He has maintained a satisfactory attendance record.
- b. All fees, dues or other expenses for which he is deemed liable have been paid.
- c. All borrowed or issued books and property belonging to the Centre have been returned.

#### FINAL STANDING

Final standing will be determined from both mid-year and final examinations, together with the year's work in classroom and shops.

#### LIBRARY

The Library is open daily to students during the school year, from 9:00 a.m. to 5:00 p.m.

Students may borrow books from the Library, but are responsible for their return at the designated time.

Books must be returned at least one full day either prior to completion of a course, or before a student leaves the Centre.

Retail prices will be charged for damaged or lost books.

#### DISCIPLINE

Students are considered to be adults and are expected to exhibit adult behaviour. Students who conduct themselves in an improper manner, either on or off the campus may be asked to withdraw from the Centre.

The Centre reserves the right to dismiss a student, at any time, who demonstrates that he is either unable or unwilling to profit from his instruction.

Students may not borrow or remove tools or apparatus without the written authority of the Principal.

A student will be held personally responsible for any damage he causes through negligence or carelessness.

#### STUDENT CAR PARKING

Only limited parking facilities are available at the Centre for students' cars. These are not permanently allotted.

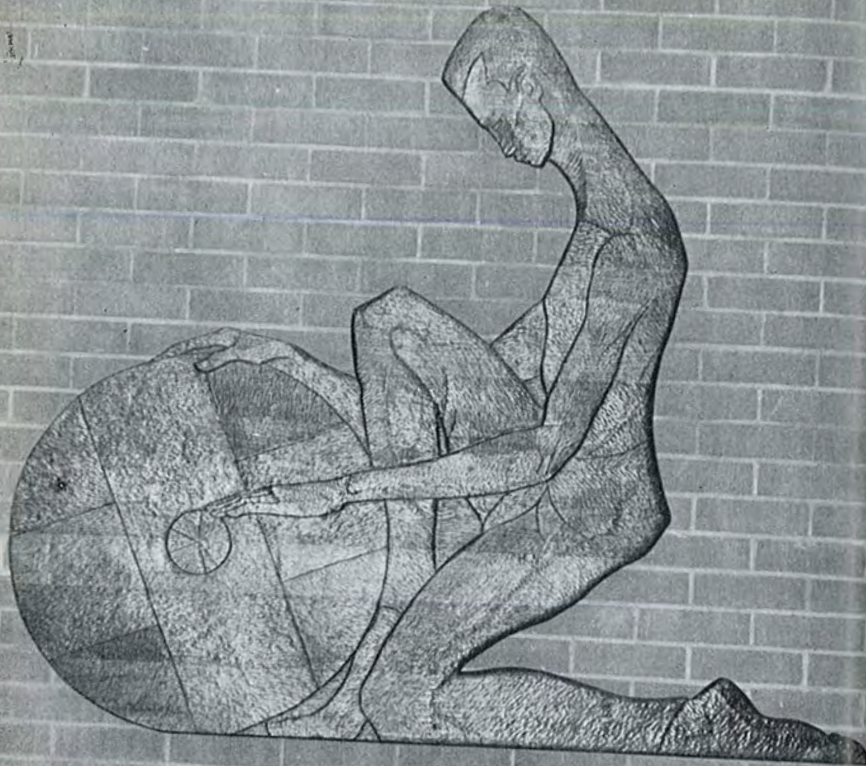
Adequate public transportation is available.

#### LOCKERS

Lockers are allotted to each student without charge. Students will be issued a combination padlock. This padlock will be returned at the end of a school year. Any student who loses or damages his padlock, will have \$1.50 deducted from his laboratory deposit.







## APPRENTICESHIP CLASSES

Apprenticeship training in Ontario, is under the supervision of the Industrial Training Branch, Ontario Department of Labour. It is regulated under the Apprenticeship and Tradesmen's Qualification Act.

It consists of a combination of on-the-job training and in-school training, under a contract of apprenticeship registered with the Department of Labour.

The Department of Education, through Ontario Vocational Centres and Provincial Institutes of Trades, cooperates in this program by conducting Apprenticeship classes.

A Registered Apprentice normally receives twenty weeks of full time day school training during his apprenticeship term. This training is usually split into two courses, basic and advanced, each of ten week's duration.

Full time courses are offered in this Centre in the following trades:

- Motor Vehicle Repair, Mechanical, Class A
- Auto Body and Fender Repair, Class B
- Hairdressing
- Electric Wiring and Installation
- Plumbing
- Sheet Metal Work

Entry to these classes is restricted to registered apprentices. ONLY THOSE APPRENTICES DIRECTED HERE BY THE DEPARTMENT OF LABOUR, ARE ELIGIBLE TO ATTEND.

All enquiries and further information requests should be directed to the Department of Labour, 74 Victoria Street, Toronto, or to the local Industrial Training Office of the Department of Labour.





## TRADE COURSES

Trade courses are designed for students who have left the Secondary School stream before completing their program. Many have found not only that opportunities for advancement, but actual employment opportunities are limited because of insufficient formal education.

These courses offer an opportunity for such persons to return to school for one year, and to receive the equivalent trade or shop education of that of a Grade 12 graduate. Thus they are able to compete for employment in the various trades and vocations.

In addition to practical and theoretical shop training, the courses involve trade-related Mathematics, Science and English.

In some courses, the specialized trade or technical training is equivalent to the special courses in Vocational Schools.

Students should realize that they will not receive the academic Secondary School course of study. These courses are not a substitute for Grades 11 and 12.

Students are therefore cautioned against premature withdrawal from Secondary School.

The following trade courses will be offered in September 1966:

- T-3 Electricity
- T-4 Domestic Electronics
- T-5 Machine Shop
- T-7 Welding and Fabricating





## ELECTRICITY (T3)

LENGTH OF COURSE: ONE YEAR

ADMISSION REQUIREMENTS: GRADE 10 STATEMENT OF STANDING

The Electrical group of trades have become most popular, and as a result are now very demanding with regard to academic qualifications. As Electricity is a major subject in most Vocational Schools, there is a good supply of well qualified people to fill the annual vacancies for employment.

This course is designed to enable students who did not complete their secondary education, to obtain the equivalent shop training. Their practical instruction will cover basic circuitry, cable, conduit, domestic and commercial services, and both D.C. and A.C. motor controls. The theory involved in these areas will also be studied.

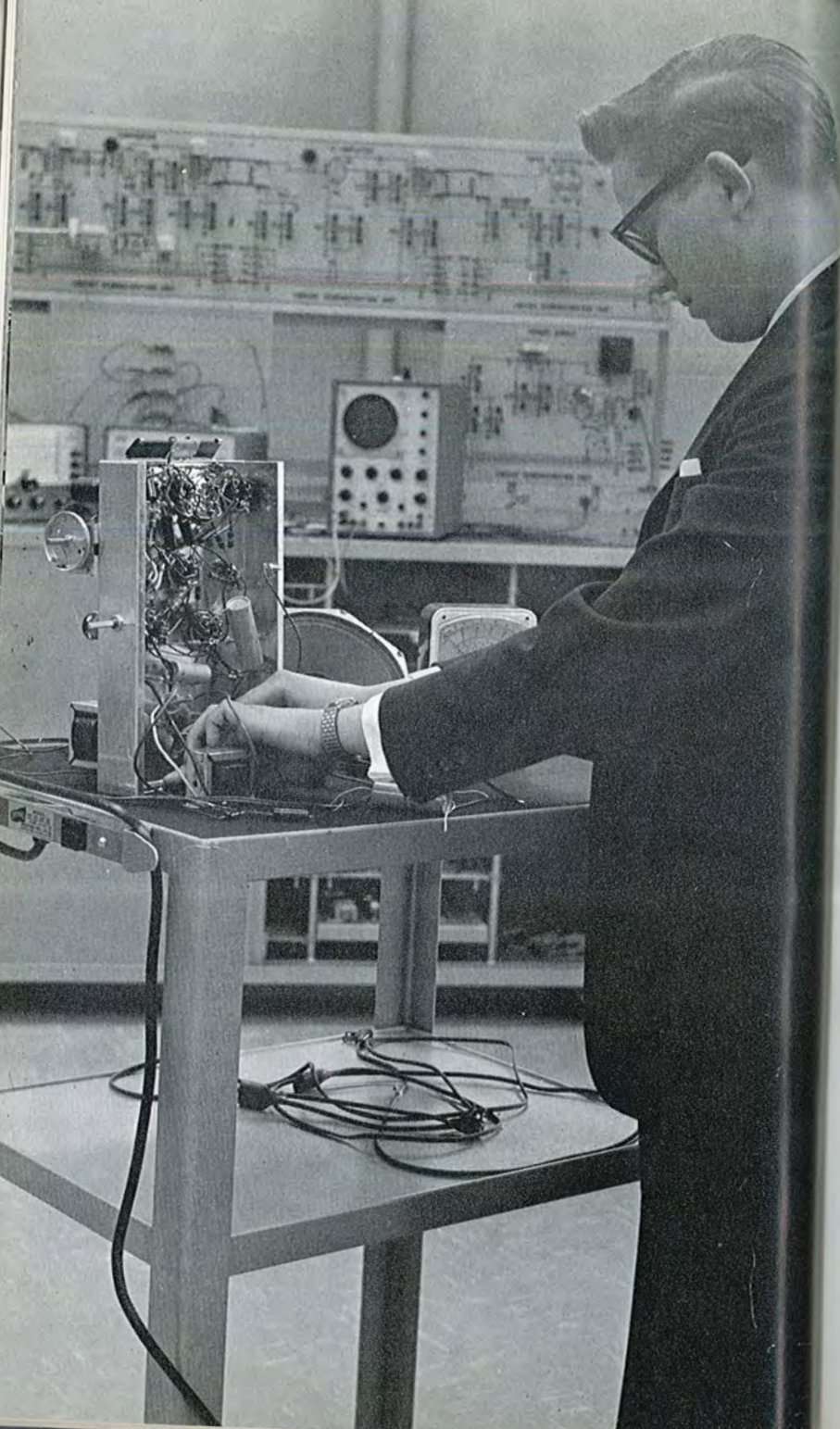
EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	
9-7	ELECTRICITY PRACTICAL	████████████████████						
9-8	ELECTRICITY THEORY	████████████████████						
7-9	BLUE PRINT READING	████████						
RELATED SUBJECTS		2	4	6	8	10	12	
12-2	LANGUAGE & COMMUNICATION	████████						
12-5	LIBRARY	████████						
14-2	MATHEMATICS	████████						
18-10	SCIENCE	████████						
23-1	PHYSICAL EDUCATION	████████						

### EMPLOYMENT OPPORTUNITIES

Graduates will be eligible for apprenticeship in the Electrical Construction and Maintenance fields. Electrical Utilities, the Telephone and Telegraph Industry, Motor servicing and repair, Equipment Sales and Installation will also be sources of employment.





## ELECTRONICS (DOMESTIC) - T4

LENGTH OF COURSE — ONE YEAR

ADMISSION REQUIREMENTS: GRADE 10 STATEMENT OF STANDING

Domestic electronics involves electronic devices used in the home and office. Radio and Television receiving sets, audio amplifiers, tape recorders, are examples. This course is designed to give instruction in both theory, and practical knowledge in the servicing, repair and maintenance of this type of equipment.

The course covers the range from basic electricity through the electronic theory to its applications in the above mentioned devices. Included in the course is the study of the functions and use of the necessary test equipment utilized by the serviceman.

Laboratory projects provide visual application of the principles involved. The principle of transistors and T.V. fault finding, and the construction of a radio receiving set from the chassis up will be included.

EACH UNIT REPRESENTS 30 HOURS PER YEAR

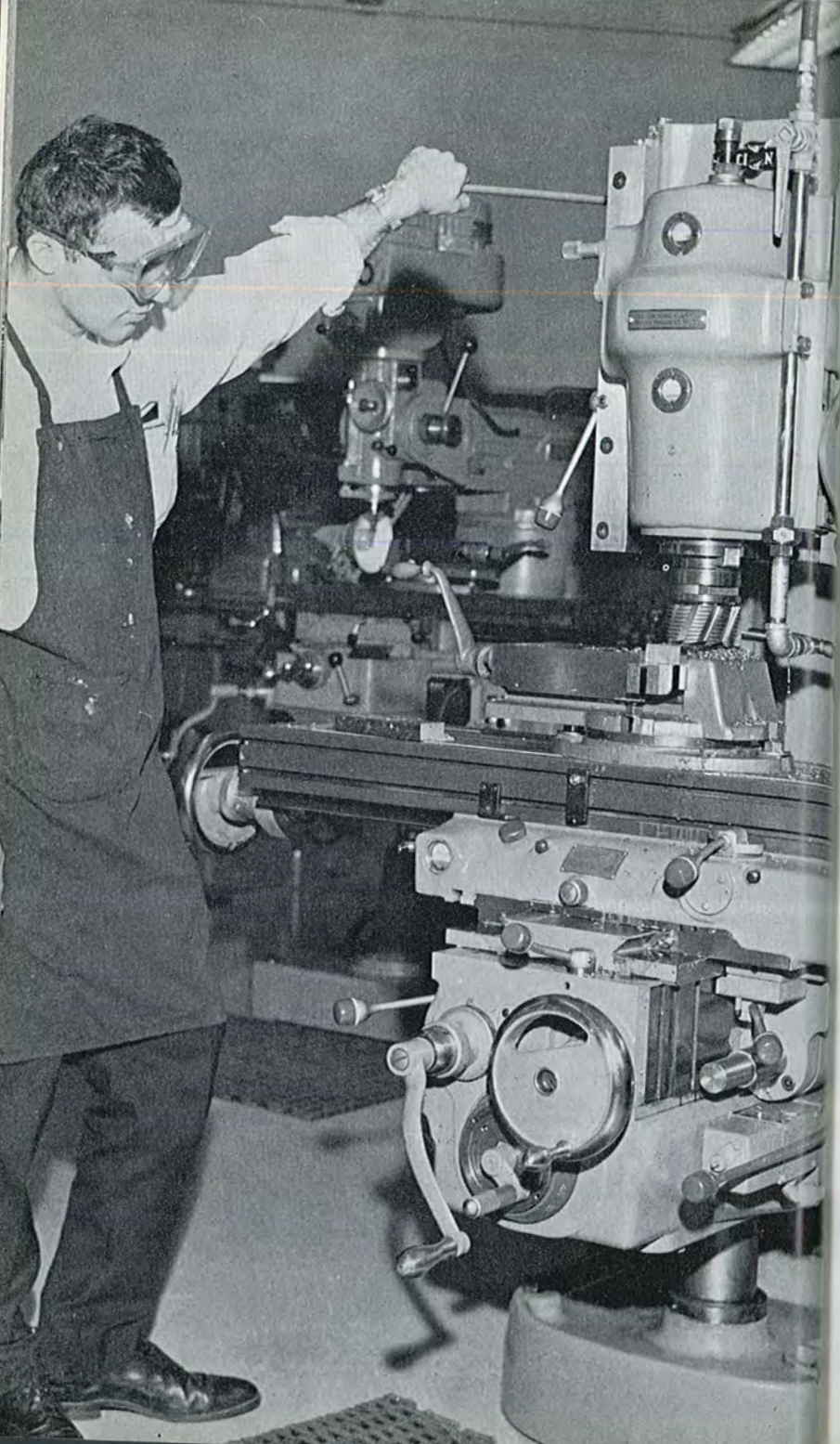
THEORY AND PRACTICE		2	4	6	8	10	12	14	
9-10	AC & DC THEORY	■		■		■		■	
10-11	BASIC ELECTRONICS	■		■		■		■	
7-3	DRAFTING	■		■		■		■	
10-12	SEMI CONDUCTORS	■		■		■		■	
10-13	TELEVISION	■		■		■		■	
RELATED SUBJECTS		2	4	6	8	10	12	14	
12-2	LANGUAGE & COMMUNICATION	■		■		■		■	
12-5	LIBRARY	■		■		■		■	
14-2	MATHEMATICS	■		■		■		■	
18-10	SCIENCE	■		■		■		■	
23-1	PHYSICAL EDUCATION	■		■		■		■	

### EMPLOYMENT OPPORTUNITIES

Radio and television repair and servicing, either in shops specializing in this work, or with retailers, will always require skilled and qualified personnel. Manufacturers of this equipment require employees of high calibre as inspectors and trouble shooters on assembly lines. Any communications media with personnel of the junior technician level, either in operations or laboratories, would also be possible employers.

Discussions are taking place with the Department of Labour, Industrial Training Branch with regard to an apprenticeship program, and compulsory certification of this trade. If and when this takes place, time credits will probably be made for graduates of this course.





## MACHINE SHOP (T5)

LENGTH OF COURSE — ONE YEAR

ADMISSION REQUIREMENTS: GRADE 10 STATEMENT OF STANDING

This is a basic course in Machine Shop practice. Training will be received on all the common machines to be encountered in modern industries, such as the following: Lathes, Shapers, Grinders, Milling Machine and Saws. The training will form the base for a student to go on through apprenticeship and plant training programs.

Training will also be given on bench work and measuring instruments, properties and composition of metals and steel, and heat treatment.

EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14
13- 1	BENCH WORK	■	■					
7- 9	BLUE PRINT READING	■	■	■				
13- 2	MACHINE SHOP THEORY	■	■	■				
13- 3	MACHINING PRACTICE	■	■	■	■	■	■	■
RELATED SUBJECTS		2	4	6	8	10	12	14
12- 2	LANGUAGE & COMMUNICATION	■	■					
12- 5	LIBRARY	■	■					
14- 2	MATHEMATICS	■	■	■				
18-10	SCIENCE	■	■	■				
23- 1	PHYSICAL EDUCATION	■	■					

### EMPLOYMENT OPPORTUNITIES

Whereas the machine operator's job has a diminishing future as more and more productive machines are becoming automated, the general machinist qualified and able to work on all machines, is very much in demand in both the manufacturing industry and jobbing shops.

Many machinists branch out into other specialized related fields, such as tool and die making, jig and fixture building, mold making, etc., where their knowledge of machines is of paramount importance.





## WELDING AND FABRICATING (T7)

LENGTH OF COURSE — ONE YEAR

ADMISSION REQUIREMENTS: GRADE 10 STATEMENT OF STANDING

The art of welding has made great progress in the recent years. Today it has become an integral part of a great many trades: a necessary skill required by the various craftsmen. The general welder is a tradesman himself, and must be skilled in the use of all types of welding equipment. He must also be able to service and maintain the equipment he uses.

This course is designed to prepare the student for a position in industry at the mechanic's level. All phases of the industry are covered including—Oxy-Acetylene Welding, Brazing and Cutting, Electric Arc Welding, Inert-Gas Welding, as well as the necessary instruction in Metallurgy and Distortion.

EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14
22-1	ARC WELDING							
7-9	BLUE PRINT READING							
22-2	GAS WELDING							
22-3	WELDING THEORY							
RELATED SUBJECTS		2	4	6	8	10	12	14
12-2	LANGUAGE & COMMUNICATION							
12-5	LIBRARY							
14-2	MATHEMATICS							
18-10	SCIENCE							
23-1	PHYSICAL EDUCATION							

### EMPLOYMENT OPPORTUNITIES

Graduates can expect to find employment in a very wide range of industries. They will become operators of welding equipment in the construction and fabricating industries. Specialized welders on pipe-line and pressure vessels require additional experience to prepare them for examinations and tests for certification.





## BUSINESS COURSES

Five courses are planned for the 1966-7 school year.

Two are basic courses, with successful students qualifying for entry into advanced courses in a second year. The basic courses are: Secretarial and Business Machines and Bookkeeping.

The Advanced Courses offered are — Accountancy, Legal Secretarial and Medical Secretarial.

Pre-requisites —

1. One year courses — Grade 10, Statement of Standing.
2. Advanced courses —
  - a. **Legal and Medical Secretarial**
    - i. Ontario Secondary School Graduation Diploma of 4 year program. Business and Commercial Branch, designated Secretarial.
    - ii. Graduation from a one year Special Business Course of Business and Commercial Branch, designated Secretarial.
    - iii. Successful completion of the basic Secretarial Course at an Ontario Vocational Centre.
  - b. **Accountancy**
    - i. Ontario Secondary School Graduation Diploma of 4 year program. Business and Commercial Branch, either Secretarial or Clerical.
    - ii. Graduation from a one year Special Business course of Business and Commercial Branch, either Secretarial or Clerical.
    - iii. Successful completion of basic Business course at an Ontario Vocational Centre.





## BUSINESS SECRETARIAL (C2)

LENGTH OF COURSE — ONE YEAR

ADMISSION REQUIREMENTS: GRADE 10 STATEMENT OF STANDING

This course is designed to train students in the various positions in business dealing with transcription, typewriting, shorthand, and office procedure. Graduates will be prepared for steady and rewarding employment in any general business office. Secretarial work is most interesting, challenging and satisfying. Good secretaries are most essential and valued employees at all levels of business, industry, education and government.

EACH UNIT REPRESENTS 30 HOURS PER YEAR

	2	4	6	8	10
1- 2 BOOKKEEPING	[Bar from 2 to 4]				
14- 3 BUSINESS CALCULATION	[Bar from 2 to 2]				
17- 1 BUSINESS CORRESPONDENCE	[Bar from 2 to 2]				
4- 3 BUS. MACHINES & KEY PUNCH	[Bar from 2 to 4]				
8- 2 ECONOMICS & LAW	[Bar from 2 to 3]				
12- 3 LANGUAGE & COMMUNICATION	[Bar from 2 to 4]				
17-10 OFFICE PROCEDURES	[Bar from 2 to 2]				
17- 2 SHORTHAND & TRANSCRIPTION	[Bar from 2 to 10]				
17-11 TYPEWRITING	[Bar from 2 to 6]				
23- 1 PHYSICAL EDUCATION	[Bar from 2 to 2]				

### EMPLOYMENT OPPORTUNITIES

While graduates usually will start as clerk-typists, with experience and with this background, they should qualify for early advancement to the secretarial level.





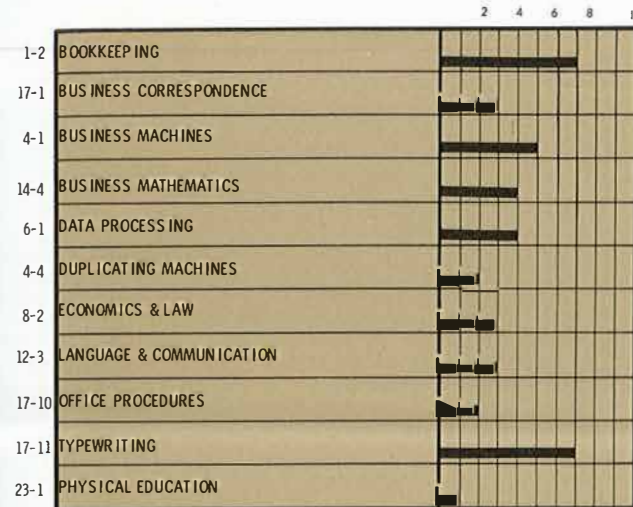
## BUSINESS MACHINES AND BOOKKEEPING (C3)

LENGTH OF COURSE — ONE YEAR

ADMISSION REQUIREMENTS: GRADE 10 STATEMENT OF STANDING

This course is designed to equip students to meet the demands of the modern automated general office. The use of machines of all types and purposes in modern office practice is increasing. Included will be instruction on Rotary Calculators, ten-key and full-keyboard adding machines, key driven calculators, I.B.M. key punch, accounting machines, spirit process duplicators, mimeographing and offset machines.

EACH UNIT REPRESENTS 30 HOURS PER YEAR



### EMPLOYMENT OPPORTUNITIES

The graduate has a great variety of skills and training to attract employment in almost all business offices. General business, retailing, credit departments, accounting offices, in almost any type of business, provide employment opportunities with excellent chances of advancement.





## ACCOUNTANCY (AC1)

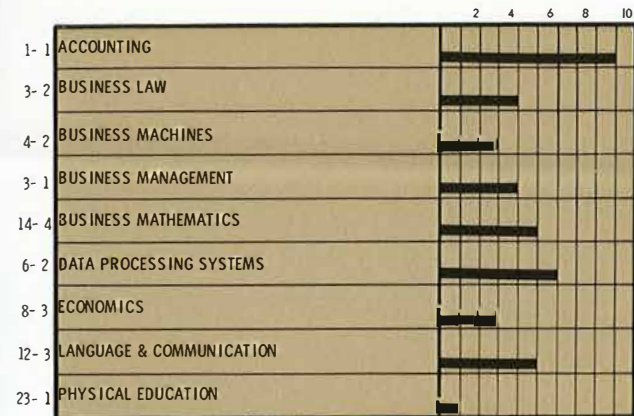
LENGTH OF COURSE: ONE YEAR

### ADMISSION REQUIREMENTS

- a) Secondary School Graduation Diploma of the Business and Commerce Branch, designated Secretarial, Clerical, Special,  
OR
- b) Successful completion of the General Business, Business Secretarial, or Business Machines and Bookkeeping Courses at an Ontario Vocational Centre,  
OR
- c) Qualifications considered by the Board of Admissions at the Vocational Centre to be of equivalent standing.

This course offers further training in accountancy to the Secondary School graduate so that he might attain senior positions in modern business offices, though junior to those of professional accountants. It is geared to the latest trends in the use of data processing and modern mechanical aids to accounting practices. At the same time training is given in Business Law, Organization and Merchandising.

EACH UNIT REPRESENTS 30 HOURS PER YEAR



### EMPLOYMENT OPPORTUNITIES

The graduate should develop into a preferred type of employee in all business offices, with an excellent opportunity for advancement. Smaller businesses unable to employ Chartered Accountants, should offer excellent opportunities to graduates. All types of business offices would be possible sources of employment.









## MEDICAL SECRETARIAL (AC3)

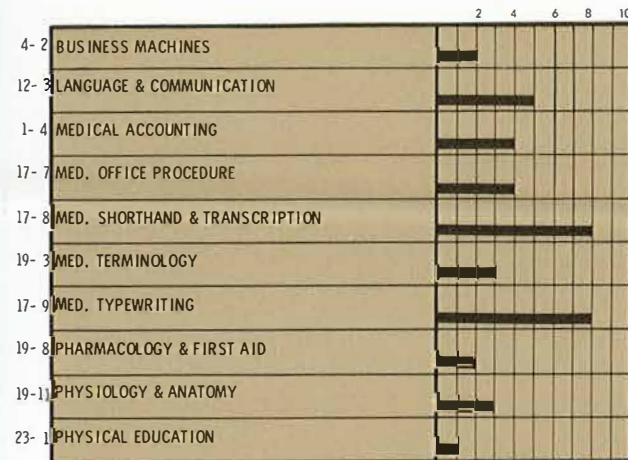
LENGTH OF COURSE: EIGHT MONTHS

### ADMISSION REQUIREMENTS:

- a) The Ontario Secondary School Graduation Diploma of the Business and Commerce Branch, designated Secretarial, or Special  
OR
- b) Successful completion of the Business Secretarial Course at an Ontario Vocational Centre  
OR
- c) Qualifications considered by the Board of Admissions at the Vocational Centre to be of equivalent standing.

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.

EACH UNIT REPRESENTS 24 HOURS PER YEAR



### EMPLOYMENT OPPORTUNITIES

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.



## THE ENGINEERING TECHNICIAN PROGRAM

Started in September, 1964, the Technician Courses have already proved to be a popular facet of this school's operation. The current shortage of skilled technicians has received much publicity. It has been authoritatively stated that Canada requires eight technicians for every professional engineer; present statistics show that we have .68 technicians per engineer. Needless to say, amelioration of this condition is one of the reasons for offering Engineering Technician courses. The aims of the program are, however, three-fold:

To provide graduates with skill training in sufficient depth to make them employable at the Technician level. This is the main function of the course. However, the following benefits result:

Graduates are provided with such a background that they may continue their education in a technology program (in either day or evening classes).

Graduates are given technically-oriented subject matter that will give them the academic qualifications for certification as "Engineering Technicians in Training".

All Technician-level courses are two years in length. Intake is limited to secondary school graduates. Applicants may come from the four or five year programs of either the Arts and Science, or Science, Technology and Trades branches, provided that Mathematics and Science have been carried throughout the four years.

In general, an Engineering Technician student will spend approximately half of his time studying the theoretical and practical aspects of his major subject. The remaining time will be distributed among: Mathematics, English, and Physics (including ancillary subjects such as Mechanics, Strength of Materials, Electricity).

The following Technician courses will be offered in September 1966:

- ET 11/21 Architectural Drafting
- ET 12/22 Electricity
- ET 13/23 Electronics
- ET 14/24 Mechanical Drafting
- ET 15/25 Refrigeration and Air Conditioning
- ET 16/26 Tool Design
- ET 17/27 Tool Making
- BT 1/2 Construction Technician







## ARCHITECTURAL DRAFTING TECHNICIAN (ET11 - ET21)

LENGTH OF COURSE: 2 YEARS

ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

Because of his greater skill and further academic education, the Architectural Drafting Technician should qualify for more senior detailing and design positions than might the draftsman with minimum qualifications. The Architectural Drafting Technician should be more involved with the design of a structure than is the draftsman. He could assist in the preparation of specifications and of the special detail drawings covering the various aspects of the building.

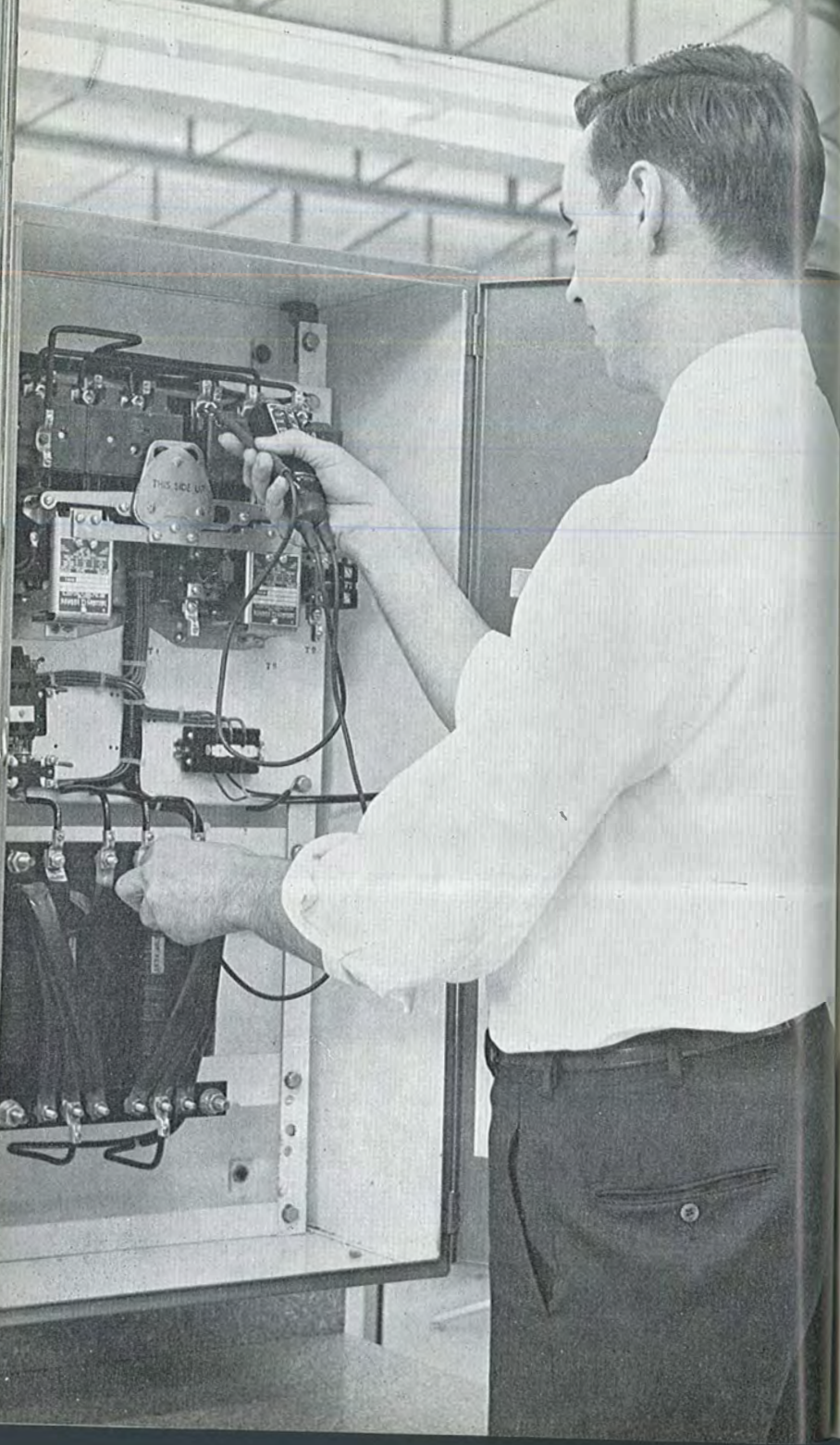
First Year   
 Second Year   
 EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14
2-1	ARCH. DESIGN	///						
7-1	ARCH. DRAFTING	///		///				
5-4	CONTRACTS & SPECIFICATIONS	///						
11-2	ESTIMATING	///						
2-2	HISTORY OF ARCHITECTURE	///						
5-5	MATERIALS & METHODS	///						
5-7	MECHANICAL INSTALLATIONS	///						
2-3	PRESENTATION DRAWING	///						
2-4	STRUCTURAL DETAILING	///						
19-2	SURVEYING	///						
RELATED SUBJECTS		2	4	6	8	10	12	14
8-1	ECONOMICS	///						
19-1	ELECTRICAL FUNDAMENTALS	///						
12-1	LANGUAGE & COMMUNICATION	///						
12-5	LIBRARY	///						
14-1	MATHEMATICS	///						
15-1	MECHANICS	///						
15-2	MECHANICS OF MATERIALS	///						
19-9	PHYSICS	///						
23-1	PHYSICAL EDUCATION	///						

### EMPLOYMENT OPPORTUNITIES

The constant demand by Architects and Consulting Engineers for Architectural Drafting Technicians is demonstrated by the number of job opportunities found in the newspapers. Furthermore, many industries and corporations are maintaining a staff of Drafting Technicians and Draftsmen to assist in the planning of plant additions and alterations.





## ELECTRICAL TECHNICIAN (ET12 - ET22)

LENGTH OF COURSE: 2 YEARS

ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

Electrical Engineering technicians are among the greatest in demand in Canadian industry. The tremendous growth of the electrical industry has created a significant number of opportunities for the man with a wide range of education and training in technical and mathematical theory.

The development of industrial electronics has opened a vast new field for electrical technicians, in electrical, electronic, and other control systems, as well as in maintaining programmed automated equipment.

An electrical technician follows established engineering techniques in research and experimental work under the direction of professional engineers, and requires the educational background to enable him to understand and evaluate the tasks for which he is responsible.

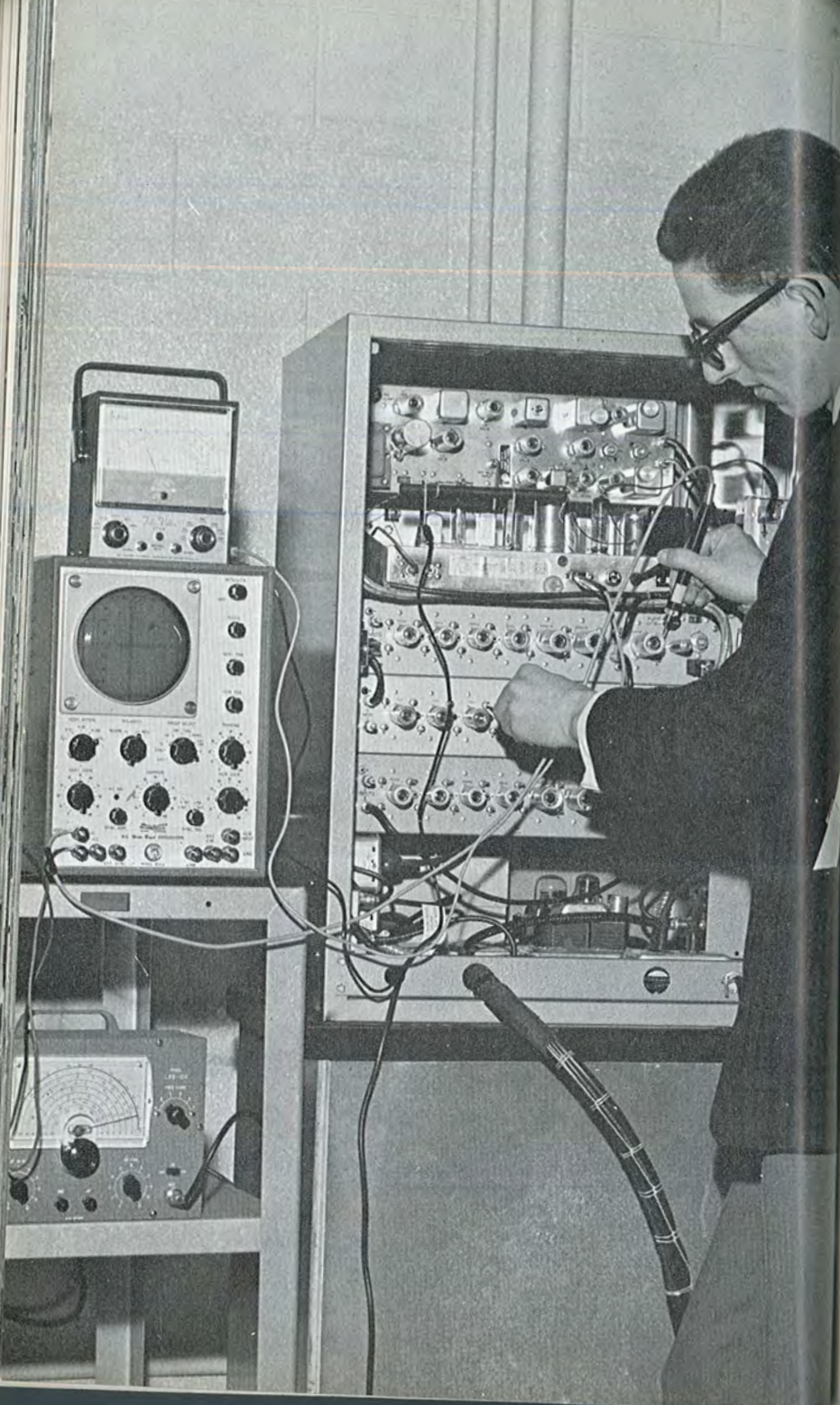
First Year Second Year   
EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14	
9-1	A C MACHINES								
9-2	D C MACHINES								
9-3	ELECTRICAL CIRCUITRY								
7-2	ELECTRICAL DRAFTING								
9-4	ELECTRICAL MEASUREMENT								
9-5	INDUSTRIAL CONTROLS								
9-6	POWER TRANS. & DISTRIB.								
RELATED SUBJECTS		2	4	6	8	10	12	14	
8-1	ECONOMICS								
12-1	LANGUAGE & COMMUNICATION								
12-5	LIBRARY								
14-1	MATHEMATICS								
15-1	MECHANICS								
18-9	PHYSICS								
23-1	PHYSICAL EDUCATION								

### EMPLOYMENT OPPORTUNITIES

Utilities, manufacturing industries, communications, and sales organizations will offer rewarding and challenging employment in areas of installation, maintenance, sales, testing, technical drawing, as well as research. Automation will create an increasing demand for the Electrical Technician.





## ELECTRONICS TECHNICIAN (ET13 - ET23)




































LENGTH OF COURSE: 2 YEARS

ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

This course deals with the communication branch of Electronics. The first year deals mainly with the theory of direct current, alternating current, tubes and transistors, amplifier and oscillator circuits using vacuum tubes and semi conductors, simple electronic systems such as A.M. radio receiver, F.M. radio receiver and a television receiver.

The second year is spent studying communications equipment of the following types: transmitters and receivers in the H.F., V.H.F., U.H.F., and micro-wave bands (A.M. and F.M. when applicable), computer techniques, and a radar system. Two theory courses are also included in the second year — one on pulse and digital circuits and the second on transmission lines and antennas.

First Year:   
 Second Year:   
 EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14
9-9	AC-DC THEORY							
10-1	AM & FM CIRCUITS							
10-2	AMPLIFIERS & POWER SUPPLIES							
10-3	COMMUNICATION SYSTEMS - AM							
10-4	COMMUNICATION SYSTEMS - FM							
10-5	COMPUTER SYSTEMS							
7-4	ELECTRONIC DRAFTING							
10-6	MICROWAVE SYSTEMS							
10-7	T. V. SIGNAL CIRCUITS							
10-8	TRANS. LINES, ANTEN. & SERV. MECH'S.							
10-9	TRANSISTORS & PULSE CIRCUITS							
10-10	VAC. TUBES & SEMI CONDS.							
RELATED SUBJECTS		2	4	6	8	10	12	14
8-1	ECONOMICS							
12-1	LANGUAGE & COMMUNICATION							
12-5	LIBRARY							
14-1	MATHEMATICS							
15-1	MECHANICS							
18-7	MODERN PHYSICS							
18-9	PHYSICS							
23-1	PHYSICAL EDUCATION							

### EMPLOYMENT OPPORTUNITIES

The employment possibilities are many and varied. The Electronics industry is expanding so rapidly into every area of our lives that the list of specific jobs available would be lengthy indeed.

The trend will continue and as the mushroom of expanded applications grows, the number of attractive jobs for the man with the right training must also grow in proportion.

Initially, however, placement should be found in diagnostic trouble-shooting, testing of newly installed equipment or testing of new designs. Electronic sales will absorb many.



## MECHANICAL DRAFTING TECHNICIAN (ET14 - ET24)

LENGTH OF COURSE: 2 YEARS

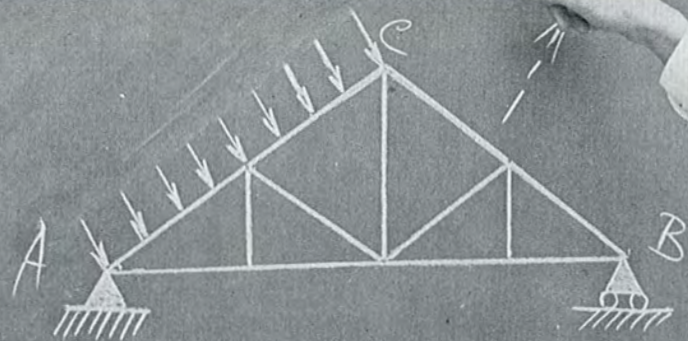
ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

The Mechanical Drafting Technician works very closely with the designing engineers in the manufacturing industry. He should be able to assist with minor calculations, preparation and development of detailed drawings of new products to be produced by his firm.

The course involves the study of the academic subjects, materials and processes, in addition to the variety of drafting skills, to be encountered in industry.

$$\bar{T}_t \approx 18000 \text{ p.s.i.}$$

$$\bar{T}_s \approx 10000 \text{ p.s.i.}$$



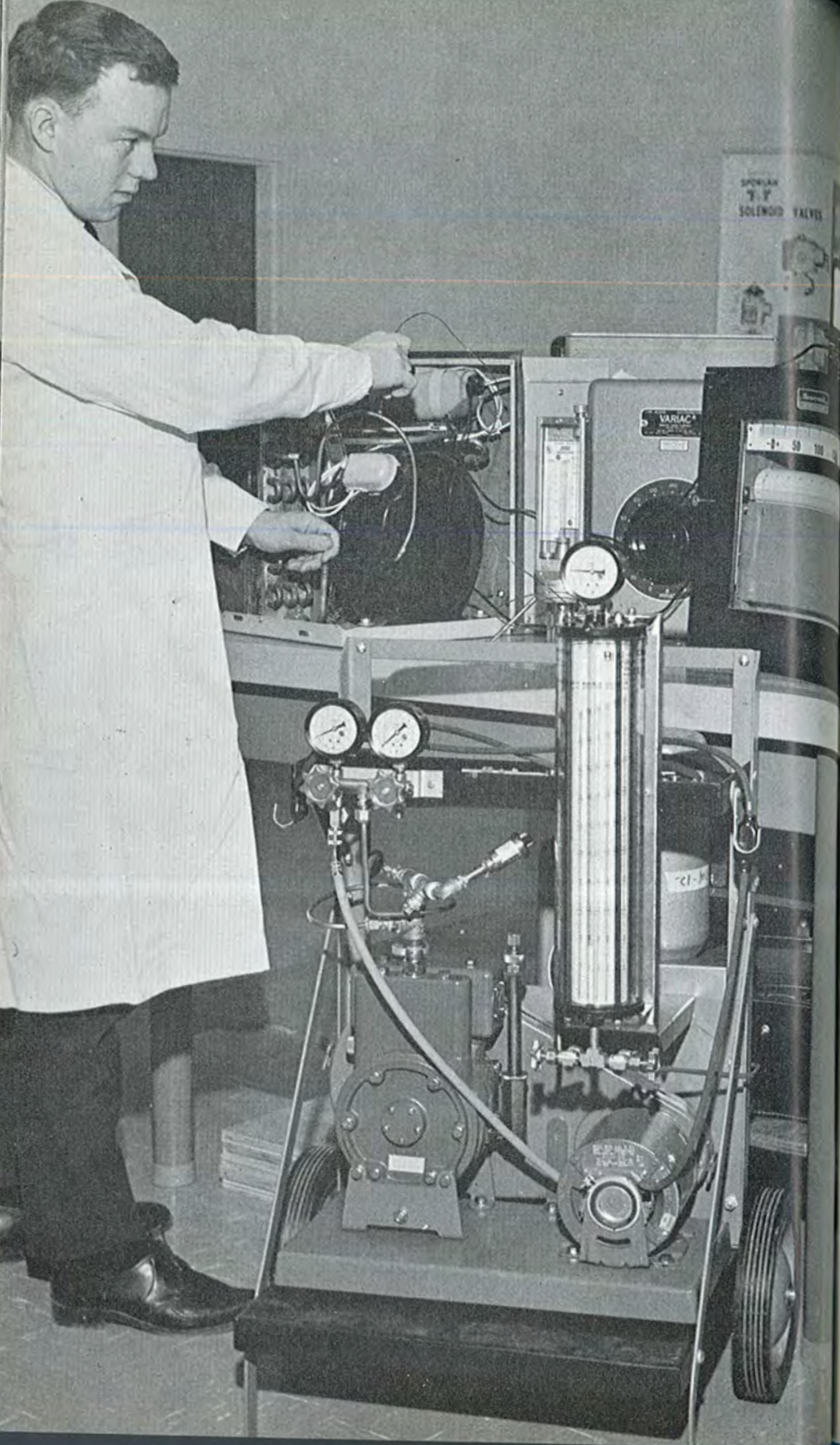
First Year Second Year   
EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14
7-10	ENGINEERING GRAPHICS	▨						
7-11	MECHANICAL DESIGN	▨						
7-5	MECHANICAL DRAFTING	▨		▨				
18-5	METALLURGY	▨						
7-12	STRUCTURAL DRAFTING	▨						
20-5	TOOL DESIGN	▨						
20-7	WORKSHOP TECHNOLOGY	▨						
RELATED SUBJECTS		2	4	6	8	10	12	14
8-1	ECONOMICS	▨						
18-1	ELECTRICAL FUNDAMENTALS	▨						
12-1	LANGUAGE & COMMUNICATION	▨						
12-5	LIBRARY	▨						
14-1	MATHEMATICS	▨		▨				
15-1	MECHANICS	▨						
15-2	MECHANICS OF MATERIALS	▨						
18-9	PHYSICS	▨						
23-1	PHYSICAL EDUCATION	▨						

### EMPLOYMENT OPPORTUNITIES

Industry is in constant need of Drafting Technicians as the very size of newspaper advertisements indicates. With the development of their drafting skills, and theoretical background through experience, graduates should be able to advance to supervisory levels in industry.





## AIR CONDITIONING & REFRIGERATION TECHNICIAN (ET 15 & ET25)

LENGTH OF COURSE: 2 YEARS

ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

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, psychrometric properties of air after an extensive thermo-dynamic background, 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.

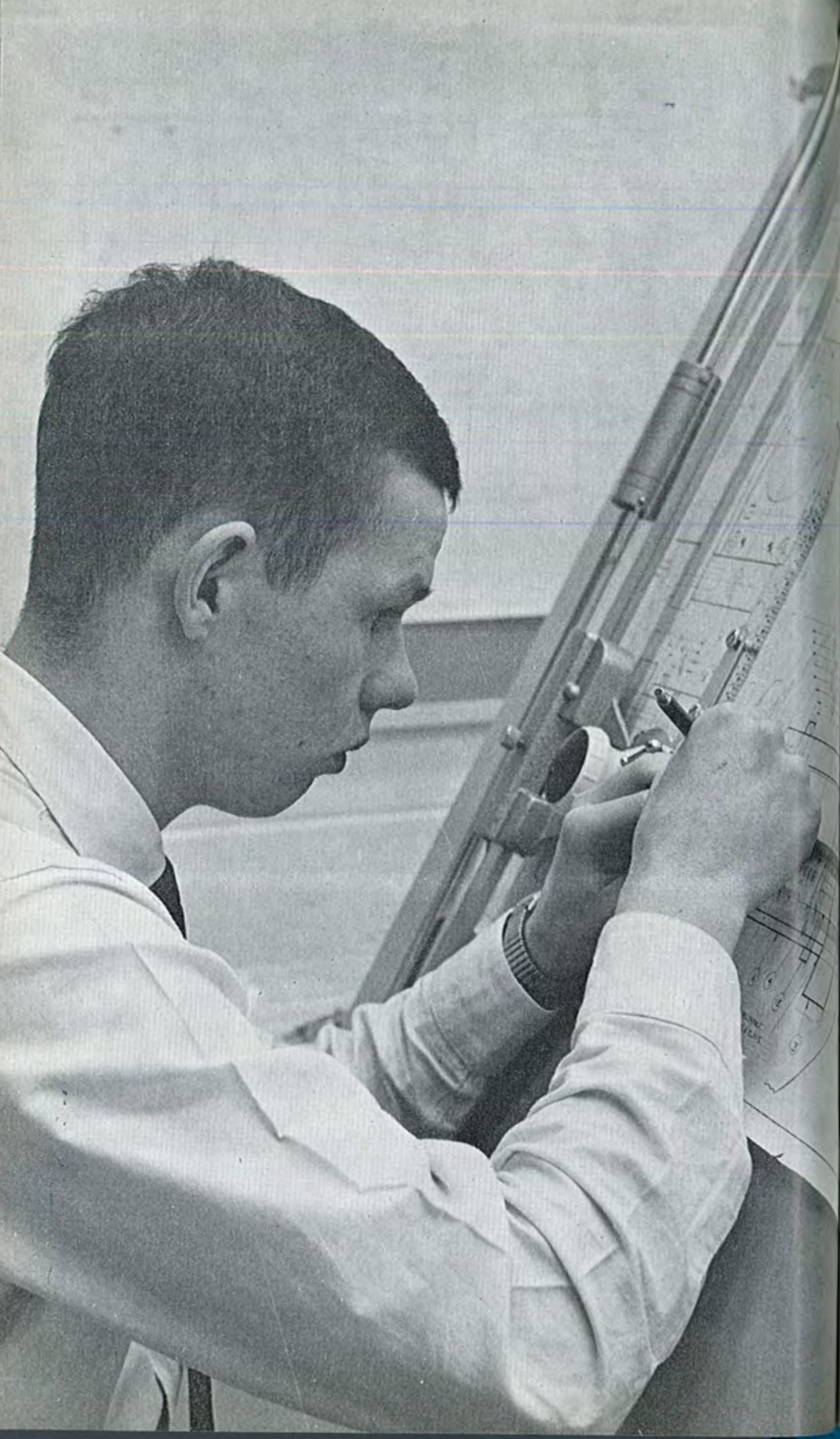
		EACH UNIT REPRESENTS 30 HOURS PER YEAR															
		First Year							Second Year								
THEORY AND PRACTICE		2	4	6	8	10	12	14	2	4	6	8	10	12	14		
22-4	BRAZING & WELDING	■															
7-7	DRAFTING	■															
16-1	ELECTRIC & PNEUMATIC CONTROLS	▨															
16-2	GEN. REFRIGERATION & AIR COND.	▨															
16-3	LABORATORY PRACTICE	▨															
16-4	LOAD ESTIMATING	▨															
16-5	PSYCHROMETRICS	▨															
16-6	THERMODYNAMICS	▨															
RELATED SUBJECTS		2	4	6	8	10	12	14	2	4	6	8	10	12	14		
8-1	ECONOMICS	▨															
18-1	ELECTRICAL FUNDAMENTALS	▨															
12-1	LANGUAGE & COMMUNICATION	▨															
12-5	LIBRARY	▨															
14-1	MATHEMATICS	▨															
15-1	MECHANICS	▨															
15-2	MECHANICS OF MATERIALS	▨															
18-9	PHYSICS	▨															
23-1	PHYSICAL EDUCATION	▨															

### EMPLOYMENT OPPORTUNITIES

The advances in refrigeration and air conditioning have created many openings for skilled personnel in estimating, design detailing, purchasing, installation and servicing supervision, as well as in sales.

Refrigeration technicians are valuable in manufacturers' research development and inspection laboratories.





## TOOL DESIGN TECHNICIAN (ET16 - ET26)

LENGTH OF COURSE: 2 YEARS

ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

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. The occupation is a specialized form of engineering. He interprets concepts into practical manufacturing functions.

In addition to the academic subjects, the course covers the study of tools and machines, metallurgy and methods of production, as well as the economics involved. Considerable drafting experience is involved so that the working drawings of the tool can be produced by the craftsmen.

First Year   
Second Year

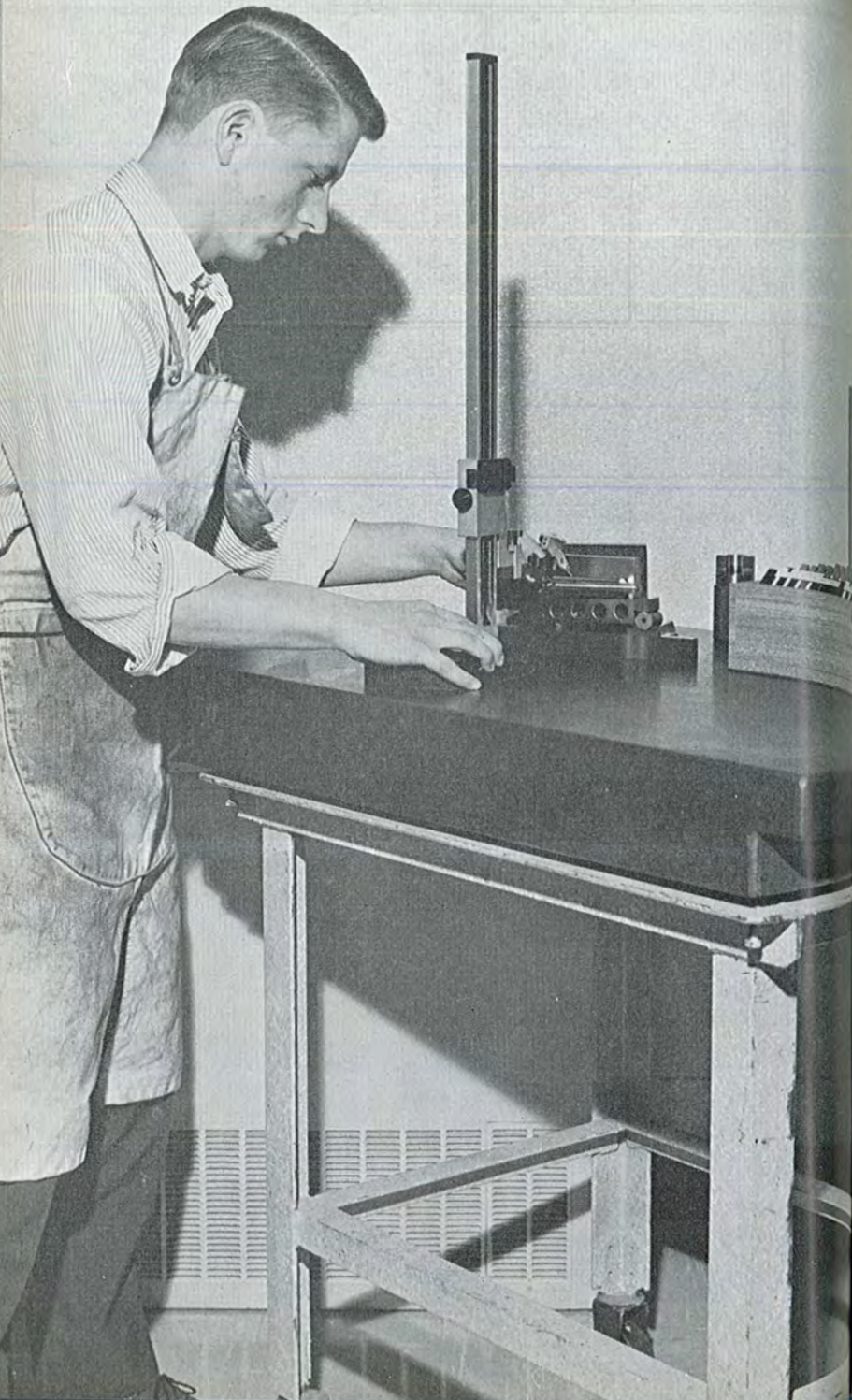
EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14	
20-1	MANUFACTURING METHODS	▨▨▨▨							
20-2	TOOL DESIGN PRACTICE	▨▨▨▨							
20-3	TOOL DESIGN THEORY	▨▨▨▨							
20-6	WORKSHOP TECHNOLOGY	▨▨▨▨							
RELATED SUBJECTS		2	4	6	8	10	12	14	
8-1	ECONOMICS	▨▨▨▨							
18-1	ELECTRICAL FUNDAMENTALS	▨▨▨▨							
12-1	LANGUAGE & COMMUNICATION	▨▨▨▨							
12-5	LIBRARY	▨▨▨▨							
14-1	MATHEMATICS	▨▨▨▨							
15-1	MECHANICS	▨▨▨▨							
15-2	MECHANICS OF MATERIALS	▨▨▨▨							
18-9	PHYSICS	▨▨▨▨							
23-1	PHYSICAL EDUCATION	▨▨▨▨							

### EMPLOYMENT OPPORTUNITIES

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.





## TOOL MAKING TECHNICIAN (ET17 - ET27)

LENGTH OF COURSE: 2 YEARS


























































ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA

Tool making deals with construction of equipment for the mechanical production of industrial and consumer goods, which require the use of precision equipment and the ability to work to the finest limits.

This occupation is a specialized industrial skill involving the manufacture of intricate and accurate mechanical devices for use in manufacturing processes.

Tool Making entails a knowledge of the techniques and skills employed in the manufacture of tools to the highest tolerances. The Tool Maker must also have a thorough knowledge of manufacturing methods, machine tools, various materials, heat treatment and the fundamentals of Design of Tools and Machines. The course will involve a complete understanding of all physical characteristics of dies, jigs, fixtures, gauges and special purpose tools and machines. The Tool Maker must also develop an ability to translate ideas into sketches.

First Year   
 Second Year   
 EACH UNIT REPRESENTS 30 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12	14
18-2	HYDRAULICS							
7-6	MECHANICAL DRAFTING							
18-4	METALLURGY							
18-6	METROLOGY							
20-4	TOOL DESIGN FUNDAMENTALS							
21-1	TOOL MAKING PRACTICE							
21-2	TOOL MAKING THEORY							
RELATED SUBJECTS		2	4	6	8	10	12	14
8-1	ECONOMICS							
18-1	ELECTRICAL FUNDAMENTALS							
12-1	LANGUAGE & COMMUNICATION							
12-5	LIBRARY							
14-1	MATHEMATICS							
15-1	MECHANICS							
15-2	MECHANICS OF MATERIALS							
18-9	PHYSICS							
23-1	PHYSICAL EDUCATION							

### EMPLOYMENT OPPORTUNITIES

Tool making, with its allied skill of die making, has an established status as one of the most skilled trades in industry. Automation will compound the growing demand for this craftsman and technician.

As well as in jobber shops, and specialist shops in the tool and die trade, craftsmen are in constant demand in the tool rooms of almost every manufacturing plant.





## CONSTRUCTION TECHNICIAN (BT1 - BT2) LENGTH OF COURSE: 2 YEARS

**ADMISSION REQUIREMENTS: SECONDARY SCHOOL GRADUATION DIPLOMA**

On the urging of the General Contractors' Association, a special course for Construction Technicians was begun at the Vocational Centres in London, Ottawa and Toronto in September, 1964. This course carries the same admission requirements as outlined for the Engineering Technician Program. The aim of the course is to provide graduates able to fill a variety of positions within the industry.

As indicated in the chart below, this course leans heavily towards the technical and theoretical aspects of the industry. It is not designed to produce the Building Tradesman, but the senior and supervisory personnel.

First Year   
Second Year   
EACH UNIT REPRESENTS 24 HOURS PER YEAR

THEORY AND PRACTICE		2	4	6	8	10	12
5- 1	CONST. ESTIMATING						
5- 2	CONST. MATERIALS						
19- 1	CONST. METHODS & DRAFTING						
5- 3	CONST. SURVEYING						
5- 6	CONTRACTS & SPECIFICATIONS						
11- 1	MECHANICAL INSTALLATIONS						
RELATED SUBJECTS		2	4	6	8	10	12
8- 1	ECONOMICS						
12- 1	LANGUAGE & COMMUNICATION						
12- 5	LIBRARY						
14- 1	MATHEMATICS						
15- 1	MECHANICS						
15- 2	MECHANICS OF MATERIALS						
18- 9	PHYSICS						
23- 1	PHYSICAL EDUCATION						

### EMPLOYMENT OPPORTUNITIES

This program is a follow-up to the Apprenticeship Program in many ways. The Construction Industry is seeking future Superintendents, Estimators and Supervisory Personnel. With experience on the jobs, graduates should advance to senior positions in the management side of the industry. They should also be in demand by the various suppliers to the industry as technicians, salesmen, etc.

## SUBJECT DETAIL

### KEY TO NUMBERING SYSTEM

Each subject listed on a course chart is preceded by a two figure code. The first figure represents the general subject. The second figure identifies that portion applicable to the particular course.

For example, the numbers 10-9 mean that the Electronics Technicians receive in "ELECTRONICS" (10), the particular portion "TRANSISTORS AND PULSE CIRCUITS" (9).

The General Subjects are coded as follows:

1. Accounting
2. Architecture
3. Business Management
4. Business Machines
5. Construction
6. Data Processing
7. Drafting
8. Economics
9. Electricity
10. Electronics
11. Estimating
12. Language and Communication
13. Machine Shop
14. Mathematics
15. Mechanics
16. Refrigeration and Air Conditioning
17. Secretarial Subjects
18. Science
19. Surveying
20. Tool Design
21. Tool Making
22. Welding
23. Physical Education

### 1-1 ACCOUNTING

Introduction to double-entry bookkeeping; transaction recording; payroll accounting; preparation of financial statements; adjustments; financial statement work sheet; partnership accounts; admission of partners; division of profits; dissolution of partnerships; goodwill; practice set; formation of limited companies; share capital and surplus; bonds and investment securities; manufacturing accounts; branch and agency accounting; analysis of financial statements.

### 1-2 BOOKKEEPING

Reasons for keeping records; the balance sheet; calculating profit; purpose and form of accounts; the general journal; the work sheet; simple adjusting entries; drafts and promisory notes; petty cash and principles of cash control; payroll; synoptic journal; perpetual inventories; manufacturing accounting.

### 1-3 LEGAL ACCOUNTING

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

### 1-4 MEDICAL AND HOSPITAL ACCOUNTING

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

### 2-1 ARCHITECTURAL DESIGN

Design of commercial, industrial or institutional buildings illustrated through presentation drawings and models.

### 2-2 HISTORY OF ARCHITECTURE — SECOND YEAR

Egyptian, Asiatic, Greek, Roman, Gothic, Renaissance, Western and Contemporary architecture.

### 2-3 PRESENTATION DRAWING — FIRST YEAR

Shades and shadows; freehand sketching; rendering in various media; one point and two point perspectives; presentation drawings of residence.

### — SECOND YEAR

Design of a commercial, industrial or institutional building; presentation drawings and model.

### 2-4 STRUCTURAL DETAILING — FIRST YEAR

Stresses; properties of structural materials; moments of forces; equilibrium; vertical shear force; bending moment; design of beams and columns in wood and steel; design of base plates; footings.

### — SECOND YEAR

Application of structural design to students' working drawings; standard



connections; details of beams and columns; erection diagrams; details of reinforced concrete.

### 3-1 BUSINESS MANAGEMENT

Forms of business enterprise; corporate organization; capital stock; long term financing; short term credit; industrial management; production control and inventory; labour relations; personnel management; collective bargaining; labour legislation; marketing methods; wholesale and retail trade; foreign trade, transportation and storage; advertising and public relations; prices and competition; managerial controls; management and administration; accounting periods and budgeting; taxation; insurance and laws.

### 3-2 BUSINESS LAW

Divisions 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; leases.

### 4-1 BUSINESS MACHINES

Ten key adding machines; printing calculator; full keyboard listing machine; rotary calculator; key driven calculator; McBee accounting system.

### 4-2 BUSINESS MACHINES

Review of ten key adding machines; printing calculator; full keyboard listing machine; rotary calculator; key driven calculator; I.B.M. key punch course.

### 4-3 BUSINESS MACHINES & KEY PUNCH

Key punch, ten key adding machine and printing calculator; full keyboard listing machine; rotary calculator; key driven calculator; I.B.M. key punch course; Burroughs sensimatic accounting machine; sales; purchases; receipts; payments; payroll; inventory.

### 4-4 DUPLICATING MACHINES

Director process duplicating; typing masters; photo copying; transparencies; overhead projections; cutting stencils and mimeographing; offset duplicating; making, correcting, filing and storing masters; collating material.

### 5-1 CONSTRUCTION MATERIALS — FIRST YEAR

Wood: physical and mechanical properties; lumber; timber, plywoods, veneers, glue laminated products, composition boards; insulation; vapour barrier; lime and gypsum; cement; concrete design and control of mix; hollow masonry units; cast iron; compression tests; brick and clay tile; solid masonry units; cast iron; malleable iron; steel; structural shapes; welded wire fabric; reinforcing steel; copper; aluminum; glass; plastic laminates; roofing material; flashings; roof drainage;

Flooring: wood; concrete; terrazzo; mastic; resilient tiles; sheet flooring; adhesives; moisture tests; paint.

### 5-2 CONSTRUCTION METHODS AND DRAFTING — FIRST YEAR

Site preparation; site inspection; job layout; temporary buildings; characteristics of soils; subsoil exploration; excavations; construction machines; dewatering methods; trench excavations; concrete formwork for: footings, foundation walls, concrete slab on ground, waterproofing, dampproofing; frame construction of walls, and floors; roof layout; stair construction; millwork; doors; windows; interior finishing material; prefabricated units; counters; cupboards; dividers; masonry construction of walls below grade; brick veneer walls, solid masonry construction; cavity walls; construction safety; line conventions; lettering; orthographic projection; pictorial drawing; construction details; working drawings for a building.

#### — SECOND YEAR

Rock excavation; sheeting; needling; underpinning; reinforced footings; eccentric footings; piles; caissons, grillages; reinforcing steel bending and placing; suspended concrete slabs; structural steel erection; steel joists; timber construction; floor framing; columns; trusses; detailing of reinforcing steel; bar lists; structural steel; details of shapes and connections; framing plan; column schedule.

### 5-3 CONTRACTS & SPECIFICATIONS — SECOND YEAR

Principles and practice-contract law; construction contracts; contracts forms; tendering procedures; contract bonds; critical path method of planning, scheduling and controlling; construction organization - management, labour legislation, publications and associations, financing, costing, safety; specifications - standard format, quality control, national building code, inspection, addenda, special contracts;

### 5-4 CONTRACTS & SPECIFICATIONS — SECOND YEAR

Legal aspects of contracts; contract documents; tenders; general conditions; specifications for various trades.

### 5-5 MATERIALS AND METHODS — FIRST YEAR

Materials used on concrete, masonry and frame construction; windows, doors, fireplaces, chimneys, interior and exterior finishes, stairs.

### 5-5 MATERIALS AND METHODS — SECOND YEAR

Concrete, masonry, structural steel and timber construction; curtain walls; stairs.

### 5-6 MECHANICAL INSTALLATIONS — FIRST YEAR

Principles and practices — municipal water supply systems; pressures; piping; valves; building water supply; fixtures; heaters; sprinkler systems; municipal sewage treatment plants; storm drainage; materials; roughing-in, venting; fixtures.

#### — SECOND YEAR

Principles and practices — heating; warm air; hot water steam and electrical; air conditioning; ventilation; electrical.

## 5-7 MECHANICAL INSTALLATIONS — FIRST YEAR

Heating; ventilating and air conditioning; plumbing and electrical.

## 6-1 PRINCIPLES OF DATA PROCESSING

Introduction to punched card data processing; history of data processing; characteristics and advantages of punched cards; the Hollerith code; magnetic switching and operation of selectors; equipment commonly found in unit record installations; 024 card punch, 082 sorter, 085 collator, 514 reproducing punch, 402 accounting machine, 602 calculating punch; control panel wiring; card handling; and machine operation; punched card data processing applications.

## 6-2 DATA PROCESSING SYSTEMS

Review of punched card machine operation including control panel wiring using IBM machines (024 card punch, 082 sorter, 085 collator, 514 reproducing punch, 402 accounting machine, 602 calculating punch); problem definition; methods of condensing and coding data; forms design; card design; flow charting for punched card equipment; model company set-up; accounting functions of sales and accounts receivable; accounts payable; payroll preparation; inventory control; history of computing devices with reference to analogue and digital types; computer language; the Binary number system; parts of a computer system; elementary programming; computer applications to business.

## 7-1 DRAFTING - ARCHITECTURAL — FIRST YEAR

Foundation; floor and site plans; typical wall sections; details of doors, windows, stairs, framing, fireplaces, and cabinet work; complete set of working drawings for a residence.

## — SECOND YEAR

Complete set of architectural working drawings for the building of student's design; co-ordinating structural, electrical, heating and plumbing.

## 7-2 DRAFTING

Lettering; linework; scales; orthographic projection; auxiliary views; sections; pictorial drawing; architectural and electrical symbols; blueprint reading related to residential, industrial and commercial buildings.

## 7-3 DRAFTING

Lettering; line construction; and interpretation; orthographic projection; symbols; producing lay-out; connection; schematic drawings from a sketch; reading of schematic and producing layouts.

## 7-4 DRAFTING

Block diagrams; schematic diagrams; components and assemblies; connection diagrams; printed circuits; graphs; charts; diagrams; design of printed circuits board.

## 7-5 DRAFTING — FIRST YEAR

Permanent and semi permanent fasteners; working drawing procedures; sketching; checking; fits and tolerances; surface finishes; use of tables; graphical solutions of machines; technical reports.

## — SECOND YEAR

Cam design and applications; gearing (spur, bevel and worm) calculations; gear trains; epicyclic systems and applications; bearings and installations; tolerances and allowances; casting methods; welding and brazing; jig, fixture, and gauge design.

## 7-6 DRAFTING

Blue print reading; machine sketching; elementary mechanical drawing; layout of tool drawings.

## 7-7 DRAFTING

Lettering; linework; scales; orthographic projection; auxiliary views; sections; pictorial drawings; architectural and mechanical symbols; blueprint reading related to residential, industrial and commercial buildings.

## 7-8 DRAFTING - STRUCTURAL

Detailing and detailing practice; use of structural steel and standard connections.

## 7-9 BLUE PRINT READING

Orthographic projection; projection; dimensioning; types of sectioning; auxiliary views; free hand sketching; pictorial drawing; finish marks; tolerances; welding symbols; A.S.A. and C.S.A. standards.

## 7-10 ENGINEERING GRAPHICS — FIRST YEAR

Geometrical constructions; sketching; multiview projections; sections and conventions; primary and secondary auxiliary views; revolutions; dimensioning and tolerances; permanent and semi permanent fasteners; detail and assembly drawing procedures; pictorial drawing; checking; use of tables and catalogues; elementary descriptive and vector geometry; graphical solutions; design procedures; technical reports.

## — SECOND YEAR

Development of surfaces; intersections; descriptive and vector geometry; graphical solutions; analysis and design of mechanisms; technical reports; blue print reading.

## 7-11 MECHANICAL DESIGN — FIRST YEAR

Stress and deformation; mechanical properties of materials; stress-strain relationships; axial and radial stresses; bolted and welded joints; pressure vessels; statically determinate beams; shear and bending moments; design of beams; deflections; torsional stress; combined axial and transverse loading.

## — SECOND YEAR

Columns with axial and eccentric loads; combined stresses; restrained beams; continuous beams; use of tables; composite beams; buckling of beams; curved beams.

## 7-12 STRUCTURAL DRAFTING — SECOND YEAR

Detailing and detailing practice; use of structural steel and standard connections.



### 8-1 ECONOMICS — SECOND YEAR

National accounting; the business unit; the price system; money and banking; taxation; labour; international trade and other topics related to our economic system; an introduction to alternate systems (Communism and Socialism); problems of our society; automation, the poor nations' problems and inflation.

### 8-2 ECONOMICS AND LAW

The Canadian economy: production; kinds of business organizations; stocks; bonds; distribution of national income; the money economy system; the price system; systems of exchange; business cycle; the banking system; saving and investing; real estate; international trade; labour movement in Canada.

### 8-3 ECONOMICS

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; banking system; national product and national income; business cycles.

### 9-1 ALTERNATING CURRENT MACHINES — SECOND YEAR

The alternator; construction; frequency; field excitation; regulation; power factor and synchronous — impedance test measurements; losses and efficiency; voltage regulation; synchronizing procedure; parallel operation; methods of cooling; the A.C. motor; conventional single phase types and instant reversing split phase; poly phase motors and other controllers; the transformers, single and polyphase construction; instrument transformers and conventional transformation; methods of cooling and cleaning these systems.

### 9-2 DIRECT CURRENT MACHINES — FIRST YEAR

Direct current generators; their construction and characteristics; prime movers such as diesel, steam systems and grades of lubricants in general use; preventive maintenance schedule, testing fault find, bearing replacement; re-winding and replacing defective coils.

### 9-3 ELECTRICAL CIRCUITRY — FIRST YEAR

Direct and alternating current theory; circuitry of series and parallel combinations, network analysis and theorems; basic machine characteristics; industrial wiring code requirements; chemical cells, conducting materials and their characteristics; insulation testing.

### 9-4 ELECTRICAL MEASUREMENTS — FIRST YEAR

Laboratory assignments in direct current analysis; resistance, inductance and capacitance in alternating current circuits; calibration of indicating and recording instruments having electrical, hydraulic and pneumatic application; dynamometer testing.

### 9-5 INDUSTRIAL CONTROLS — SECOND YEAR

Electro magnetic controllers; magnetic amplifier circuits; sewer systems; electronic and semi-conductor components of popular usage; variable speed

controllers; welders and their timing circuits; including slope control; high frequency heating units of single and dual magnetion types.

### 9-6 POWER TRANSMISSION AND DISTRIBUTION — SECOND YEAR

Transmission voltages, types of conductors and spacing; towers and structures; switching systems; metering methods and assembly of substation equipment; grounding; live line tools and safety procedures.

### 9-7 ELECTRICITY, PRACTICAL

Basic: Joints and splices; appliance and extension cords; signal circuits; lighting circuits; heat switches.

Construction: Non-metallic sheathed cable; rigid and E.M.T. conduit; armour-cable; aluminum sheathed cable; mineral sheathed cable.

Industrial: D.C. and A.C. motors and controls; alternators; transformer connections.

### 9-8 ELECTRICITY, THEORY

Basic Fundamentals: nature of electricity; dynamic electricity; conductors and insulators; simple series; parallel and combination circuits; electrical units; Ohm's law; properties of conductors; Kirchoff's laws; energy and powers.

Direct Current: sources: conduction in liquids; chemical cells; electro-magnetism; magnetic circuits; electro-magnetic induction; D.C. generators.

Alternating Current: fundamentals; single-phase circuits; transformers; alternators; single phase; polyphase and synchronous motors and controls.

### 9-9 AC/DC THEORY — FIRST YEAR

Basic Atomic theory: static electricity; electrical units; series circuits; parallel circuits; complex circuits; circuit theorems; magnetic units; instruments.

Line wave characteristics; inductance; inductive reactance; capacitance; capacitive reactance; impedance of series; parallel and complex circuits; series resonance; parallel resonance; power factors.

### 9-10 A/C - D/C THEORY

Atomic structure; concept of electricity; simple and complex AC/DC circuitry and applications in a radio receiver; magnetism.

Theoretic subjects will be tested in the laboratory.

### 10-1 AM AND FM CIRCUITS — FIRST YEAR

Radio amplifiers; oscillators; heterodyne principles: amplitude modulation and frequency modulation demodulators; automatic gain control circuits; automatic frequency control circuits; radio frequency oscillator and intermediate frequency alignment; crystal filters; squelch circuits; receiver characteristics; multiples.

### 10-2 AMPLIFIERS AND POWER SUPPLIES — FIRST YEAR

Power amplifier circuits; classes of amplification; voltage amplifier circuits; circuit calculations; phase invertors; frequency response; calculations and measurements; negative feed back; cathode follower and common collector circuits;

complementary symmetry; impedance matching; basic power supply: voltage multipliers; transformers; vibrators; choke input and capacitor input filters; regulations; semi conductor suppliers.

**10-3 COMMUNICATION SYSTEMS - AM** — SECOND YEAR

Amplitude modulation theory for transmission and reception as applied to a particular transceiver.

**10-4 COMMUNICATION SYSTEMS - FM** — SECOND YEAR

Theory of frequency modulation transmission and reception by a detail study of FM Mobile unit.

**10-5 COMPUTER SYSTEMS** — SECOND YEAR

Binary arithmetic; boolean algebra; counters; decoders; storage and shift registers; adders; and subtractors; arithmetic unit.

**10-6 MICROWAVE SYSTEMS** — SECOND YEAR

Microwave tubes: X Band: Radar system.

**10-7 TELEVISION SIGNAL CIRCUITS** — FIRST YEAR

The television system: tuners; intermediate frequency circuits; video detectors; video amplifiers; automatic gain control circuits; intercarrier sound system.

**10-8 TRANSMISSION LINES, ANTENNAS, AND SERVO MECHANISMS** — SECOND YEAR

Lumped constant equivalent circuits; travelling waves; Smith charts; wave guides; antennas; servo mechanisms.

**10-9 TRANSISTORS AND PULSE CIRCUITS** — SECOND YEAR

Transistors: Hybrid parameters; switching characteristics; zener diodes; tunnel diodes; unijunctions; field effect transistor; silicon control rectifiers.

Pulse & digital circuits; transient analysis; multivibrators limiters; clappers; sawtooth generators; blocking oscillators; TV sweep and synchronizing circuits.

**10-10 VACUUM TUBES AND SEMI CONDUCTORS** — FIRST YEAR

Vacuum tube principles: operation of diodes, tetrodes, pentodes and beam power tubes and gas filled diodes; parameters; equivalent circuits; characteristic curves; AC and DC load lines; use of curves and parameters to calculate circuit components.

Energy levels in semi conductors; doping; diodes; biasing; transistor action; parameters; characteristic curves; load lines; use of curves and parameters to calculate circuit components.

**10-11 BASIC ELECTRONICS**

Vacuum tubes; theory; types and applications. Communications and broadcasting; AM/FM systems; requirements at both transmitter and at receiver; AM and FM receiver. Theoretical subjects will be tested in the laboratory.

**10-12 SEMI CONDUCTORS**

Concepts and laboratory testing of diodes, transistors and circuits.

**10-13 TELEVISION**

The system: requirements at the transmitter; study of the elements in a receiver; faults and servicing; introduction to colour T.V.

**11-1 CONSTRUCTION ESTIMATING** — FIRST YEAR

Theory: Building material units; mensuration; duodecimals; blueprint reading; method of measurement of concrete construction materials and operations; formwork; reinforcing steel; finishing.

Practice: Technique and calculation; concrete, formwork, reinforcing steel and finishing.

— SECOND YEAR

Theory: Method of measurement of masonry, carpentry, excavation and subtrades.

Practice: Technique and calculation; brickwork; blockwork; clay tile, cut stone; bulk excavation; grading; dewatering; shoring; sitework; piling; rough carpentry; finish carpentry; subtrades; cost analysis and pricing; building estimates.

**11-2 ESTIMATING** — SECOND YEAR

Square, cubic, and detailed methods of estimating.

**12-1 LANGUAGE AND COMMUNICATION** — FIRST YEAR - TECHNICIAN

Grammar: Review of the basic areas of English grammar; emphasis on the mature sentence.

Composition: The basic paragraph, descriptive paragraph, exposition, narrative, precis, summary, the Technical report.

Oral: Basic rules of public speaking; the lesson; the argument; the informal debate; the formal debate; the form of a speech; introductions; the running of various types of meetings.

Literature: The study of four or five modern novels; style in the novel; the development of new concepts from the novel; the social importance of the novel; the student of a variety of modern short stories, essays and speeches; the development of new concepts presented in these.

— SECOND YEAR

Grammar and usage — drill exercises and remedial work; sentence and paragraph structure review.

Technical Research; report writing — philosophy, purpose, research materials; organization; format; major report based on shop specialty.

Business correspondence; attitudes, types of office and inter-office communications.

Basic parliamentary procedure — conduct of meetings, rules of procedure, speech habits.

Literature — modern novels emphasizing man in society; religions of man; essays.



## 12-2 LANGUAGE AND COMMUNICATIONS

Composition: Types and styles of sentences. The Paragraph: basic structure and analysis; types of development; narrative, descriptive, cause and effect; definition; division; example; comparison and contrast; paragraph styles; The Essay: argumentative, explanatory, scientific; The Laboratory and Technical Report: format, sources; note taking; outlines; rough draft; illustrations; documentation; bibliography; The Oral Report: several 3 to 10 minute reports on topics related to shop work, organization principles, techniques of presentation; Business Communications: Grammar; punctuation; a programmed text; Literature: five modern short stories each term.

## 12-3 ENGLISH

Technical topics; punctuation, spelling, grammar, sentence types and their uses, paragraph construction, the organization of letters, essays, reports; Literature: the ideas and techniques of at least three works of literature; Library: reading, gathering of information for literary assignments.

## 12-4 ENGLISH GRAMMAR AND COMPOSITION

Grammar; types of sentences — simple, complex, compound, compound-complex, loose, periodic, balanced, parallel; punctuation: comma, colon, semicolon, period, exclamation, interrogation, parenthesis, brackets, capitalization; paragraph; unity, coherence, clarity, development, narration, description, exposition; essays: planning and organization; precis: method and application; reports: minutes of meetings; oral work; book reports, short speeches, class discussion; creative writing.

Spelling: rules of spelling and word division; definition of words and their proper application; regular drill.

Literature: the novel; the play; the essay; poetry.

## 12-5 LIBRARY

Trades and technicians use the library one period per week as a resource centre for technical data; research; and reports.

## 13-1 BENCH WORK

Files; taps and dies; combination set; vee blocks; calipers; gauges.

## 13-2 MACHINE SHOP THEORY

Shop calculations; speeds and feeds; thread types and measurements; types of tapers; and taper measurement; gear types. Indexing methods: direct; plain; differential; linear; helical milling. Measurement: micrometers; vernier caliper and protractor; gauge blocks; optical flats; surface finish; sine bar. Metallurgy: heat treating processes; hardness testing.

## 13-3 MACHINE PRACTICE

Basic Machine Tools: lathes; grinders; milling machines; shaper; drill presses; saws;

Machining Processes: turning; threading; boring; reaming; milling; facing; grinding; sawing; shaping; drilling; machine attachments;

Machining Operations: taper turning; gear cutting; thread turning; helical milling; surface grinding; tool and cutter grinding; cylindrical external and internal grinding.

## 14-1 MATHEMATICS — FIRST YEAR

Introductory concepts: exact and approximate numbers; significant figures; error and relative error; scientific notation; dimensional analysis; and use of the slide rule.

Trigonometry: vectors on a Cartesian co-ordinate plane; definitions of trigonometric functions; functions of angles; co-functions and reciprocal functions; simple identities; vector quantities and technical applications; angles in degrees and radians; length of circular arc; area of sectors; angular velocity; functions of small angles; use of tables; solution of right triangles; oblique triangles; sum and difference; and multiple angle functions; engineering applications.

Algebra: Cartesian co-ordinate systems; simultaneous solutions. Systems with more than two unknowns; laws of exponents; radical and fractional exponents; the incomplete quadratic formula; equations of quadratic type; radical equations, graphs of exponential equations; changing bases; Logarithms; binomial expansion; eries; properties of triangles and circles; engineering applications. Optional topics: J-Operator-Argand diagram; form of complex numbers; De Moivre's theorem; graphs of trigonometric functions.

## MATHEMATICS — SECOND YEAR

Analytical geometry: equations of the straight line; circle; parabola and ellipse in problems of a technical nature.

Differential calculus: study of functions and limits; to differentiation from first principals to differentiation by rule; practical problems involving gradients, tangents, maxima, minima, simple harmonic motion and AC electrical problems.

Integral calculus: problems of a technical nature including areas under curves, solids of revolution and surfaces of revolution.

## 14-2 MATHEMATICS

Review of arithmetical and basic algebraic processes, exponential function; logarithms and slide rule; linear function and its application; mensuration; trigonometric functions and its application.

## 14-3 BUSINESS CALCULATIONS

Rapid addition; single, double and multiple columns — vertically and horizontally. Subtraction; exercises; combinations of addition and subtraction; Multiplication: short and long division; mental and written timed practices; fractions - mixed numbers, decimals, percentages, discounts; mark-ups, commissions; insurance and taxes.

## 14-4 BUSINESS MATHEMATICS

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.

#### 14-5 BUSINESS MATHEMATICS

Mechanics of computation as applied to whole numbers, fractions and decimals; fundamentals of problem solving; simple and compound interest; bank discount; present value; promissory notes; annuities, amortization of mortgages; payrolls, wages and commissions; purchase discounts and markup; retailing problems; taxes, depreciation and overhead; distribution of profit; purchase and sale of stocks and bonds; personal and business insurance.

#### 15-1 MECHANICS — FIRST YEAR

Statics: graphical and analytical solution of co-plane force systems; laws of static and kinetic friction; centroids; centre of gravity; solids of rotation; second moments of area, radius of gyration; machines.

Dynamics: Newton's laws of motion; rectilinear motion; impulse impact and momentum; rotational motion; radius of gyration; work energy and power.

#### 15-2 MECHANICS OF MATERIALS — SECOND YEAR

Principals of statics; forces; vectors; moments; methods of joints in analysis of frames; Centre of gravity; centroid; moment of inertia; radii of gyration; moment of inertia; tensile, compressive and shear forces; elasticity; factors of safety stresses on diagonal planes; poisson's ratio; stress strain curves; temperature stresses; pressure vessels; thin walled, riveted, welded and bolted joints; structural joints; torsion, shafting, couplings; shear and bending in statically determinate beams; points of inflection, flexure formulae; design of beams; deflection; use of tables for bending and deflection; columns; slenderness ratio; end conditions; short; intermediate and long columns; eccentric loading; combined stresses; principal stresses; maximum shear stress. Mohr's circle; combined bending and torsion stresses.

#### 16-1 ELECTRIC AND PNEUMATIC CONTROLS — SECOND YEAR

Basic fittings; codes; J.I.C. and S.A.E.; basic pneumatics; relays; air motors; thermostats; control systems; fail-safe provisions; electronic sensors; sensitivity; percentage authority. Electric power supplies; power factor; wiring diagrams for refrigeration; defrosting and air conditioning control panels; impedance; holding and reversing relays; test lamps; meggers; ohmmeters; bridges; overloads; current and potential starting relays; modulating controls.

#### 16-2 GENERAL REFRIGERATION AND AIR CONDITIONING — FIRST YEAR

Types of vacuum gauges and pumps; gas ballast; pressure gauges; leak detectors; condensers; compressors; capillary tube theory; expansion and thermostatic expansion valves; evaporators; piping; oil return and pressure drop superheat; pressure equalization; detailed temperature; pressure study of a system overcharge and undercharge; refrigeration journal assignments; refrigerant migration.

#### — SECOND YEAR

Dalton's law and non-condensibles; pressure switches; system restrictions; properties of dessicants; moisture problems; oils; all cleanout methods; compressors and voltage; capacity control; 2 stage and cascade systems; F12, 22 and 502 design factors; heat exchangers; heat pumps.

#### 16-3 LABORATORY PRACTICE — FIRST YEAR

Tubing flaring; swaging; production bending calculations and machines; making thermocouples; use of millivoltmeters; potentiometers; bridges; psychrometers; and dew point indicators; practice on burnt compressor cleanouts; evacuation; purging and charging; measuring torque; boiling point; triple point and migration experiments; internal winding temperatures.

#### — SECOND YEAR

Interpretation of laboratory chart records; acid titrations; Bernoullis theorem; static regain; air flow instruments; trade journal assignments.

#### 16-4 LOAD ESTIMATING — SECOND YEAR

Design conditions; humidex; building heat transmission; conductivity and conductance; coefficient U; air spaces; still and moving air; direct sunlight; storage effect; daily temperature range; outside air infiltration and ventilation; sensible and latent loads; electric motor loads; lighting; appliances; occupants and activity; air duct gains and leakage; winter heating differences.

#### 16-5 PSYCHOMETRICS — FIRST YEAR

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; apparatus dew point; sensible heat factor; condition line; deviation lines; solution of practical air conditioning problems.

#### — SECOND YEAR

Basic sensible and latent heat equations; air mixing equations; bypass factor and coil design factors; coil apparatus, dew point by mathematics; and S.H.F. air off the coil; coil apparatus dew point; complete psychrometric analysis; direct expansion coil selection; wet bulb depression factors; evaporative cooling; warm air heating and humidification.

#### 16-6 THERMODYNAMICS — FIRST YEAR

Energy; kinetic and potential; internal energy; molecular forces; interchange of energy; change of state; temperature - enthalpy curves; triple point; heat transfer; absolute pressure; Boyles and Charles law; Kelvin and Rankine temperatures; derive perfect gas equation; gas constants; Dalton's law; Avogadro's law; universal gas constant; general equation of state; derivation of specific humidity.

#### — SECOND YEAR

The second law of thermodynamics; heat engine in reverse, the compression refrigeration cycle; entropy; Mollier diagrams; displacement; volumetric efficiency; co-efficient of performance.



### 17-1 BUSINESS CORRESPONDENCE

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.

### 17-2 PITMAN SHORTHAND ACCELERATION COURSE

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

### 17-3 LEGAL OFFICE PROCEDURES

The secretary, the lawyer, and the law office; contacts with clients and other callers; reminder systems and practices; filing in the law office; correspondence and telegrams in the law office; how to address persons holding honorary or official positions; distinctive features of typing and dictation; basic information about legal instruments; handling material for printing; acting as a corporate secretary.

### 17-4 LEGAL SHORTHAND AND TRANSCRIPTION

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

### 17-5 LEGAL TERMINOLOGY AND PROCEDURES

Commonly used legal terms; derivations; courts and courtroom procedures; legal ethics; legal writing style; legal forms; legal actions.

### 17-6 LEGAL TYPEWRITING

Contracts: Civil action (automobile accidents); 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; bylaws; etc.; bankruptcy; legal forms necessary to file a bankruptcy claim; real estate; documents concerned with buying and selling property; wills and probate; criminal action.

### 17-7 MEDICAL OFFICE PROCEDURES

Personality; professional behaviour; appointments; keeping the doctor's schedule; public relations; patients' histories; insurance and completing forms accurately; correspondence; filing; office management; professional miscellany; the medical secretary in a hospital; preparation of manuscripts; the doctor and the law; the dental secretary.

### 17-8 MEDICAL SHORTHAND AND TRANSCRIPTION

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.

### 17-9 MEDICAL TYPEWRITING

Advanced typewriting review; letter display; envelope addressing; abbreviations; invoices; cheques; financial statements; balance sheets; profit and loss accounts; statistics; stencil cutting; indexing; inter-departmental correspondence; speed tests; medical typewriting practice; letter display; medical and surgical case histories; articles; medical records including hospital accounting assignments; belt transcription techniques; medical and secretarial practice; speed tests; medical terminology.

### 17-10 OFFICE PROCEDURES

Office standards; personal assets; duties of a stenographer; meeting the public; handling routine correspondence; business and office organization; postal information; structure and appearance of business letters; telephone information; telegrams; cables; banking; services for transportation of goods; customs services; duplicating machines; filing procedures; systems and equipment; use of reference books; applying for a position.

### 17-11 TYPEWRITING

Parts of typewriter; letters and characters of keyboard; technique; word division; centering; horizontal and vertical; tabulation; letter styles and punctuation; addressing envelopes; folding and inserting letters; carbon copy exercises; circular letters; programmes and menus; bank and financial statements; electric typewriter practice; practice on transcribing units; typing legal documents.

### 18-1 ELECTRICAL FUNDAMENTALS: ENG. TECHNICIANS

D.C. Theory: Derivation of electrical units; volt ampere, ohm, Ohm's Law of constant proportionality; specific resistance; temperature coefficient of resistance; power; maximum power transfer; series; parallel, and series parallel circuits; Kirchoff's voltage and current laws; network equations from Kirchoff's laws; derivation of magnetic units; magnetic flux; magnetomotive force; reluctance; permeability; flux density; magnetizing force; B-H curves; magnetic circuit problems; electrical measuring devices as Ammeter, Voltmeter. Ohmmeter, Wattmeter, Electromagnetic Induction; Faraday's Law, Lenz's Law, Henry, Inductance in series and parallel circuits, time constants and inductive problems. Capacitance; capacitance in series and parallel, time constants and capacitance problems.

A.C. Theory: Derivation of the Sine wave; peak value; instantaneous value, effective value of a sine wave; average voltage and current; inductive reactance; capacitance reactance and resistance impedance; series; parallel and series parallel A.C. networks; resonance; true; reactive and apparant power; power factor.

### 18-3 MEDICAL TERMINOLOGY

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.

### 18-4 METALLURGY — FIRST YEAR

Structure of plain and alloyed steels; fundamentals of heat treatment; normalizing; hardening; tempering; products of quenching; hardness measuring.

### — SECOND YEAR

Heat treatment; non-ferrous alloys and characteristics carbides; plastics; characteristics of materials; uses.

### 18-5 METALLURGY — FIRST YEAR

Refining of iron ore; steel production; interpretation of alloy diagrams; hardening and heat treatment; testing procedures; engineering materials.

### 18-6 METROLOGY — FIRST YEAR

Mechanical devices; principles; application dial; vernier; micrometer; blocks; optical; comparators; slides; flats; electronic; surface measurement; limiting features; inspection methods and principles.

### 18-7 MODERN PHYSICS

Electromagnetism: field strength; Spectroscope; spectrums in inert gasses; Atomic: atomic structure; Bohr-Stoner-Sammerfield quantum theory; Shrodinger wave equation; periodic table; Solid State: crystalline structures; band theory; semi conductor crystals; and materials; junction transistor; Nuclear Physics: relativity; nucleus; radioactivity; instrumentation.

### 18-8 PHARMACOLOGY AND FIRST AID

Pharmacology: 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.

First Aid: control of bleeding; artificial respiration; poisoning; unconsciousness; how to deal with wounds; infections; injuries to bones, joints; head and spine; injuries due to heat and cold; transportation of injured; cardiac resuscitation; emergency child birth.

### 18-9 PHYSICS

Pressure in liquids and gasses: centres of pressures; atmospheric pressure; barometric measurements and corrections; viscosity and surface tensions. Liquids in motion: hydraulics; Pascal's law; Bernoulli's Theorem; Heat and temperature: linear, area and cubical expansion; specific and latent heats; kinetic-molecular hypothesis; temperature/pressure diagrams; thermal conductivity; laws of thermodynamics and engines; Wave types and properties; velocities and wave length calculations; reflection; refraction; diffusion; interference; sound waves;

decibel; phon; Dopple's principle; heats; visible-audio wave lengths; acoustics; reverberations; light waves; illuminance; luminance; lenses; prisms; instrumentation; Young's double slit types of spectrum polarization.

### 18-10 PHYSICS

Mechanics: measurement; accuracy; vector quantities; system of forces; equilibrium; moments of a force; centre of gravity; linear motion; force; work; energy; power; efficiency; simple machines. Hydrostatics; pressure in fluids; Archimedes' principle; Pascal's law; hydraulic systems; viscosity; Bernoulli's Principle; fluid friction; Heat: temperature; heat; thermal expansion; kinetic theory; change of phase; heat transfer; Elasticity: stress; strain; elastic modules; Metallurgy: mining; refining; alloys of iron and copper; corrosion; Industrial gasses: manufacture; properties; storage; uses of oxygen; hydrogen; nitrogen; carbon dioxide, and acetylene. Light and sound;

### 18-11 PHYSIOLOGY AND ANATOMY

Structure of the body; the skeletal system; joints and muscles; circulatory system; respiratory system; digestive system; excretory systems; nervous system and reproductive systems.

### 19-1 CONSTRUCTION SURVEYING — FIRST YEAR

Principles of chaining; levelling; traversing; errors; mistakes and checks; earthwork computation; azimuths and bearings; horizontal and vertical control of building operations; practical exercises in use and care and adjustments of





the instruments; field exercises in differential, profile, cross-sectional and contour levelling; engineer's transits; traversing and building site and services layout;

**19-2 SURVEYING** — FIRST YEAR

Levelling; contours; cross sections; profiles; transits; field notes; site and construction surveys; deed description; certificates notes and legends.

**20-1 MANUFACTURING METHODS** — FIRST YEAR

Machine tools and functions; metal removal techniques; metal forming; moulding systems; finishing applications; assembling methods; extruding; trade information; plant tours;

— SECOND YEAR

Machine tools and functions; industrial processes; numerical control; plant tours.

**20-2 TOOL DESIGN** — FIRST YEAR

The design and drawing of jigs and fixtures, gauges, brake dies, progressive dies; blue print reading and visualization exercises.

— SECOND YEAR

The design and drawing of progressive dies, draw dies, forming dies, miscellaneous dies, moulds; special purpose tooling; blue print reading and visualization.

**20-3 TOOL DESIGN THEORY** — FIRST YEAR

Design considerations general; tooling economics; performance; evaluation; amortization/estimating; time and motion study; manufacturing costs; reports; theory of jigs and fixtures; gauges, brake dies, progressive dies, cutting tools and fluids, extruding dies.

— SECOND YEAR

General approaches; analysis; standards; planning; control; plant layout; progressive dies, cutting dies, forming dies, draw dies, steel rule dies, miscellaneous dies; cold roll forming; thread rolling; automatic lathe tooling; die casting; plastic moulds; resistance welding; pneumatics; hydraulics; tooling economics; estimating; product design; report writing; analysis; evaluation.

**20-4 DESIGN FUNDAMENTALS**

Tool design principles; construction methods; design consideration; tooling types; gears; cams; linkages; machine fundamentals; pneumatic hydraulics; tooling economics; performance evaluation; amortization; time and motion study; manufacturing costs.

**20-5 TOOL DESIGN**

Tolerance and allowances; properties and treatment of materials; design of elementary jigs and fixtures; gauges and gauge design.

**20-6 WORKSHOP TECHNOLOGY** — FIRST YEAR

Metallurgy; steels, wrought and cast; cast irons; ferrous alloys; carbides; ceramics; characteristics; machinability; heat treatment of steel; metrology; mechanical, optical, pneumatic, electronic; quality control; tolerance control systems; industrial applications; machine tool operation; lathes; drilling machines; milling machines; benchwork and miscellaneous tool room equipment.

— SECOND YEAR

Advanced machine tool operation; grinding machines; measuring devices; jig boring; heat treatment; electrical discharge; materials: nonferrous alloys, plastics; metrology: laboratory.

**20-7 WORKSHOP TECHNOLOGY** — FIRST YEAR

Machining and welding applications.

— SECOND YEAR

Machining and welding applications.

**21-1 TOOL MAKING PRACTICE** — FIRST YEAR

Drill presses; drilling; lathes; shaper; milling machine; copy mills; grinding; jig; bore; heat treatment of carbon, iron and alloy steels; case hardening; carburizing; annealing; normalizing; heat treatment of tools and dies; jigs and fixtures; tool and dies making; steel rule.

— SECOND YEAR

Lathe; milling machine and grinding practice; tool grinding; tool and die making; jigs and fixtures; special machines; heat treatment; everything encountered in an average tool room; steel rule dies; and special machines.

**21-2 TOOL MAKING THEORY** — FIRST YEAR

Machine Tool functions; machine types; uses; sources; terminology; costs; cutting tools; fluids types and characteristics; angles; rakes; removal rates; heat dissipation; bench work; layout, hand tool theory; fits; grinding wheels; selection, performance; grading; uses; production techniques; general industrial manufacturing methods; shop calculations; trigonometry; gear formulas.

— SECOND YEAR

Shop calculations; assembly techniques; fits; machine tools; controls; trends; press room characteristics.

**22-1 ARC WELDING**

Welding of ferrous and non-ferrous metals in all positions; carbon arc welding; carbon arc cutting; Tungsten Inert Gas and Metal Inert Gas welding of ferrous and non-ferrous metals; metal lay out; fitting, and assembling; maintenance and repair of equipment.

**22-2 GAS WELDING**

Fusion and braze welding of ferrous and non-ferrous metals in all positions; manual and automatic cutting; maintenance of equipment.

### 22-3 WELDING THEORY

Oxy-acetylene, fusion, and braze welding; brazing; oxy-acetylene cutting; electric arc welding; inert gas welding; Tungsten Inert Gas and Metal Inert Gas; general shop practice; including safety; manufacturing of welding gasses; metallurgy; and distortion; joint design; welding symbols; testing of welds; testing of welder operators.

### 22-4 BRAZING AND WELDING — FIRST YEAR

Safety rules; equipment maintenance; eutectic alloys; soft solders; silver alloys; brazing; gas welding and cutting gas fluxes; nitrogen purging; sealing pressurized tubes; flame chemistry; American Society of Mechanical Engineers' brazing test; arc welding; drafting symbols; steel warpage; arc weld inspection.

### 23-1 PHYSICAL EDUCATION

One period per week for each student is allotted to gymnasium activities, of a physical fitness nature.



### PHYSICAL EDUCATION PROGRAM

Since students will attend this Centre for not more than two years, and many for one year only, opportunities for many of the usual team sports are limited.

Intramural competitions are conducted in Basketball, Volleyball, Hockey, and Track and Field Sports. Inter-school games are arranged on an exhibition basis with various other schools and institutes.

After school recreational activities are provided in the following:

- Weight Training
- Boxing and Wrestling
- Table Tennis
- Badminton
- Softball
- Floor Hockey
- Physical Fitness Classes





DEPARTMENT OF EDUCATION

**ONTARIO  
VOCATIONAL  
CENTRE**