MANITOBA INSTITUTE OF TECHNOLOGY
(WINNIPEG)

BRANDON VOCATIONAL CENTRE
(BRANDON)

BASIC TRAINING FOR SKILL DEVELOPMENT
(VARIOUS CENTERS)

*

DEPARTMENT OF EDUCATION
PROVINCE OF MANITOBA

*

Administered by
VOCATIONAL BRANCH
Manitoba Department of Education
with financial assistance provided by
the Federal Department of Labour under the
terms of the Technical and Vocational Training Agreement.

*

Hon. George Johnson, M.D. ............ Minister of Education
B. Scott Bateman B.A. ................. Deputy Minister of Education
B. F. Addy, B.Sc., M.A. .............. Director of Vocational Education

Approved by and issued under the authority of the Minister of Education.
Foreword

Supporting our way of life today are skills in designing, modifying, and meeting the challenges presented by the rapidly changing world of science. Trained minds and hands are needed to advance the flow of work from the idea stage to a stage of usefulness through technical development. Skill and knowledge are in demand. Developing that skill and knowledge to meet the ever increasing demands of Industry, Business and the professions is the function of The Manitoba Institute of Technology and other Vocational Provincial Centres. Manpower development is the key to an enriched way of life for all people living in a technologically biased society.

The doors of these centres swing open easily. They are open to students who have a talent for mathematics and science and who want to train for careers in the various technologies. They are open to those who seek training for administrative tasks in business. They are open to unemployed who seek new skills, and for post-high school students who desire work in Business and in Industry. They are open to those who have limited potential for active work but who within that scope can be valuable and reliable employees.

The Manitoba Institute of Technology and the Vocational Centres have been built, staffed, and equipped by the Province of Manitoba with financial support from the Government of Canada through the terms of the Federal-Provincial Vocational Training Agreement. Their operation is the responsibility of the Vocational Branch of the Department of Education of the Province of Manitoba. A close grass-roots association with Business, Industry, and the Professions is the basis on which the courses are developed and kept up-to-date, and further, its enrolment in specific courses is tailored to meet the current demands of our expanding and flexible economy. Advisory Committees from Business and Industry work in co-operation with those who administer the operation of these centres. There is a balanced pattern of courses now at the Manitoba Institute of Technology and the other Provincial Vocational Centres and as the demand arises, new courses will be taught. All this is designed to maintain a position of Educational readiness for the emerging demands in Business and Industry for trained employees.

[Signature]
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General Information

In Manitoba's expanding Vocational Education programs, "every rift is laden with ore", and one of the richest new veins is the Manitoba Institute of Technology. This project, designed to offer instruction in many fields, is as impressive as the challenge it must meet: the challenge presented by space age developments and a radically changing world of work.

The Manitoba Institute of Technology is located on a campus in the northwest section of Winnipeg, adjacent to the International Airport and offers courses in Technologies, Trades Training and Teacher Training. This Institute has over seven acres of floor space devoted to the most up-to-date facilities and equipment. The Brandon Vocational Centre is located in Brandon and offers courses in Vocational, Industrial, Business Education and in Basic Training for Skill Development.

"Plans are being developed for new and expanded facilities in the City of Brandon.

A Manitoba Vocational Centre is being planned and will be located in The Pas, Manitoba. It is expected that construction on this project will commence during the Fall of 1964.

The operation of these institutions is the responsibility of the Vocational Branch, Department of Education.

Course Content:

The course content listed herein is intended to provide information for the guidance of applicants in the selection of appropriate courses. It is not intended to be so rigid and inflexible that it restricts the initiative of teachers and students. In general, the courses will be conducted in accordance with the curriculum outlines but may, through consultation between the Institute authorities and the Advisory Committees, be subject to revision to meet special educational needs as they arise.

Illness, Accidents and Injuries:

The Institutions reserve the right to call a physician in case of illness, the expense to be borne by the student.

The Training Centres have exerted and will continue to exert every effort to avoid accidents, but incorporates the following statement as part of the understanding between themselves and their students: "The Province of Manitoba, its officers, agents, or employees assume no liability, expressed or implied for the result of sickness or accidents involving personal injury to any student, whether in connection with the Institute's instruction program wherever conducted, or incidental to other activities on the Institute's properties or elsewhere."

Filing of an application form carries with it approval and consent with respect to the Institution's policy governing accidents or illness as thereon set forth.

A Safety Program is a continuous operation at all times in all Departments.
Office Hours:
The General Office is open from 8:00 a.m., until 5:00 p.m., Monday through Friday.

School Hours:
Classes are in session from 8:30 a.m., until approximately 4:00 p.m., five days per week, Monday through Friday.

Tools and Equipment:
Relatively expensive tools and equipment are made available to the students by the Institute. Certain items which for sanitary or other reasons should be personal property, are purchased by the student.

Lockers:
Lockers are available without cost to full-time students.

Field Trips:
The work at the Institutions is closely related to the work of industry. It is the policy of the schools to encourage field trips to outstanding establishments closely related to the students' studies. Students are expected to bear their own expenses, if any, on these trips.

Training for Unemployed Persons:

Eligibility.
1. Those eligible shall be unemployed persons, who have previously been gainfully employed or seeking work, and if under 20 years of age have been out of the regular school system for at least twelve months, where such training is considered necessary to enable the individual to participate effectively in the labour force.

2. Applicants must be registered for employment with the National Employment Service and recommended by National Employment Service to the Province for training.

3. The selection of trainees for courses of instruction shall be made by representatives of the Province from those declared eligible for training by National Employment Service.

Local National Employment Service Offices are located in the Province at:

Brandon — 153-11th Street
Dauphin — 319 Main Street North
Flin Flon — 54 Main Street
Portage La Prairie — 10 First Street S.W.
Selkirk — 237 McLean Avenue
The Pas — 151 Fischer Avenue
Winnipeg — 344 Edmonton Street
Training of Disabled Persons (Program 6):

Under Schedule "R" Agreement between the Federal and Provincial Governments, disabled persons who, because of a continuing or remaining disability, require training to fit them for gainful employment in a suitable occupation may be eligible for vocational training.

Eligibility for training under Schedule "R" is determined by a Training Selection Committee under the Provincial Department of Education.

Students trained under Schedule "R" pay no fees and may receive living allowances, transportation and incidental expenses.

Persons who believe that they may be eligible for training under this program should contact directly The Provincial Coordinator of Rehabilitation, Room 615, Norquay Building, 401 York Avenue, Winnipeg 1, Manitoba. Telephone WH 6-7616.

Guidance:

Vocational and Educational guidance is available to applicants and students.

Registration:

Tuition fees are due and payable on the date of registration.

Attendance:

Students must be punctual and have an attendance of 90% or better. When a student remains away from school for a period of five consecutive school days, without notifying the Institution as to the reason for his absence, the student shall be considered as discontinuing his course.

Discipline:

Students are expected to exhibit adult behaviour. All students are subject to the rules and regulations of the Institution and may be suspended or dismissed if their conduct, progress, attendance, or attitude proves unsatisfactory. The Institution reserves the right to dismiss at any time, students who are unable or unwilling to profit from instruction. In such cases, no portion of the fee is refundable.

Students are required to complete all assignments of homework.

Dress:

Students are expected to dress in a neat and tidy manner, appropriate to the classroom, laboratory or workshop in which they are working.
Board and Room:

No dormitories are operated in connection with the Institutions. The General Office has a list of boarding houses for students who wish to obtain board and room in the city. Because this list changes from day to day, we recommend that you obtain it on or before the day of registration. The acceptability of all boarding places listed is left entirely to the discretion of the student.

Financial Assistance:

1. Applicants for admission to the Manitoba Institute of Technology or the Brandon Vocational Centre and students presently enrolled in either full time Industrial or Technology courses, may apply for bursaries. These awards are based upon financial need and scholarship.

2. Interest free Government loans may be made to eligible students enrolled in the Technology courses.

For application forms and further information, address enquiries to: The Superintendent, Manitoba Institute of Technology, 2055 Notre Dame Avenue, Winnipeg 23, Manitoba, or to Supervisor Brandon Vocational Centre, Brandon, Manitoba.

**Liaison With Industry**

A full-time Co-ordinator is engaged to establish and maintain liaison with Industry. It is imperative, if a Vocational Education Program is to be successful that this two-way service between Industry and School be maintained. Direct co-ordination is also maintained with the National Employment Service.

Management, Labour, and the Public are assisting by providing their top executives as members of the Advisory Committees established for each of the courses which are offered. These committees make suggestions about the course content to ensure that it is geared directly to the needs of a particular industry. In addition the Advisory Committee actually assists in securing the co-operation of industry in the placement of students in order that their over-all training program may be completed by on-the-job training which is considered to be of great importance.

These committees provide key management and labour members from whom Instructional Staff can seek direction and advice when needed. Also they serve as a directing influence in helping the school to keep its Program of Studies up to date and closely related to changing Professional, Industrial and Business practices.
Administrative Staff

Superintendent . . . . . . A. R. Low, B.Sc., B.Paed., P.Eng.

General Administration:

Registrar . . . . . . . . . . . . . . . . . . . . . . . . D. H. DeBrincat

Supervisor of Curriculum, Guidance and Testing . . . . . . H. V. F. Hume, B.Sc., B.Ed.

Coordinator . . . . . . M. L. Olynyk, B.Sc., (M.E.), P.Eng.

Supervisor of Teacher Training . . . G. L. Somers, B.Sc., M.Sc.

Supervisor of Auxiliary Services . . . . . G. S. Ross, B.Sc.

Technology Division:

Principal . . . . . . . . . . . . . . . . . . . . . . . . E. B. Angood, B.Sc., (Eng.Sc.)


Industrial Division:

Principal . . . . . . . . . . . . . . . . . . . . . . . .

Shop Director . . . . . . . . . . . . . . . . . . . . S. P. Didcote, B.Sc.
Technology Division

Faculty

Gerald L. Argue, b.sc., m.sc., (bus.ed.) . . . Secretarial Science
Alex Berg, b.com . . . . . . . . . . . . . . . Business Administration
Alvin M. Bryski, b.sc., (c.e.) . . . . . . . . Civil Technology
Robert W. Cumming, b.sc., (hons.), m.c.i.c. . Physics and Chemistry
Margaret Drozd (Miss), b.sc., (bus.adm.) . . . Secretarial Science
R. A. Dunham, b.sc . . . . . . . . . . . . . . Mathematics
K. C. Foster, b.sc., (e.e.), m.i.e.e.e., p.eng. . Electrical Technology
J. A. Godes, b.s.a., m.a . . . . . . . . . . . Business Administration
G. C. Grant, b.sc., r.t.(c.s.r.t.), r.t(c.s.l.t.) Medical Radiological
A. Harms, b.sc., (m.e.) . . . . . . . . . . . Mechanical Technology
C. H. Howard, b.sc., (c.e.) . . . . . . . . . Civil Technology
C. Howlett (Miss), r.n., l.c.s.l.t . . . . . . . Medical Technology
Ellen Hirst (Miss), b.sc., a.r.t . . . . . . . . Medical Technology
C. E. Littler, b.a., man. 1st class op. eng . Operating Engineers
G. Love, b.s.e.e., m.i.e.e.e., p.eng . . . . . . . Electronic Technology
M. A. Mayer, b.sc., (eng.phys.),
m.i.e.e.e., p.eng . . . . . . . . . . . . . . . Electronic Technology
C. J. A. Maxwell, r.t., (r) r.t. (lab) . . . Medical Radiological
L. McLennan (Mrs.), l.c.s.l.t . . . . . . . Medical Technology
W. J. Patton, b.sc., (m.e.), a.sh.r.a.e., p.eng . . . . . . . Mechanical Technology
G. Perrin (Miss), b.a., b.l.s . . . . . . . . . Library Assistants
A. H. Robbins, b.sc., (e.e.), m.i.e.e.e., p.eng. . Electrical Technology
Lyman Ross, b.sc., (hons.), m.sc., m.c.i.c . . Physics and Chemistry
M. H. Sawka, b.sc., (e.e.), m.i.e.e.e, p.eng . . Electronic Technology
G. S. Thurston, b.a . . . . . . . . . . . . . . English
J. Tsujimoto (Miss), b.sc., (l.a.) . . . . . . Medical Technology
D. G. Trenholm, b.comm . . . . . . . . . Business Administration
H. Wilson, b.sc., (m.e.), p.eng . . . . . . . Mechanical Technology
### Technology Division

### Calendar of Events

#### 1964-65

Technology Courses are Available only at the
Manitoba Institute of Technology

#### 1964

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuesday</strong></td>
<td><strong>September 8th</strong> Registration—<strong>8:30 a.m.</strong> for First Term Technology Students.</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>September 9th</strong> Classes in all Technologies begin.</td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td><strong>September 22nd</strong> Final date for late registration in Technology Courses.</td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td><strong>October 12th</strong> Thanksgiving Day.</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>November 11th</strong> Remembrance Day.</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>December 23rd</strong> Institute closes for Christmas Vacation.</td>
</tr>
</tbody>
</table>

#### 1965

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monday</strong></td>
<td><strong>January 4th</strong> Institute reopens.</td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td><strong>January 4th</strong> Registration for Medical Radiological Technology.</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td><strong>January 22nd</strong> First and Third Term Final Examinations begin.</td>
</tr>
<tr>
<td><strong>Friday</strong></td>
<td><strong>January 29th</strong> First and Third Term Final Examinations end.</td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
<td><strong>January 30th</strong> Mid-term break for Technology courses begins.</td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td><strong>February 4th</strong> Registration for Second and Fourth Term Technology Courses and</td>
</tr>
<tr>
<td></td>
<td>commencement of classes.</td>
</tr>
<tr>
<td><strong>Thursday</strong></td>
<td><strong>April 15th</strong> Institute closes for Easter recess.</td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td><strong>April 20th</strong> Institute reopens after Easter recess.</td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td><strong>June 21st</strong> Final Examinations begin for Fourth Term students.</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>June 23rd</strong> Final Examinations begin for Second Term students.</td>
</tr>
<tr>
<td><strong>Tuesday</strong></td>
<td><strong>June 29th</strong> Second and Fourth Term Final Examinations end.</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td><strong>June 30th</strong> Convocation.</td>
</tr>
<tr>
<td><strong>Monday</strong></td>
<td><strong>July 5th</strong> Departmental Summer School opens.</td>
</tr>
</tbody>
</table>
Purpose of the Technology Division Program:

The Technology Division of the Manitoba Institute of Technology brings a new educational field to Manitoba. This is training at the technician level; training for high school graduates to fill the gap between the crafts and professional components of the industrial team; training to satisfy the career areas which have so rapidly expanded in need and opportunity in recent years.

Initially, ten different technology courses are offered to meet the demands of industry, business and the professions. Most of these are two year programs, as unique in instructional content as the employment demand they must satisfy. Each course offers a career avenue leading to highly interesting and self-rewarding areas of employment.

Technology courses combine knowledge with experience to teach the student to adapt theoretical concepts to proven and practical techniques. In technological education the ability to acquire, interpret and apply technical principles is paramount.

It is the aim of each course to enable the student to advantageously enter and advance in his or her chosen career. The aim presupposes the student has adequate education, learning ability and interest to follow the instructional content of the course and to meet the responsibilities of the career after training.

Requirements for Admission to Technology Courses:

All applicants for admission are required to:

1. Apply in writing using the approved application form for the Technology Division. This application must be accompanied by the $15.00 registration fee which is refundable only if the application is rejected.

2. Hold at least the minimum academic pre-requisite listed under each course.

3. Supply an official transcript of all high school marks, or supply a statement from the Principal of a high school stating that the applicant is expected to obtain the necessary credits and grades for admittance to the desired course. This statement must be substantiated by an official transcript of marks when it becomes available before the applicant can be enrolled in any course.

4. Be 16 years of age or over.

5. Be physically qualified in reference to the type of course selected.
**Book Store:**
Textbooks and supplies may be purchased from the M.I.T. Book Store on the ground floor.

**Cafeteria:**
The modern cafeteria at the Institute provides excellent, low cost meals during the mid-day break periods.

**Library:**
The Institute Library functions as a dynamic centre through which students and faculty are enabled to carry on many of their research study and recreational activities. The library collection consists of approximately 4,500 volumes and a wide selection of magazines, indexes, pamphlets and newspapers. The library provides both the breadth and the specialization of resources necessary for study in the diverse fields of Technical, Industrial and Business Education. The library is open from 8:30 a.m. to 5:00 p.m. Monday through Friday. A librarian is available for consultation at all times during library hours.

**Examinations:**
Final examinations are conducted at the end of each term. Term marks based on student assignments, progress tests, etc., are incorporated with the results of the final term examinations to determine the final term mark.

**Supplemental Examinations:**
1. A student must have a weighted average of at least 50 marks and must not have more than two subject failures in order to register for the next term. (In the Secretarial Science Course, the weighted average is higher than 50% and increases from term to term as achievement requirements increase in shorthand and typewriting).
2. If a student has subject failures but is permitted to continue into the next term, he (she) must write supplemental examinations within two weeks of the commencement of that term.
3. If failures occur in these supplemental examinations the student will be allowed to proceed with the term work but must clear these supplementals at a special examination sitting, to be given at the end of the term.
4. Any student who fails one or more supplementals after two successive sittings will be required to withdraw from the course.
5. If these subjects are later cleared in evening classes, it may be possible to re-admit the student to the day school program.

**Appeals:**
All subject failures are carefully scrutinized before the final mark is recorded. Appeals, therefore, cannot be considered unless they are substantiated by a Medical Certificate.
Certificates and Diplomas:
1. Certificates of Attainment are awarded to students who successfully complete the course in Library Assistants or Operating Engineering. It should be noted that such Certificates are awarded only after 6 months of successful employment in either of these two fields.
2. National Diplomas are awarded to students who successfully complete Technology courses of two year's duration.

The above regulations do not apply to the Medical Laboratory Technology or Medical Radiological Technology Courses.

Refunds:
1. Fees are collected on a term basis at the time of registration.
2. Where a satisfactory reason for withdrawal has been given to the Principal, he may recommend to the Superintendent that a refund be granted to the student.
3. In those cases where refunds are granted, the following will apply:

FIRST TERM STUDENTS:
(a) Students withdrawing before the final date for late registration will be granted a refund of the full amount paid less the $15.00 registration fee.
(b) Students withdrawing after the final date for late registration but before the end of the first full month of instruction will be granted a refund of the full amount paid less $35.00 ($15.00 registration fee plus $20.00 per month tuition).
(c) Students withdrawing during the second month of instruction will be granted a refund of the full amount paid less $55.00.
(d) No refunds will be granted after the second full month of instruction.

SECOND, THIRD AND FOURTH TERM STUDENTS:
(a) Students withdrawing before the end of the first full month of instruction will be granted a refund of the full amount paid less $20.00.
(b) Students withdrawing during the second month of instruction will be granted a refund of the full amount paid less $40.00.
(c) No refunds will be granted after the second full month of instruction.

Students who have been previously registered in the first term and who subsequently withdrew will not be charged the registration fee of $15.00, if they apply and are accepted for enrolment in the immediate following year.
Courses...

Business Administration

Entrance Requirements:
1. Grade XII (Business Education, General or University Entrance Course).
2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language).

Length of Course:
TWO SCHOOL YEARS, each of ten months duration, leads to a diploma in Business Administration. Each of the ten month periods is divided into two equal terms with final term examinations written at the end of each term. Classes commence in September of each year.

Fees and Expenses:
The tuition fee for the course in Business Administration is $100.00 for each of the four terms. Other expenses include books, incidentals, board and lodging.

Employment Possibilities:
During the past decade, statistics show that there has been a very significant shift of employment to office occupations. Paralleling this shift to office occupations and the rapid increase of staff, has been a comparable increase in division of responsibility. Business and Industry can no longer wait for long periods of time to completely develop selected employees for key positions in administrative and management.

There are three specific types of management, particularly in the large companies. Personnel management is concerned with the direction of employees; production management is responsible for producing goods or services; and sales management has the job of selling the goods or services produced.

For the well-trained person who possesses initiative, leadership qualities and vision, opportunities for administrative employment exist in almost every type of business enterprise in Manitoba.
# COURSE OUTLINE

## First Year

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>TERM 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G-110</td>
<td>English</td>
<td>4 0</td>
<td></td>
</tr>
<tr>
<td>G-111</td>
<td>Psychology</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>BU-101</td>
<td>Accounting</td>
<td>3 2</td>
<td></td>
</tr>
<tr>
<td>BU-102</td>
<td>Economic Principles</td>
<td>3 1</td>
<td></td>
</tr>
<tr>
<td>BU-104</td>
<td>Business Law</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>BU-103</td>
<td>Marketing</td>
<td>3 1</td>
<td></td>
</tr>
<tr>
<td>BU-105</td>
<td>North American Economic Development</td>
<td>3 0</td>
<td></td>
</tr>
<tr>
<td>BU-119</td>
<td>Typewriting</td>
<td>0 5</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Graduates from the High School Business Education Course are required to take Mathematics BU-107 in place of Typewriting. Graduates from the General or Matriculation Courses are required to take Typewriting and not Mathematics.

## TERM 2

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>HOURS</th>
<th>WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-210</td>
<td>English</td>
<td>4 0</td>
<td></td>
</tr>
<tr>
<td>G-211</td>
<td>Psychology</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>BU-201</td>
<td>Accounting</td>
<td>3 2</td>
<td></td>
</tr>
<tr>
<td>BU-202</td>
<td>Economic Principles</td>
<td>3 1</td>
<td></td>
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<tr>
<td>BU-204</td>
<td>Business Law</td>
<td>1 1</td>
<td></td>
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<tr>
<td>BU-203</td>
<td>Marketing</td>
<td>3 2</td>
<td></td>
</tr>
<tr>
<td>BU-206</td>
<td>International Economics</td>
<td>3 0</td>
<td></td>
</tr>
<tr>
<td>BU-207</td>
<td>Mathematics of Finance</td>
<td>3 1</td>
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</tbody>
</table>

**TOTAL:** 22 8

## Second Year

## TERM 3

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>HOURS</th>
<th>WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td>BU-318</td>
<td>Speech</td>
<td>1 4</td>
<td></td>
</tr>
<tr>
<td>BU-301</td>
<td>Accounting</td>
<td>3 2</td>
<td></td>
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<td>BU-308</td>
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<td>Retail Merchandising</td>
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<tr>
<td>BU-311</td>
<td>Advertising and Sales Promotion</td>
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<tr>
<td>BU-312</td>
<td>Business Finance</td>
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**TOTAL:** 19 11
TERM 4

<table>
<thead>
<tr>
<th>Course No.</th>
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<th>HOURS per WEEK</th>
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<tr>
<td>BU-413</td>
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<td>Accounting</td>
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<td>BU-414</td>
<td>Statistical Analysis</td>
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<td>Retail Merchandising</td>
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<tr>
<td>BU-416</td>
<td>Insurance Principles</td>
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</tr>
<tr>
<td>BU-417</td>
<td>Industrial and Personnel Relations</td>
<td>3</td>
</tr>
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</table>

COURSE DESCRIPTIONS

G-110 English
Review of grammar and composition; effective organization and communication of ideas; the library and literature searching.

G-210 English
This course is basically concerned with written communications; note-taking; outlines; business correspondence; report writing and essays.

BU-318 Speech
This course is basically concerned with the types of oral communication emphasizing the fundamental principles of thought, content, organization and delivery; formal speeches, panel discussions, debates, conferences, interviews, etc.

BU-413 Business Communications
This course deals with the combination of written and oral communications with individual projects assigned; dictation and writing of correspondence; report and article writing with presentation, etc. Particular emphasis is placed on the development of individual style adapted to accepted and proven techniques.

G-111 Psychology
This course is designed to help students understand self and human behaviour through study and discussion; science of psychology; normal development of the individual; individual differences; intelligence; learning and remembering; emotions and emotional behaviour; motivation and frustration; perception; attitudes and opinions; self-understanding and self-development.
G-211 Psychology
This course is concerned with personal contacts; employee relations in business and industry; customer relationships; psychology in advertising and selling; community and home relations.

BU-101 Accounting
Double entry bookkeeping routine; special journals; subsidiary ledgers and control accounts; adjustments for the preparation of financial statements; financial statements pertaining to sole proprietorship.

BU-201 Accounting
Partnership accounts, operation and liquidation; formation of limited companies; share capital and surplus, bonds and investment securities; manufacturing accounts; departmental, agency and branch accounts; analysis of financial statements.

BU-301 Accounting
This course is an introduction to cost accounting and accounting systems in modern business emphasizing the place of mechanization and automation in the accounting system.

BU-401 Accounting
The application of accounting principles by means of practical material and problems; concentration on specific projects assigned on an individual basis.

BU-102 Economic Principles
An introduction to the basic principles of economics including production, consumption, price determination, money and banking, government finance, national income, economic stability, business and labour organizations and comparative economic systems.

BU-202
& Summary of our laws of contract; guarantee and suretyship; agency, master and servant, mortgages, mechanics' liens; personal property; sale of goods; conditional sales; interest; bailment; limitation of actions; bills of exchange.

BU-104 Business Law
& A study of industrial and consumer marketing with emphasis on marketing institutions and principles including trade channels, packaging, branding, pricing, product planning and the integration of these activities into the marketing system as a whole.
BU-105 North American Economic Development
A historical study of the economic growth of North America through the 19th and 20th centuries; cause and effect up to the current situation.

BU-206 International Economics
A continuation of Course No. BU-105 with particular attention paid to specific areas such as the U.K., Western Europe and Japan and the implication with respect to Canadian Economics; a compact summary of the principle issues facing the Canadian firm in a foreign field.

BU-119 Typewriting
A course designed to permit the achievement of typewriting skill with an elementary understanding of business correspondence, manuscript, columnar arrangement and business forms.

BU-107 Mathematics
A make-up course in Mathematics to provide the necessary foundation for the courses, Mathematics of Finance and Statistics.

BU-207 Mathematics of Finance
Mathematics applied to business problems; installment payments, compound interest, annuities, investment, etc.

BU-308 Statistics
An elementary course in economic and business statistics; methods; compilation, presentation and interpretation of data.

BU-414 Statistical Analysis
Sampling and statistical inference; correlation; time series, basic concepts and preliminary adjustment, secular trend, seasonal fluctuation, cycles and forecasting; introduction to quality control; techniques in the effective application of statistical programs.

BU-309 Business Organization
The structure of business; manufacturing, wholesaling and retailing; sole proprietorships, partnerships, limited companies and cooperatives; plant location and layout; finance; personnel; office organization and practice; taxes and government control of business.

BU-415 Business Management
The principles and practices of business management, planning, organizing, actuating and controlling; the application of the principles of management to the various departments in the business structure.
BU-310 Retail Merchandising
A study of the internal merchandising mechanism of retail organizations; how to establish pricing policies; calculating markup required; controlling markdowns; controlling stock shortages; evaluating inventory by cost and retail methods; measuring stock turnover; analysing sales and stock records; planning sales and expenses; factors in profit and loss.

BU-311 Advertising and Sales Promotion
Advertising as a direct selling force and as a factor in distribution; advertising campaigns; analysis of mediums, commodities and markets. Selling policies; sales and market research; sales programs and promotion.

BU-312 Business Finance
A course to provide fundamental knowledge in finance and the basic workings of our financial system and to develop skill in solving financial problems; financial analysis and control; planning; cash flow; sources of business funds; investments and expansion.

BU-416 Insurance Principles
Principles of risk management and insurance; nature of risk, economic effects; law of large numbers and theory of insurance; history and development of insurance as an institution; types of carriers; the various types of insurance contracts and their interpretation; risk management; the functional departments of an insurer; regulation of insurance companies.

BU-417 Industrial and Personnel Relations
A survey of the multiple facets of personnel management, including the principle problems and the techniques of their solutions.
Civil Technology

Entrance Requirements:

1. Grade XII standing (Vocational Industrial, General or University Entrance Course) with demonstrated proficiency in English, Mathematics and Physical Science (i.e. chemistry and physics).

2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language).

Length of Course:

TWO SCHOOL YEARS, each of ten months duration, leads to a diploma in Civil Technology. Each of the ten month periods is divided into two equal terms with final term examinations written at the end of each term. Classes commence in September of each year.

Fees and Expenses:

The tuition fee for the course in Civil Technology is $100.00 for each of the four terms. Other expenses include textbooks, incidentals, board and lodging.
Employment Possibilities:

As a technician, the graduate in Civil Technology holds a key between the engineer and the tradesman, between theory and construction. He is trained to adapt engineering theory to construction and trades techniques. His work is often described as developmental, covering the stages between engineering concepts and physically complete projects.

Either option of the program provides the graduate with a great variety of job possibilities in the civil field. These include positions as technicians in drafting and design, as construction supervisors, as inspectors, as estimators, as material testers, as members of surveying teams, etc. Consulting engineers, municipalities, construction firms, highways departments, railways, offer many of the employment avenues open. The graduate may well find an interesting career in the sales and management field of the building materials or heavy equipment industries.

COURSE OUTLINE

First Year

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course</th>
<th>TERM 1</th>
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<tbody>
<tr>
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<tr>
<td>C-106</td>
<td>Drafting</td>
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<tr>
<td>C-109</td>
<td>Mathematics</td>
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<tr>
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<td>English</td>
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<tr>
<td>C-101</td>
<td>Construction Materials</td>
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<tr>
<td>C-102</td>
<td>Statics (Mechanics)</td>
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<tr>
<td>C-103</td>
<td>Surveying</td>
<td>2</td>
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</tbody>
</table>

|            |                         | TERM 2                                                                 |
|            |                         | HOURS per WEEK                                                        |
|            |                         | Lect. | Lab.                               |
| C-209      | Mathematics*            | 3     | 3                                  |
| C-211      | Drafting                | 2     | 3                                  |
| C-203      | Surveying               | 2     | 3                                  |
| C-204      | Construction Practices  | 3     | 3                                  |
| C-205      | Strength of Materials   | 4     | 3                                  |
|            |                         | 14    | 15                                 |

*One hour of tutorial time is available for all students directed to attend.

Note: Following the termination of Term 2 and prior to the beginning of Term 3 the student, with the guidance of the school authorities, will decide to follow one of two options open to him. The options are: Structural; Highway-Municipal. They are designed to provide the most thorough possible training in either of the specialties chosen.
## Second Year

### Structural Option

<table>
<thead>
<tr>
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<tr>
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<tr>
<td>C-305</td>
<td>Strength of Materials</td>
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<tr>
<td>C-306</td>
<td>Reinforced Concrete Design</td>
<td>4</td>
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<tr>
<td>C-307</td>
<td>Structural Steel Design</td>
<td>3</td>
</tr>
<tr>
<td>C-308</td>
<td>Theory of Structures</td>
<td>3</td>
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<td>C-309</td>
<td>Timber Structural Design</td>
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### TERM 4

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<td>C-406</td>
<td>Reinforced Concrete Design</td>
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<tr>
<td>C-408</td>
<td>Theory of Structures</td>
<td>3</td>
</tr>
<tr>
<td>C-410</td>
<td>Design of Foundations</td>
<td>3</td>
</tr>
<tr>
<td>C-411</td>
<td>Bridge Design</td>
<td>3</td>
</tr>
<tr>
<td>C-412</td>
<td>Specifications and Report</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
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</table>

### Highway Municipal Option

#### TERM 3

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<th>Course No.</th>
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<th>HOURS per WEEK</th>
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</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>C-310</td>
<td>Street Design — Detailed Drawings &amp; Survey</td>
<td>4</td>
</tr>
<tr>
<td>C-311</td>
<td>Highway Design-Detail Drawings &amp; Survey</td>
<td>4</td>
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<tr>
<td>C-312</td>
<td>Hydraulics</td>
<td>2</td>
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<tr>
<td>C-313</td>
<td>Asphalt Mix Design &amp; Control</td>
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<tr>
<td>C-314</td>
<td>Concrete Mix Design &amp; Control</td>
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#### TERM 4

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<tr>
<td>C-415</td>
<td>Sewer Design, Detailed Drawings &amp; Survey</td>
<td>4</td>
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<tr>
<td>C-416</td>
<td>Water Distribution System Design — Detailed Drawings &amp; Survey</td>
<td>3</td>
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<tr>
<td>C-417</td>
<td>Traffic Control</td>
<td>2</td>
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<td>C-418</td>
<td>Soil Mechanics</td>
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<tr>
<td>C-419</td>
<td>Geology</td>
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<td>C-420</td>
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COURSE DESCRIPTIONS

C-106 Drafting
Principles of engineering drawing based on Canadian standards; lettering; instruments and their use; blueprint reading, geometrical drawing; pictorial representation, orthographic projections, sectional views, auxiliary views; isometric and other forms of pictorial drawings, dimensioning; special projects.

C-109 Mathematics*
Computations with measured quantities, approximations, units, slide rule; Algebra, language, linear function, simultaneous equations, theory of exponents, quadratic function, logarithms; Trigonometry, basic, solution of right triangles, vectors, analytical trigonometry, oblique triangles, algebraic and trigonometric equations; Complex numbers, introduction, vector representation, operators, polar form; Graphs, straight line, curve plotting, conics; Derivatives and Integrals, introduction, functional notation, rules for differentiation, integration, simple integral formulas, area under a curve, basic applications.

C-110 English
Technical writing problems; business letters; types of technical letters; the formal technical report; informal and memoranda reports; the technical and semi-technical article; language essentials and types of technical exposition; speaking techniques; selected biographies; short stories and essays.

C-101 Construction Materials

**Asphalt:** Sources and uses of asphalts, nomenclature, tests and specifications for paving materials; design of asphalt mixes; bituminous concrete and sheet asphalt; surface treatment.

**Masonry:** Types of brick, properties of natural stone, expansion joints, waterproofing.

**Steel:** Manufacture and properties of structural and reinforcing steel. Electric arc welding techniques and operator
variables; joint design and edge preparation; electrodes; procedure development, testing, inspection practices and procedure controls; codes and standards; oxyacetylene cutting, manual and automatic.


**Timber:** Production, species and grading of lumber. Protective treatments.

**Thermoplastics:** Polyethylene film flashings, expansion joints. Curtain wall materials and construction.

**C-102 Statics (Mechanics)**
Newton’s Laws of motion and a review of the dynamics of a particle leading to the special case of zero acceleration. Statics of a particle; truss analysis. Statics of plane bodies; Friction. Statics of a particle in space. Statics of a body in space.

**C-103 Surveying**
Use and adjustment of Transit and Levels; differential levelling; methods of surveying traverses; method of balancing closed surveys.

**C-209 Mathematics***
The development of Applied Differential and Integral Calculus; rates of change, maxima and minima, curve tracing, implicit functions, applied problems involving maxima and minima, arc lengths, areas, volumes, centroids, work, pressure, moments of inertia; elementary differential equations of the first and second order applied to common technological problems.

**C-211 Drafting**
(a) Architectural Detailing—Standard Methods of Detailing various construction materials in architectural and structural drawings. Masonry walls and method of bonding to back; methods of supporting masonry to steel and reinforced concrete structures; lintels; door frames; window details; wall sections; foundation plans; flashing; corner details; stair details; elevator details.

(b) Elements of mapping; plotting from field notes for topographical maps; profiles.

**C-203 Surveying**
Topographical surveying using plane table stadia method; establishing grade lines; cross-sectioning; computation of areas and volumes; horizontal and vertical curves.

**C-204 Construction Practices**
Tools and their use; in carpentry, electrical wiring, bricklaying, masonry, plumbing and welding; acquaintanceship
with the techniques of the various construction trades; such as the making of joints in carpentry and in welding; the National Building Code. This course will include a series of shop periods.

**C-205 Strength of Materials**

& **C-305**

Force analysis; free body balance; the basic conditions of static equilibrium; stress, strain and the elastic moduli; Poisson’s ratio; bolted and welded joints; first and second moments of area; polar moments; the torsion equation applied to circular sections; shear force and bending moment diagrams; the bending equation; shear stress due to bending; design of simple beams; the bending equation as applied to reinforced concrete beams; the moment-area theorem; deflection of simply-supported and fixed beams; Euler’s theory; practical design of intermediate columns for axial and eccentric loading using the A.I.S.C. handbook; complex stress systems; principal-stresses; Mohr’s circle. This course includes the appropriate laboratory work.

### STRUCTURAL OPTION

**C-306 Reinforced Concrete Design**


**C-307 Structural Steel Design**

Design of simple and continuous beams and plate girders; riveted connections; welded connections; columns; eccentric connections; column base plates.

**C-308 Theory of Structures**

Moment-area method; moment distribution methods; frames bents; wind stress analysis in tall buildings; earthquake analysis; two-cycle moment distribution.

**C-309 Timber Structural Design**

Beams; columns; spaced columns; laminated three-hinged arch; connections.

**C-406 Reinforced Concrete Design**

Design of continuous beams on the basis of rectangular sections to demonstrate the following: design of continuous T-beams; detailing and scheduling practice; design of columns for axial load and moment; design of various floor systems e.g., retaining walls; footings — simple, strap, cantilever. Principles of pre-stressed concrete design.
C-408 Theory of Structures
Moving loads; influence lines; highway loads; highway bridge design criteria; method of least work; method of vertical work; influence lines from the deflected structure; slope deflection equations.

C-410 Design of Foundations
Spread footings; cantilever footings; strap footings; pile foundations; pre-cast piles; poured-in-place piles; caissons; pile driving; bearing values; live-load assumptions.

C-411 Bridge Design
The design of simple bridges; design of rigid frame buildings.

C-412 Specifications and Report
Forms of contract; specification writing for foundations; excavation; shoring; structural elements of bridges and buildings.

HIGHWAY — MUNICIPAL OPTION

C-310 Street Design — Detailed Drawings and Survey
The preparation of estimates, detailed plans — profiles and design for streets including drainage requirements, setting grades, alignment requirements and the load carrying capacity of various types of pavements. The control and relationship of various utilities in streets. The methods of taking preparatory information required for the preparation of street plans and profiles. The methods of controlling line, grade, earthwork quantities during construction.

C-311 Highway Design — Detailed Drawings and Survey
The preparation of estimates, detailed plans, profiles and design, for highways, including drainage requirements, setting grades, alignment requirements and the load carrying capacity of various types of pavements. The methods of taking preparatory information required for the preparation of highway plans and profiles. The methods of controlling line, grade, earthwork quantities during construction.

C-312 Hydraulics
Hydrostatics: intensity of pressure, pressure head, measuring pressure; center of pressure; pipes under pressure; pressure on submerged bodies, buoyancy. Fluid motion, Bernoulli’s theorem, continuity equation, momentum equation. Measurement of flow with orifices, weirs and Venturi meters; laminar and turbulent flow; flow in pipes; Chezy and Manning’s equations and their use in open channels.

C-313 Asphalt Mix Design and Control

C-314 Concrete Mix Design and Control

C-415 Sewer Design — Detailed Drawings and Survey
The preparation of estimates and the design of storm and sanitary sewers. The preparation of detailed plans required for the construction of storm and sanitary sewers. The methods of obtaining preparatory information required for the preparation of sewer design and drawings. The methods of controlling sewer installations during construction. This course will include the fundamentals of sanitary sewage treatment and disposal.

C-416 Water Distribution System Design — Detailed Drawings and Survey
The preparation of estimates and the design of water distribution systems. The preparation of detailed plans required for the construction of water mains. The methods of obtaining preparatory information required for the preparation of water main design and drawings. The methods of controlling watermain installations during construction.

C-417 Traffic Control
The function of various types of Streets and Highways. Transportation systems, land use, and Town Planning. The methods of determining traffic volumes and the assignment of volumes to the various streets or highways in a system. The procedure of determining the type and location of major thoroughfares and highways. Intersection design — traffic control devices.

C-418 Soil Mechanics
Nature of soils. Soil description and classifications. Physical properties. Methods of field and laboratory investigations, and interpretations of test results. Application of test results to practical problems — construction of fills and subgrades, borrow material, drainage, frost action, etc.

C-419 Geology
This course is directly concerned with basic geological considerations related to procedures and techniques employed in the Civil field.

C-420 Technical Report
Electrical Technology

Entrance Requirements:

1. Grade XII standing (Vocational Industrial, General or University Entrance Course) with demonstrated proficiency in English, Mathematics and Physical Science (i.e. chemistry and physics).

2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language.)

Length of Course:

TWO SCHOOL YEARS, each of ten months duration, leads to a diploma in Electrical Technology. Each of the ten month periods is divided into two equal terms with final term examinations written at the end of each term. Classes commence in September of each year.

Fees and Expenses:

The tuition fee for the course in Electrical Technology is $100.00 for each of the four terms. Other expenses include textbooks, incidentals, board and lodging.
Employment Possibilities:

Electricity and electrical apparatus are intimately associated with virtually every industry and home in Canada. Electrical Technicians with adequate training have opportunities to secure positions in practically all phases of this vibrant and fascinating industry. These include positions as draftsmen, testers, estimators, research assistants, instrument technicians, development technicians, planners, installation and maintenance technicians, technical salesmen and customer service consultants. Consulting engineers, power companies, manufacturers, government agencies, contractors and distributors, are some of the groups offering employment in this field.

COURSE OUTLINE

First Year

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>TERM 1</th>
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<tbody>
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<td>HOURS per WEEK</td>
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<tr>
<td>G-101</td>
<td>English</td>
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<tr>
<td>G-102</td>
<td>Mathematics*</td>
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<td>G-104</td>
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<td>E-101</td>
<td>Wiring Practices — Electrical</td>
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<td>E-102</td>
<td>Electrical Fundamentals</td>
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<tr>
<td>E-103</td>
<td>Basic Electrical Instruments</td>
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TERM 2

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<td>G-205</td>
<td>Chemistry</td>
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<td>Electrical Fundamentals</td>
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* One hour of tutorial time is to be available for all students directed to attend.
Second Year

<table>
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<td>Specifications</td>
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<td>E-304</td>
<td>Electrical Circuits</td>
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<td>E-311</td>
<td>Control Systems</td>
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<td>E-313</td>
<td>Electrical Measurements</td>
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TERM 4

<table>
<thead>
<tr>
<th>Course No.</th>
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<td>E-405</td>
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<td>E-406</td>
<td>Control Systems</td>
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<tr>
<td>E-407</td>
<td>Illumination System Layouts</td>
<td>1</td>
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<tr>
<td>E-408</td>
<td>Electronics</td>
<td>2</td>
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<tr>
<td>E-410</td>
<td>Switchgear and Protection Devices</td>
<td>2</td>
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<tr>
<td>E-413</td>
<td>Electrical Measurements</td>
<td>2</td>
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</table>

COURSE DESCRIPTIONS

G-101 English
Use of the dictionary; sentence structure, punctuation; note-taking; writing precis and paraphrases; essays.

G-102 Mathematics *
Numbers and their significance in making computations with measured values; powers of numbers, logarithms and the slide rule; trigonometry; vectors, complex numbers.

G-103 Physics
Temperature measurement, thermal expansion, radiation, conduction and convection.
Elementary principles of light and sound.

G-104 Engineering Drawing
Principles of engineering drawing based on Canadian standards; lettering; instruments and their use; blueprint reading; geometrical drawing.
E-101  **Wiring Practices—Electrical**  
Wire tables; conductors used and their properties; tools; conduits, gutter boxes, wireways; the National Electrical Code.

E-102  **Electrical Fundamentals**  
Systems of units; charge, current, voltage, power and energy; electric and magnetic fields; Coulomb's Law; capacitive, inductive and resistive effects; Ohm's Law, Kirchhoff's Laws, frequency; impedance; complex quantities; resonance.

E-103  **Basic Electrical Instruments**  
Forces on conductors carrying current in magnetic fields; the forces between magnetic poles; the D'Arsonval movement; the ballistic galvanometer; the D'Arsonval galvanometer; voltmeters, ammeters; the use of shunts; clip-on ammeters; the Wheatstone bridge; the Kelvin double bridge; the potentiometer and its use; the megger and its use.

G-201  **English**  
Technical writing; business letters; the library and literature searching; technical reports; technical and semi-technical publications.

G-202  **Mathematics**  
Algebra, algebraic and trigonometric equations; curve plotting; conic sections; differentiation and integration.

G-205  **Chemistry**  
Basic chemical principles and specific chemistry of halogens, hydrocarbons and silicates.  
Matter — atomic structure, atomic number; isotopes; electrical nature of matter; electro-chemical action; electro-plating; corrosion.

G-204  **Engineering Drawing**  
Pictorial representation, orthographic projections, sectional views, auxiliary views; Isometric and other forms of pictorial drawings, dimensioning; special projects.

E-201  **Wiring Practices — Electrical**  
Project assignment which requires exercise of subject matter in E-101.

E-202  **Electrical Fundamentals**  
Polyphase systems; measurement of three-phase power; power systems; transformers and their use in single and three-phase systems.
E-203 Basic Electrical Instruments
Impedance bridges; the vacuum-tube voltmeter; the cathode-ray oscilloscope.

G-302 Mathematics
Differential and Integral Calculus; rates of change, maxima and minima; curve tracing; arc lengths, areas, volumes, centroids, moments of inertia.

G-306 Specifications
Preparation and interpretation of specifications; standards CSA, IRE, IEEE, etc.

E-304 Electrical Circuits
Kirchoff's Laws; loop and nodal analysis; response of networks in determinantal form; four-terminal networks.

E-305 Electrical Machines
Synchronous machines; induction motors, single, two and three-phase.

E-308 Electronics
Electron ballistics; motion of charged particles in vacuum and gases; vacuum and gas filled tubes; amplifiers, oscillators.

E-309 Electrical Drafting
CSA, IEEE, etc., symbols; electrical lay-out; drawing projects.

E-311 Control Systems
Equations of physical systems; hydraulic, pneumatic, mechanical and electrical components of physical systems; analogues; transfer functions. (Emphasis on the power implications.)

E-313 Electrical Measurements
Instrument transformers; the clip-on ammeter; electrostatic voltmeters; polyphase wattmeters; induction watthour meters; recording meters.

G-402 Mathematics
Elementary differential equations; Boolean algebra; analogue and digital computer operations.

G-407 Economics
Depreciation; overhead, cost of materials; labour and expenses; financial statements; production economics.

E-405 Electrical Machines
Induction motors continued from E-305. Synchronous converters, polyphase induction regulators, phase converters, etc.
E-406 Control Systems
Performance evaluation of proportional error, derivative and integral control systems; recorders; use of computers in the control system field.

E-407 Illumination System Lay-out
Sources of light—candle power, brightness, level of illumination, etc.; basic features of good lighting, absence of glare, uniformity, etc.; types of luminaires and their radiation patterns; power supply for illumination systems.

E-408 Electronics
Modulators and demodulators; photo-electric devices; rectifiers; semi-conductor devices; magnetic amplifiers, etc.

E-410 Switch Gear and Protection Devices
Various types of switches, various types of relays, various types of circuit breakers, etc.

E-413 Electrical Measurements
Extension of topics listed under E-313.

Electronic Technology

Entrance Requirements:

1. Grade XII standing (Vocational Industrial, General or University Entrance Course with demonstrated proficiency in English, Mathematics and Physical Science (i.e. chemistry and physics).

2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language.)

Length of Course:

TWO SCHOOL YEARS, each of ten-months duration, leads to a diploma in Electronics Technology. Each of the ten month periods is divided into two equal terms, with final term examinations written at the end of each term. Classes commence in September of each year.

Fees and Expenses:

The tuition fee for the course in Electronics Technology is $100.00 for each of the four terms. Other expenses include textbooks, incidentals, board and lodging.
Employment Possibilities:

The studious Electronics Technician is limited only by his personal horizon. There is a place in research and development with government agencies and industrial laboratories, in installation and maintenance with communications organizations, in design, in development and production with manufacturers, in technical sales and marketing with industrial distributing firms — there is, in fact, a place for the well qualified technician wherever electronics equipment is utilized.

COURSE OUTLINE

First Year

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>TERM 1</th>
<th>HOURS per WEEK</th>
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<tr>
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<tr>
<td>G-102</td>
<td>Mathematics*</td>
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<tr>
<td>G-103</td>
<td>Physics</td>
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<td>3</td>
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<td>G-104</td>
<td>Engineering Drawing</td>
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<td>E1-101</td>
<td>Wiring Practices — Electronic</td>
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<td>E1-102</td>
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TERM 2

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<td>G-205</td>
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<td>Wiring Practices — Electronic</td>
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<td>Electronic Fundamentals</td>
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<td>E1-203</td>
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* One hour of tutorial time is to be available for all students directed to attend.
## Second Year

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<td>Specifications</td>
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<td>EL-304</td>
<td>Electronic Devices</td>
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<td>EL-312</td>
<td>Electromechanical Devices</td>
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<td>EL-305</td>
<td>Electrical Drafting</td>
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<td>EL-306</td>
<td>Electrical Measurements</td>
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<td>Control Systems</td>
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<td>EL-407</td>
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<td>EL-403</td>
<td>Electronic Circuits &amp; Fields</td>
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<td>EL-404</td>
<td>Electronic Devices</td>
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**TERM 4**

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<td>G-407</td>
<td>Economics</td>
<td>1 0</td>
</tr>
<tr>
<td>EL-403</td>
<td>Electronic Circuits &amp; Fields</td>
<td>2 2</td>
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<tr>
<td>EL-404</td>
<td>Electronic Devices</td>
<td>2 3</td>
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<td>EL-412</td>
<td>Electromechanical Devices</td>
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<td>EL-405</td>
<td>Electrical Drafting</td>
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<td>EL-406</td>
<td>Electrical Measurements</td>
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<td>EL-407</td>
<td>Control Systems</td>
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<table>
<thead>
<tr>
<th></th>
<th>COURSE DESCRIPTIONS</th>
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<tbody>
<tr>
<td><strong>G-101 English</strong></td>
<td>Use of the dictionary; sentence structure; punctuation; note-taking; writing precis and paraphrases; essays.</td>
</tr>
<tr>
<td><strong>G-102 Mathematics</strong></td>
<td>Numbers and their significance in making computations with measured values; powers of numbers, logarithms and the slide rule; trigonometry; vectors, complex numbers.</td>
</tr>
<tr>
<td><strong>G-103 Physics</strong></td>
<td>Temperature measurement, thermal expansion, radiation, conduction and convection. Elementary principles of light and sound.</td>
</tr>
<tr>
<td><strong>G-104 Engineering Drawing</strong></td>
<td>Principles of engineering drawing based on Canadian standards; lettering; instruments and their use; blueprint reading; geometrical drawing.</td>
</tr>
<tr>
<td><strong>EL-101 Wiring Practices — Electronic</strong></td>
<td>Conductor materials used and their properties; color codes; tools; soldering; layout practices; preparation and treatment of chassis.</td>
</tr>
<tr>
<td><strong>EL-102 Electronic Fundamentals</strong></td>
<td>Systems of units; charge, current, voltage, power and energy; electric and magnetic fields; Coulomb's Law;</td>
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</tbody>
</table>
capacitive, inductive and resistive effects; motion of charged particles in electric and magnetic fields; Ohm's Law; Kirchoff's Laws.  
(Note: Emphasis should be placed on the motion of charged particles in electric and magnetic fields.)

**E-103 Basic Electrical Instruments**
Forces on conductors carrying current in magnetic fields; the forces between magnetic poles; the D'Arsonval movement; the ballistic galvanometer; the D'Arsonval galvanometer; voltmeters; ammeters; the use of shunts; clip-on ammeters; the Wheatstone bridge; the potentiometer and its use; the megger and its use; the Kelvin double bridge.

**G-201 English**
Technical writing; business letters; the library and literature searching; technical reports; technical and semi-technical publications.

**G-202 Mathematics**
Algebra, Algebraic and trigonometric equations; curve plotting; conic sections; differentiation and integration.

**G-205 Chemistry**
Basic chemical principles and specific chemistry of halogens, hydrocarbons and silicates.  
Matter — atomic structure, atomic number; isotopes; electrical nature of matter; electro-chemical action; electro-plating; corrosion.

**E1-204 Engineering Drawing.**
Pictorial representation, orthographic projections, sectional views, auxiliary views; Isometric and other forms of pictorial drawings, dimensioning; special projects.

**E1-201 Wiring Practices — Electronic.**
Project assignment which requires exercise of subject matter in E1-101 — standard symbols.

**E1-202 Electronic Fundamentals.**
Alternating currents and voltages; impedance; complex quantities; resonance, vacuum tubes; gas-filled tubes; semi-conductors; rectifiers and filters.

**E1-203 Basic Electrical Instruments.**
Impedance bridges; the vacuum-tube voltmeter; the cathode-ray oscilloscope.

**G-302 Mathematics.**
Differential and Integral Calculus; rates of change, maxima and minima, curve tracing; arc lengths, areas, volumes, centroids, moments of inertia.

**G-306 Specifications.**
Preparation and interpretation of specifications; standards CSA, IRE, IEEE, etc.
El-303 Electronic Circuits.
Kirchhoff's Laws; loop and nodal analysis; circuit response in determinantal forms; circuits of electronic devices such as amplifiers and oscillators.

El-304 Electrical Devices.
Amplifiers, oscillators, modulators, vibrators, etc.

El-312 Electromechanical Devices.
Synchronous machines; induction motors; transducers; synchros.

El-305 Electrical Drafting.
IEEE symbols and their use in drawing electrical circuits; lay-out of electronic circuits; drawing assignments.

El-306 Electrical Measurements.
Instrument transformers, null-detectors; electronic measuring instruments.

El-307 Control Systems.
Equations of physical systems; hydraulic, pneumatic, mechanical and electrical; components of physical systems; transfer functions. (Emphasis on the electronic implications).

G-402 Mathematics.
Elementary differential equations; Boolean algebra; analogue and digital computer operations.

G-407 Economics.
Depreciation; overhead; cost of materials; labour and expenses; financial statements; production economics.

El-403 Electronic Circuits & Fields.
Transmission lines; parameters and equations; high frequency applications of transmission lines; guided electromagnetic waves; selected types in microwave antennae and propagation.

El-404 Electronic Devices
The analysis and design of amplifiers, oscillators, detectors, modulators and wave-shape circuits, etc.

El-412 Electromechanical Devices.
Continuation of topics under E-312.

El-405 Electrical Drafting.
Project drawings in electronics.

El-406 Electrical Measurements.
High frequency and ultra-high frequency measuring devices.

El-407 Control Systems.
Performance evaluation of proportional error, derivative and integral control systems; figures of merit; use of recorders, etc.
Library Assistants

Entrance Requirements:
1. Grade XII standing (General or University Entrance Course) with demonstrated proficiency in English.
2. For the present, complete Junior Matriculation or its equivalent if secured prior to December 31, 1963.

Length of Course:
ONE SCHOOL YEAR (approximately ten months), divided into two equal parts, with final examinations written at the end of each term. During second term, practical experience will be gained by working in a library of recognized standing. Classes commence in September of each year.

**Fees and Expenses:**
The tuition fee for the course in Library Assistants is $100.00 for each of the two terms. Other expenses include textbooks, incidentals, board and lodging.

Nature of Programme:
The course is designed for high school graduates desiring to work in a library.
Since libraries have become more and more specialized in their functions, the Library Assistants course is designed to provide the basic training and knowledge to enable the graduate to adapt readily and quickly into any library system. The scope of the Course is sufficiently broad and detailed to give the student thorough preparation for general library work wherever he or she may find employment.

**Note:**

See Page 6 for details re Training for Unemployed Persons under Schedule "M" Agreement.

### COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>TERM 1</th>
<th>HOURS per WEEK</th>
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<td>L-101</td>
<td>Librarianship</td>
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<tr>
<td>L-102</td>
<td>Organization of Libraries</td>
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<tr>
<td>L-103</td>
<td>Cataloguing &amp; Classification</td>
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<tr>
<td>L-104</td>
<td>Reference</td>
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<td>L-105</td>
<td>Literature</td>
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**TERM 2**

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<tr>
<td>L-201</td>
<td>Administration</td>
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<td>L-202</td>
<td>Library Techniques</td>
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<td>L-203</td>
<td>Special Libraries</td>
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<tr>
<td>L-204</td>
<td>Book Selection &amp; Ordering</td>
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<tr>
<td>L-205</td>
<td>Literature</td>
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<td>*Practical Work</td>
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</table>

* From March through May, students spend five half days per week in established libraries for practical experience.
COURSE DESCRIPTIONS

L-101 Librarianship.
Definition and History; Types; Work and purpose of libraries; Work of professional librarian; Work of library assistants; Work and place of library association.

L-102 Organization of Libraries.
Development of public libraries; Objectives; Standard of service; Library legislation; Relations of province, municipal and city libraries regarding finances; Trustees and library boards; Regional libraries and municipal libraries; Library co-operation; Departments within libraries — functioning of each.

L-103 Cataloguing and Classification.
Purpose; Dewey decimal system; The Catalogue (a) card form (b) use of the catalogue (c) subject headings (d) filing cards.

L-104 Reference.
Basic reference books; Government documents; Bibliography, what it is and how it assists.

L-105 Literature.
Classics; Canadian authors; British and American authors.

L-201 Administration.
Organizing a day’s work; Public relations — displays, adult education, talks; Responsibility of librarian to library, to library board, to community; Writing an annual report; Preparing a budget; Statistics; Circulation systems.

L-202 Library Techniques.
Circulation systems; Interlibrary loans; discarding; Shelving and inventory; Binding and repair of books.

L-203 Special Libraries.
Government libraries; Academic libraries; Business and Industrial libraries; Work with children and young people. Literature of the special library; Source of material; Printed aids for book selection.

L-204 Book Selection and Ordering.
Needs of community; Printed aids; How and where to order; Discounts; Donations; Periodicals: vertical file (information file).

L-205 Literature.
History; Canadian literature; Modern American literature.
Mechanical Technology

Entrance Requirements:

1. Grade XII standing (Vocational Industrial, General or University Entrance Course) with demonstrated proficiency in English, Mathematics and Physical Science (i.e. chemistry and physics).

2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language).

Length of Course:

TWO SCHOOL YEARS, each of ten months duration, leads to a diploma in Mechanical Technology. Each of the ten month periods is divided into two equal terms with final term examinations written at the end of each term. Classes commence in September of each year.

Fees and Expenses:

The tuition fee for the course in Mechanical Technology is $100.00 for each of the four terms. Other expenses include textbooks, incidentals, board and lodging.

Employment Possibilities:

As a technician the graduate in Mechanical Technology holds a key spot between the engineer and the skilled tradesman between theory and production. He is trained to adapt engineering theory to production and trades techniques. His work is often described as developmental, covering the stages between engineering concepts and physically completed products or jobs.

The breadth of the courses with their specialized areas provide the graduate with a great variety of job possibilities in the mechanical field. These include positions in mechanical drafting and design, machine and tool design, manufacturing, production, fabrication, equipment installation and maintenance, instrumentation, materials testing, estimating, technical sales, supervision and inspection.
COURSE OUTLINE

First Year

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>TERM 1</th>
<th>HOURS per WEEK</th>
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<tr>
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<td>Mathematics&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>Physics</td>
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<td>Engineering Drawing</td>
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<td>Electrical Fundamentals</td>
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<td>Manufacturing Processes</td>
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TERM 2

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<tr>
<td>M-205</td>
<td>Strength of Materials</td>
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</tbody>
</table>

NOTE: Term 4 offers two separate options.
At the termination of Term 3, and with the guidance of the school authorities,
the student will decide which of the two he will follow as his specialty. The two options are: Heat and Power; Production Technology. Three courses are common to each option, with all other courses different and arranged to provide the best possible training for either specialty.

TERM 4

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>HOURS per WEEK</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>HEAT AND POWER</td>
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<td>LAB.</td>
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<td>M-406</td>
<td>Applied Thermodynamics</td>
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<tr>
<td>M-410</td>
<td>Control Engineering</td>
<td>2</td>
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<tr>
<td>M-411</td>
<td>Design and Drawing</td>
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<td>M-412</td>
<td>Technical Report</td>
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<td>2</td>
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<td>M-413</td>
<td>Heating and Ventilating</td>
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<td>Refrigeration</td>
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<td>M-415</td>
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TERM 4

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<th>COURSE</th>
<th>HOURS per WEEK</th>
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<td>M-403</td>
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<td>M-410</td>
<td>Control Engineering</td>
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<tr>
<td>M-412</td>
<td>Technical Report</td>
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<tr>
<td>M-416</td>
<td>Metallurgy</td>
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<tr>
<td>M-417</td>
<td>Machine &amp; Tool Design</td>
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<tr>
<td>M-418</td>
<td>Production Planning &amp; Control</td>
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</tr>
<tr>
<td>M-419</td>
<td>Quality Control</td>
<td>1</td>
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</tbody>
</table>

COURSE DESCRIPTIONS

G-101 English
Use of the dictionary; sentence structure; punctuation; notetaking; writing precis and paraphrases; essays.

G-102 Mathematics
Numbers and their significance in making computations with measured values; powers of numbers, logarithms and the slide rule; trigonometry; vectors, complex numbers.

G-103 Physics
Temperature measurement, thermal expansion, radiation, conduction and convection.
Elementary principles of light and sound.
M-104 Engineering Drawing
Principles of engineering drawing based on Canadian standards; lettering; instruments and their use; blueprint reading; geometrical drawing; pictorial representation; orthographic projections, sectional views, auxiliary views; Isometric and other forms of pictorial drawings, dimensioning; special projects.

M-105 Economics
A general study of economics as applied to engineering studies: break-even charts, supply and demand, cost of material, labour and expenses, overhead, pay-out analysis, financial statements, marketing and contract law, production economics.

M-101 Engineering Materials
Steel, non-ferrous metals, organic materials and ceramic materials — a general study of Engineering Materials.

M-102 Electrical Fundamentals
An introductory course dealing with the fundamentals of electricity, basic electrical units, batteries, principles of Direct Current, circuits, magnetism.

M-103 Manufacturing Processes
Machine tool setting and operation; layout and use of hand tools; the theory and practice of machining principles and their application to standard production equipment. Piping, plate and sheet metal work; preparation of shop drawings and production schedules, including jigs and fixtures for special operations, Principles and practices of welding.

G-201 English
Technical writing; business letters; the library and literature searching; technical reports; technical and semi-technical publications.

G-202 Mathematics
Algebra, algebraic and trigonometric equations, curve plotting; conic sections; differentiation and integration.

G-205 Chemistry
Basic chemical principles and specific chemistry of halogens, hydrocarbons and silicates. Matter — atomic structure, atomic number; isotopes; electrical nature of matter; electro-chemical action; electro-plating; corrosion.

M-202 Electrical Fundamentals
Resistance, capacitance, inductance, reactance, principles of Alternating Current circuits; fundamentals of electrical measurements and fundamentals of electronics.
M-203 Manufacturing Processes

A study in theory and practices of metal joining, foundry practice, heat treatment processes including industrial furnaces, electro-chemical processes and materials handling.

M-204 Applied Mechanics

Statics: force and vectors, resolution of forces, free body diagram, equilibrium, simple frames, laws of dry friction, first and second moments of area.
Dynamics: rectilinear and circular motion, force, motion and mass moment of inertia, work, energy and momentum.

M-205 Strength of Materials

Poisson’s ratio, stress strain relationship, temperature stresses, pressure cylinders, torsion, welded joints, torque, shear and bending; simply supported beams, design of beams, columns; selection of suitable sections for beams and columns; tensile, fatigue, hardness, impact and experimental stress analysis.

G-302 Mathematics

Differential and Integral Calculus; rates of change, maxima and minima; curve tracing; arc lengths, areas, volumes, centroids, moments of inertia.

M-301 Engineering Materials

A continuation of course M-101; including principles of heat treatment, protective coatings and a study of material specifications. Laboratory work will include acceptance testing of common structural materials, non-destructive testing and metallography.

M-306 Elementary Applied Thermodynamics

The study of the conversion of heat and energy; thermodynamic laws and processes; heat engines and their cycles; gases, vapours and mixtures with an introduction to air compression and refrigeration cycles.

M-307 Mechanical Design

Application of strength of materials to mechanical design, with reference to code and manufacturers’ catalogue, to design of machine elements such as couplings, clutches and drive mechanisms. Force and stress analysis of welded and riveted joints; belt drives, shafts, springs, bearings, storage tanks and pressure vessels, fasteners, fatigue.

M-308 Mechanical-Electrical Equipment

A general study of the mechanical and electrical services of buildings. Electric motors; controls; pumps; fans; heating; air conditioning; electrical; plumbing; lighting.
M-309 Fluid Mechanics
Hydrostatics, viscosity, pressure, Reynold’s number, Bernoulli’s equation, convection, flow losses, centrifugal pumps, fans, specific speed, immersed bodies, open channels, introduction to compressible fluids, Mach number, flow measurement.

M-310 Instrumentation and Controls
Basic instruments and their uses for measurement and indication of temperature, pressure, flow and speed; primary element, transformation and amplification of signals; indicators, recorders and controllers as applied to pneumatic, hydraulic, electrical and electronics control systems.

M-311 Engineering Drawing and Design
Advanced engineering drawing in tolerances, limits and fits; bearings; detail and assembly work, symbols; graphs; layouts of drives; design and layouts of piping and ducting; welded joints; fasteners; preparation of bills of material; specifications, equivalencies and estimating.

M-408 Mathematics
Introduction to statistics as related to quality control; elementary differential equations as applied to technological problems.

M-403 Manufacturing Processes
Cleaning and degreasing; resistance welding; sheet metal forming; forging, hot and cold; flow turning; roll and stretch forming; metallizing; shot peening; atmosphere control in heat treating; hand lay-up and pressure processes for plastics; processes for ceramic coatings; Metrology as applied to measuring tools, inspection methods, jig alignment, and other measurement problems including applications of optical tooling; template reproduction, jig boring, die sinking, automatic profiling from masters.

M-406 Applied Thermodynamics
A continuation of course M-306 including analyses of vapour and gas power cycles; fuels and combustion; performance analyses of steam turbines, I.C. engines and steam generators; introduction to heat transfer. Laboratory work will include tests on steam turbine, steam generator, heat balance, compression ignition engine, spark ignition engine, gas turbine engine, tests on air conditioning and refrigeration and on other auxiliary equipment.
M-410 Control Engineering
A course of study of control and supervisory instruments integrated into operating systems, with practical work in actual and simulated systems and controls. The course will include instrument piping and accessories, the measurement of process variables, the operation of final control elements, integrators, computers, batching and feeding, remote transmission, transformation and indication, feedback systems and the various modes of automatic control.

M-411 Design and Drawing
Application of and continuance of Course M-311 with particular emphasis on design and drawings related to project of student’s choice (i.e., — design and drawing of heating and air conditioning system for small office building). Project would include layout — design — drawings and specifications for complete project.

M-412 Technical Report
Comprehensive report covering a topic of specific technical interest to the individual student.

M-413 Heating and Ventilation

Theory

Load Calculations
Heat Transmission Coefficients — Infiltration & Ventilation — Heating Load — Air Conditioning and Cooling Load

System Components

Air Conditioning Systems
Central Station Air Conditioning — Dual Duct, Induction & Fan Coil Systems — Panel Air Systems — Heat Pump System

Heating Systems
M-414 Refrigeration
A study of Refrigeration Cycles and equipment consisting of: simple cycles; thermodynamic refinements of the cycles; refrigerants and their properties; adsorption and absorption systems; Heat Pumps; Evaporators, condensers and receivers; compressors; refrigerant control valves; Electrical controls and installation of equipment.

M-415 Internal Combustion Engines
A course covering the operation of spark ignition and compression ignition engines including: a review of cycles with deviations from ideal cycles; fuels and lubricants; detonation and knock; carburation and fuel injection systems; transmission and vehicle performance; preventive maintenance; Engine testing and performance.

M-416 Engineering Metallurgy
Mechanical and non-destructive tests, macro examination of metals, micro examination, solidification of metals, phase diagrams and their interpretation, deformation and annealing, iron and carbon steel, heat treatment of steel, alloy steels, cast iron, light alloys, miscellaneous non-ferrous alloys, corrosion phenomena, high temperature alloys, metallurgical aspects of metal joining.

M-417 Machine and Tool Design
Requirements of tooling materials; calculation of loads, stresses and rigidity of tools; provision for chip clearance and other special considerations; blank and pierce dies; forming and forging dies; welding fixtures.
General machine design including fits, fasteners, friction, power transmission, bearings, etc. with emphasis on application to machine tool design.

M-418 Production Planning and Control
The shop and office organization of job and production work in manufacturing, including the principles and procedures of paper systems, materials-handling, inventory management, and procurement. The course will include such topics as work scheduling, equipment planning, costing, standardization, inspection, methods-time measurement, unit loads and palletization, standard costs, shipping procedures and the freight classification.

M-419 Quality Control
Introduction; history; definition; statistical Quality Control training programs; specific phase; frequency distribution; control charts such as X and R, modified, "p" and "c"; sampling plans, introduction of SQC in assembly operations; basic assembly; subassembly; assembly inspection; technical statistical techniques.
Medical Laboratory Technology

A program of training for Medical Laboratory Technologists has been developed by many of the larger hospitals and the Provincial Laboratories of Manitoba in conjunction with the Manitoba Institute of Technology.

**Entrance Requirements:**
Senior Matriculation (Grade XII or equivalent) complete with Mathematics and two science subjects, one of which must be Chemistry.

**Applications for Admission:**
Applications and enquiries from prospective students (men as well as women) should be made to any of the larger hospitals or Provincial Laboratories in Manitoba that are approved for Canadian Society of Laboratory Technologists Training. Do not apply to the Manitoba Institute of Technology.
Length of Course:
The training program is divided into two parts:
1. Nine months didactic training is given at the Manitoba Institute of Technology. (This may be taken in two equal separated portions at the discretion of the approved Hospital Training School).
2. Up to twelve months apprenticeship training is given at one of the approved Hospital Training Schools.
Total length of Course — approximately 21 months.

**Tuition Fee:**
$180.00 for nine months at the Manitoba Institute of Technology.

Employment Possibilities:
Satisfactory completion of training qualifies the student to write registration examinations with the Canadian Society of Laboratory Technologists, (C.S.L.T.). Successful candidates will be awarded a Registered Technologists's Certificate (R.T.), recognized anywhere in Canada. Further training and experience can lead to advanced certification with the C.S.L.T. There is a great demand for registered Medical Laboratory Technologists in hospital laboratories, medical clinics, research projects and some commercial companies.

Note: **
See Page 6 for details re Training for Unemployed Persons under Schedule "M" Agreement.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course No.</th>
<th>COURSE</th>
<th>TERM 1</th>
<th>HOURS per WEEK</th>
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<td>LECT.</td>
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<td>Bacteriology and Immunology</td>
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<td>Biochemistry</td>
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<tr>
<td>ML-104</td>
<td>Haematology</td>
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<tr>
<td>ML-105</td>
<td>Histology</td>
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<td>ML-106</td>
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TERM 2

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<tr>
<td>ML-207</td>
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<td>ML-204</td>
<td>Haematology</td>
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<tr>
<td>ML-205</td>
<td>Histology</td>
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<tr>
<td>ML-206</td>
<td>General Knowledge</td>
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</table>
COURSE DESCRIPTIONS

ML-101  Anatomy and Physiology
   Cell structure and physiology; anatomy of benign and malignant tumors; Urinary, gastro-intestinal, respiratory, circulatory, and reproductive systems.

ML-102  Bacteriology and Immunology
   Principles and practice of aseptic techniques; the isolation and identification of common bacteria, parasites and fungi. Preparation of stains, media and the operation of equipment used. Basic principles of immunology and serology.

ML-103  Biochemistry
   Biochemical analyses of blood and other biological fluids related to disease. Kidney function and liver function tests, enzyme studies, body fluid electrolyte balance studies. Basic instrumentation—photocell colorimeters, spectrophotometers, auto-analyzer, flame photometer, pH meters, microgasometer, and analytical balances.

ML-104  Haematology
   The science of the blood, its nature, functions and diseases. Origin, development and nomenclature of blood and marrow cells. Blood collection procedures; principles and techniques of blood examinations; blood coagulation; disorders of hemostasis; recognition of blood disorders such as anemias and leukemias.

ML-105  Histology
   Preparation of solutions and stains; basic principles of fixation, dehydration, clearing and embedding of tissue. Procedures for cutting and staining paraffin sections. Special staining procedures for — connective tissue, elastic fibres, fat, micro-organisms and haemosiderin.

ML-106  General Knowledge
   Sterilization; filtration; care and cleaning of glassware; storage of chemicals; shipment of specimens; calibration of pipettes; elementary glass blowing; care and use of the instruments used in the laboratory. Introduction to isotopes; quality control; lab. safety; Basic Math., chemistry and English as related to Medical Laboratory Technology.
Medical Radiological Technology
(X-Ray and Therapy Technicians)

**Entrance Requirements:**

Applicants must have a complete Grade XI with standing in English, History or Social Studies, Mathematics, a second language, one Science, preferably Physics, plus one optional subject which may be another language, or another Science. As of January 1, 1965, a complete Grade XII will be required with standing in Mathematics, English, and Science at that level.

The applicant must be in robust health, accurate, ambitious, of pleasing personality, and be interested in, and sympathetic with persons who are ill or disabled.

**Entrance Dates:**

Two classes will be accepted at the Institute each year, the first being accepted in September of any school year.
Applications for Admission:

Apply directly to "Radiological Technician Training Program" at any of the Hospitals or Institutions operating training programs. DO NOT APPLY TO THE MANITOBA INSTITUTE OF TECHNOLOGY.

Length and Type of Course:

2 Years — leads to a diploma as Registered Technician (R.T.) in the Canadian Society of Radiological Technicians.

Entry to the course is made by applying directly to one of the Hospitals or one of the Institutions outlined below:

- Children's Hospital
- Department of Health
- Grace General Hospital
- Misericordia Hospital
- St. Boniface Hospital
- Winnipeg General Hospital
- Brandon General Hospital

Shortly after commencing, the student transfers to the Central School at the Manitoba Institute of Technology where four months intensive lectures and demonstrations are given. This is followed by examinations which, if satisfactory, allow the student to return to his or her hospital to spend the balance of the two year training period gaining practical experience under the close supervision of the X-Ray or Radiotherapy Department.

COURSE OUTLINE

The following syllabus is approved by the Canadian Society of Radiological Technicians in co-operation with the Canadian Association of Radiologists.

The class hours designated for each of the following subjects are:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Lecture</th>
<th>Practical</th>
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<tbody>
<tr>
<td>Introductory</td>
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<tr>
<td>Anatomy, Physiology &amp; Pathology</td>
<td>76</td>
<td>10</td>
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<tr>
<td>Nursing Procedures</td>
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<tr>
<td>Physics of Electricity &amp; Magnetism</td>
<td>38</td>
<td>21</td>
</tr>
<tr>
<td>Radiation, Physics &amp; Protection</td>
<td>20</td>
<td>21</td>
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<tr>
<td>Apparatus &amp; Accessory Equipment</td>
<td>37</td>
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<tr>
<td>Photographic Aspects of Radiography</td>
<td>23</td>
<td></td>
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<tr>
<td>Radiographic Positioning</td>
<td>42</td>
<td>70</td>
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<tr>
<td>Radiographic Technique</td>
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<td>21</td>
</tr>
<tr>
<td>Medical Terminology</td>
<td>8</td>
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<tr>
<td>Special Radiographic Procedures</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Basic Medical Sciences</td>
<td>12</td>
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</tr>
</tbody>
</table>
COURSE DESCRIPTIONS

Introductory Lectures:
History of radiology development; history of registered radiological technician departmental administration.

Anatomy, Physiology & Pathology:
Classification of bones, bone description of: Upper Extremity, shoulder, arm, forearm, wrist, and hand; Lower Extremity, thigh, leg, foot; Pelvic Girdle; Vertebral Column — general and special characteristics of vertebrae, cervical, thoracic lumbar, sacral, coccygeal; Ribs & Sternum; Skull & Facial Bones; Digestive system & Accessory organs; Respiratory system; Circulatory system; Urogenital system; Lymphatic system; Nervous system; Endocrine system. Short discussion of pathology most often occurring in each area.

Nursing Procedures:
Techniques of moving, lifting and transferring patients; Elementary nursing procedures; Care and comfort of the patient; Aseptic technique and isolation procedures.

Physics of Electricity and Magnetism:
Elementary theory of magnets, magnetic fields, inverse square law, electrification by friction, properties of conductors and insulators, electrosopes. Elementary discussion of atomic theory of matter. Electric currents and circuits, Ohm’s Law, electromagnets, ammeters, voltmeters, fuses and circuit breakers, measurement of electric power, principles of transformers. Discussion of electromagnetic spectrum x-rays, scattered radiation, detection of x-radiation, units of quantity, quality of x-ray beam.

In hospital the first six months are probationary during which time students whose work has been unsatisfactory or who show inaptitude for technical work may be advised to withdraw from the course. At the end of the two year period the student writes the examinations leading to a Diploma as Registered Technician (R.T.).

Tuition Fee:
$80.00 for the term at the Manitoba Institute of Technology.

Expenses:
No living quarters are provided at the Central School or Hospital. A student allowance will be paid by the Hospital for each of the 20 months spent in hospital. No pay will be given during the 4 months spent away from the hospital at the Manitoba Institute of Technology. Students demonstrating a need for financial assistance during the 4 months at the Central School will be able to negotiate a formal loan from their Hospital upon agreement to repay from subsequent allowances or otherwise.
Employment Possibilities:

Hospitals, Medical Clinics and Institutions. The Registered Technician (R.T.) Diploma is widely recognized including Canada, U.S.A., Great Britain, etc.

Radiation Physics & Protection:

Apparatus and Accessory Equipment:
Distribution of electric power, transformers, types of rectification, x-ray tube, history and development, focal spot size and cooling charts. Instruments for control of time, K.V.P. and M.A., Grids, Diaphragms, cones and collimators, viewing devices, filters, spot film devices, stereoscopy image amplification, photo fluorography, body section radiography.

Photographic Aspects:

Radiographic Positioning:
Positioning techniques for the various anatomical divisions (see under Anatomy and Physiology).

Radiographic Technique:
The four basic factors in photographic effect. Technical terms used to describe the quality of radiographs and how they may be varied. Conditions influencing variations in exposure technique, identification systems.

Medical Terminology:
Study of the meanings of common medical terms and definitions.

Special Radiographic Procedures:
Discussion by Radiologists of procedures not usually done as a routine procedure in most x-ray departments, e.g., angiography, pneumoencephalography, sialography, myelography, bronchography, etc.

Basic Medical Sciences:
Elementary bacteriology reaction of body to infection, natural defences, immunity (natural and acquired), viruses, parasites.
Operating Engineers

Entrance Requirements:

1. Grade XII standing (Vocational Industrial, General or University Entrance Course) with demonstrated proficiency in English, Mathematics, and Physical Science (i.e. chemistry and physics) or in exceptional cases, by the consent of the Board of Admissions.

2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language).

Length of Course:

ONE YEAR of approximately 40 weeks duration, with courses commencing in September of each year. Upon graduation, the Fourth Class Certificate is immediately obtainable, following the successful completion of the Provincial Examinations.

**Fees and Expenses:**

The tuition fee for the Operating Engineer course is $200.00 per year. Other expenses include textbooks, incidentals, board and lodging.

Employment Possibilities:

Operating Engineers are responsible for the safe operation of mechanical equipment in Industry, Utilities, Commercial Buildings and Institutions. They are examined and licensed under the Boiler Plant and Pressure Vessels Act. Industry in Manitoba is diversified. A few examples of industries relying on Operating Engineers' services are: Meat Packers; Cold Storage Plants; Laundry and Dry Cleaning Plants; Dairies; Food Processing Plants and Breweries. In these plants, Operating Engineers are responsible for the operation of steam boilers, refrigeration compressors, air compressors and the associated distribution systems for each.

Opportunities for advancement are always open. Usually, after one year of experience, the Fourth Class Certificate holder can qualify to write the Third Class Examinations. Success in this, brings added responsibility and remuneration. The requirements increase for qualification to write the Second Class, and ultimately the First Class Examin-
The responsibility that an Operating Engineer is allowed to assume increases with each classification. Many hours of home study and conscientious working effort are required to obtain the higher Certificates, but the financial reward and the increased stature provide ample compensation.

**Note:**
See Page 6 for details re Training for Unemployed Persons under Schedule "M" Agreement.

**COURSE OUTLINE**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course</th>
<th>TERM 1</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lec.</td>
<td>Lab.</td>
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<tr>
<td>OE-101</td>
<td>Power Plant Theory &amp; Practice</td>
<td>7</td>
<td>6</td>
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<tr>
<td>OE-102</td>
<td>Electricity</td>
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<td>OE-103</td>
<td>Instruments &amp; Controls</td>
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<tr>
<td>OE-109</td>
<td>Machine Shop — practical</td>
<td>1 week (30 hours)</td>
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<tr>
<td>OE-110</td>
<td>Welding — practical</td>
<td>1 week (30 hours)</td>
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**TERM 2**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course</th>
<th>HOURS per WEEK</th>
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<tbody>
<tr>
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<tr>
<td>OE-201</td>
<td>Power Plant Theory &amp; Practice</td>
<td>5</td>
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<tr>
<td>OE-202</td>
<td>Electricity</td>
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<tr>
<td>OE-203</td>
<td>Instruments &amp; Controls</td>
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<tr>
<td>OE-204</td>
<td>Mathematics</td>
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<td>OE-205</td>
<td>Physics</td>
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<tr>
<td>OE-206</td>
<td>Chemistry</td>
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<tr>
<td>OE-207</td>
<td>English</td>
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<tr>
<td>OE-208</td>
<td>Drafting</td>
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<td>OE-209</td>
<td>Machine shop — practical</td>
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<tr>
<td>OE-210</td>
<td>Welding — practical</td>
<td>1 week (30 hours)</td>
</tr>
</tbody>
</table>
COURSE DESCRIPTIONS

OE-101 Power Plant Theory & Practice

(a) Section I — Steam Generation.
Types of boilers and their application; Boiler and furnace construction and details; Heat transfer, water circulation, draft; Characteristics of fuels and firing equipment for each. Theory of combustion.

(b) Section II — Steam Use.
Heat of steam; Use of steam tables. Simple steam engines and pumps. Turbine theory, types, and operation; Condensers.

(c) Section III — Mechanical Principles & Auxiliary Equipment.
Acts and codes, materials of construction; Laws of machines; Mechanical power transmission; Pipes and pipe fitting; Pumps and injectors.

(d) Section IV — Refrigeration.
Theory and basic mechanical compression cycle; Types and details of system components; Characteristics of common refrigerants.

OE-102 Electricity.
Electron theory; Ohm’s Law; magnetism and induction; D.C. circuits; parallel and series; Lenz’s Law; D.C. measuring instruments; D.C. motors and generators; Principles of A.C. current; Impedance; power factor.

OE-103 Instrumentation & Controls.
Fundamentals of temperature; pressure and flow measurement. Control valves; Semi-automatic and program- ming flame failure protection systems; Flame rod and photo electrical cell types and applications; Self-actuating controls for refrigeration systems.

OE-104 Mathematics.
Number and numerical calculations; mensuration, powers and roots; Algebra — fundamental operations, linear and quadratic equations; problems with one and two unknowns; use and transposition of formulae; analytic geometry — straight line, circle, parabola in Cartesian co-ordinates; use of graphs and graphic methods; trigonometric functions; vectors; logarithms, use of the slide rule.
OE-105 Physics.

OE-205 Units and measurements; motion, velocity and acceleration; vectors; moments of forces; resolution of forces; work, mechanical advantage, power and energy; energy transfer and equations; terms and laws of mechanics in reference to gases and liquids; Archimedes principle; temperature measurement; thermal expansion; heat quantities; heat transfer.

OE-106 Chemistry.

OE-206 Matter; elements, compounds and mixtures; physical and chemical change; atoms and molecules; chemical nomenclature; valence; chemical equations. Gases; gas laws; preparation and properties of industrial gases; safety.

OE-107 English.

OE-207 A course designed to improve the students ability to study and improve his critical thinking as well as reading and writing skills. It demonstrates how elementary logic, fundamental writing techniques, outlining, summarizing, paragraphing, vocabulary, grammar, spelling, capitalization, punctuation are applied to the writing of short informal library research reports, business correspondence and technical explanations.

OE-108 Drafting and Blueprint Reading.

OE-208 The language of drafting; use and care of instruments; pictorial representation; views; dimensions and tolerances; sections.

OE-109 Machine Shop Practice.

OE-209 Students will undertake a project involving use of hand tools and an introduction to the operation, capabilities and care of machine tools.

OE-110 Welding.

OE-210 Students will be introduced to oxy-acetylene and arc welding; and capabilities of each type and the safe operation and proper care of welding equipment.

OE-201 Power Plant Theory & Practice.

(a) Section I — Steam Generation.

OE-201 Feed water equipment, pumps; injectors; open, closed and deaerating heaters. Feedwater treatment; Boiler operation and management; cost and efficiency calculations, by log keeping.

(b) Section II — Steam Use.

OE-202 Heating systems, return systems; traps and air venting; heat exchangers; Heating in air-conditioning systems. Engine management, operation and maintenance.
(c) Section III — Mechanical Principles and Auxiliary Equipment.
Lubrication; air; fans; corrosion. Preventive maintenance practices; equipment installation. Introduction to the gas turbine and heat pump.

(d) Section IV — Refrigeration.
Installation and operation of direct and indirect systems. Refrigeration codes, maintenance and trouble shooting. Insulation; air-conditioning and humidity control, the absorption system.

OE-202 Electricity.
Single and polyphase circuits. A.C. transformers, motors and generators; A.C. measuring instruments; switches, circuit breakers, motor starters. Preventive and running maintenance of plant electrical equipment; code; elementary electronics.

OE-203 Instruments and Controls.
Theory of on-off; proportional, reset, rate and floating control. Typical pneumatic and electrical boiler combustion control system; Automatic draft regulation; Electrical controls for refrigeration and air-conditioning systems.

OE-206 Chemistry.
Acids, bases and salts; solutions; PH; neutralization; ionization; oxidation and reduction. Thermo-chemistry; combustion; latent heat; heat and work; first and second laws of thermodynamics; reversible and irreversible processes; Carnot cycle; heat engines; corrosion; feedwater treatment.

OE-208 Drafting and Blueprint Reading.
Shop sketching; orthographic, oblique and isometric sketching and drawing practice. Electrical and pipe-fitting symbols and layout drawings.
Secretarial Science

Entrance Requirements:
1. Grade XII (Business Education, General or University Entrance Course).
2. For the present, Junior Matriculation or its equivalent if secured prior to December 31, 1963. (Another option is acceptable in place of a second language).

Length of Course:
TWO SCHOOL YEARS, each of ten months duration, leads to a diploma in Secretarial Science. Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term. Classes commence in September of each year.

Fees and Expenses:
The tuition fee for the course in Secretarial Science is $100.00 for each of the four terms. Other expenses include textbooks, incidentals, board and lodging.

Employment Possibilities:
The purpose of the Secretarial Science curriculum is to train, in a full two-year program, private secretaries and assistants to management who will satisfy the requirements of the most
The course is designed for both young men and women. Secretarial training provides a quick route to junior executive positions in the case of young men. Highly skilled secretaries are in great demand.

Many of the graduates may go to private secretarial positions in the larger organizations. Others may find excellent positions in smaller offices where they may have greater responsibilities and a wider variety of duties.

**COURSE OUTLINE**

*First Year*

**TERM 1**

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course</th>
<th>Lect.</th>
<th>Lab.</th>
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<td>G-111</td>
<td>Psychology</td>
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<td>1</td>
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<tr>
<td>BU-102</td>
<td>Economic Principles</td>
<td>3</td>
<td>1</td>
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<tr>
<td>BU-101</td>
<td>Accounting</td>
<td>3</td>
<td>2</td>
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<td>SS-101</td>
<td>Secretarial Science</td>
<td>2</td>
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</tr>
<tr>
<td>SS-102</td>
<td>Typing</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>SS-103</td>
<td>Basic Shorthand</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>SS-104</td>
<td>Introduction to Business</td>
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**TERM 2**

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<td>G-211</td>
<td>Psychology</td>
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<td>BU-202</td>
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<td>BU-201</td>
<td>Accounting</td>
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<td>SS-201</td>
<td>Secretarial Science</td>
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<td>4</td>
</tr>
<tr>
<td>SS-202</td>
<td>Intermediate Typewriting</td>
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<td>SS-203</td>
<td>Basic Shorthand Dictation &amp; Transcription</td>
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*Second Year*

**TERM 3**

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<tr>
<td>BU-318</td>
<td>Speech</td>
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<td>4</td>
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<tr>
<td>SS-305</td>
<td>Sociology</td>
<td>3</td>
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</tr>
<tr>
<td>SS-306</td>
<td>Introduction to Business Administration</td>
<td>3</td>
<td>2</td>
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<tr>
<td>SS-307</td>
<td>Business Mathematics &amp; Statistics</td>
<td>3</td>
<td>1</td>
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<tr>
<td>SS-303</td>
<td>Advanced Shorthand &amp; Transcription</td>
<td>2</td>
<td>4</td>
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<tr>
<td>SS-301</td>
<td>Secretarial Science</td>
<td>2</td>
<td>4</td>
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<tr>
<td>SS-308</td>
<td>Personal Development</td>
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<tr>
<td></td>
<td></td>
<td>Lect.</td>
<td>Lab.</td>
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<tr>
<td>BU-413</td>
<td>Business Communications</td>
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<td>4</td>
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<tr>
<td>SS-405</td>
<td>Sociology</td>
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<tr>
<td>SS-406</td>
<td>Introduction to Business Administration</td>
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<tr>
<td>SS-407</td>
<td>Business Mathematics &amp; Statistics</td>
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<tr>
<td>SS-403</td>
<td>Advanced Shorthand &amp; Transcription</td>
<td>2</td>
<td>4</td>
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<tr>
<td>SS-401</td>
<td>Secretarial Science</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>SS-408</td>
<td>Personal Development</td>
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</table>

15 15

**COURSE DESCRIPTIONS**

**G-110 English**

Review of grammar and composition; effective organization and communication of ideas; the library and literature searching.

**G-210 English**

This course is basically concerned with written communications; note-taking; outlines; business correspondence; report writing and essays.

**G-111 Psychology**

This course is designed to help students understand self and human behaviour through study and discussion; science of psychology; normal development of the individual; individual differences; intelligence; learning and remembering; emotions and emotional behaviour; motivation and frustration; perception; attitudes and options; self-understanding and self-development.

**G-211 Psychology**

This course is concerned with personal contacts, employee relations in business and industry, customer relationships, psychology in advertising and selling, community and home relations.

**BU-102 Economic Principles**

An introduction to the basic principles of economics including production, consumption, price determination, money and banking, government finance, national income, economic stability, business and labour organizations and comparative economic systems.
SS-102 Typewriting
This course is designed to provide intensive course in touch typewriting skill with elementary understanding of business correspondence, manuscripts, tabulation, and business forms, and the building of speed skills.

SS-202 Intermediate Typewriting
A course designed to further the students' typewriting abilities. Emphasis on increasing speed and retaining a high degree of accuracy; office production; electric typewriters.

BU-101 Accounting
Double entry bookkeeping routine; special journals; subsidiary ledgers and control accounts; adjustments for the preparation of financial statements; financial statements pertaining to sole proprietorship.

BU-201 Accounting
Partnership accounts, operation and liquidation; formation of limited companies; share capital and surplus, bonds and investment securities; manufacturing accounts; departmental agency and branch accounts; analysis of financial statements.

SS-305 Sociology
& The nature and needs of man; the natural and cultural environment in which he satisfies these needs; the organization and revolution of the major social institutions established to meet his political, economic, educational and spiritual needs; the study of the origin and nature of the major political, economic, international and educational problems of our technological age and the urbanization of life in creating and providing means of solving these problems.

SS-405 Sociology &

SS-103 Basic Shorthand
A course designed to provide the students with the basic theory of shorthand and with the ability to take familiar dictation at a increasing rate of speed.

SS-203 Basic Shorthand Dictation and Transcription
A course designed to review the basic theory and to increase the students' speed at taking dictation and in transcribing on the machines.

SS-101 Secretarial Science
& This is an introductory course in general office procedures which will cover a wide variety of topics. Among them are; filing systems and records management; postal,
banking, communications, and transportation services; office equipment and supplies; personality development; public relations; duplicating machines.

**SS-301**  
**Secretary Science**  
&  
**SS-401**  
To provide for the training of an efficient secretary; office procedures and responsibilities; equipment and supplies; automation; sources of information; methods of communication; travel, transportation and accommodation; preparations for conferences, seminars and meetings; typewriting as applied to office routine and duties.

**SS-104**  
**Introduction to Business**  
To acquaint the student with business vocabulary, business activity, ownership, organization, purchasing, production, marketing, finance, managerial problems, personnel problems, business regulation, and taxation. This course should have the effect of business orientation or indoctrination and to provide a background upon which future courses can be based for more specific study.

**BU-318**  
**Speech**  
This course is basically concerned with types of oral communications emphasizing the fundamental principles of thought, content, organization and delivery; formal speeches, panel discussions, debates, conferences, and interviews. The course should permit the correction of speech peculiarities, pronunciation and reticence towards participation in conversation and group discussions. Instruction in speech is directed toward helping the student realize that speech plays a vital role in many of his/her activities and that good speech habits will have a bearing on his/her success avocationally and vocationally. The essential approach is that all speaking is public speaking and that intelligent communication, clear thinking, and respect for others underlie all speech situations, both formal and casual.

**BU-413**  
**Business Communications**  
This course deals with the combination of written and oral communications with individual projects assigned; dictation and writing of correspondence; report and article writing with presentation, etc. Particular emphasis is placed on the development of individual style adapted to accepted and proven techniques.
SS-308 Personal Development
& SS-408
Introduces the student to the requisites of improving personality and appearance, by considering social and mental attitudes, personal hygiene, grooming, manners and voice; correct behaviour for personal success and success of employing firm; understanding of self and co-workers as members of a team; development of perspective in relationships with others; development of sophistication of thought and action.

SS-306 Introduction to Business Administration
& SS-406
To provide a comprehensive study of the four main functions of finance, marketing, production and personnel with emphasis on management principles and methods of decision making; to provide an understanding of management problems to permit an assistant to management to function adequately at this level.

SS-307 Business Mathematics and Statistics
& SS-407
To provide an opportunity for the application of mathematics to business problems; and understanding of quantitative statistical relationships; presentation of quantitative data graphically and in tabular form; statistical methods; statistical compilation; presentation and interpretation of data.
Industrial Division

Shop Director: S. P. Didcote, B.Sc.

The Industrial Division of the Institute offers a comprehensive program of trade courses of various durations. The facilities for these courses are designed to resemble the actual working conditions in Industry. Theoretical and practical instruction is supported by a program of related trade subjects. Students who successfully complete these courses should experience little difficulty in securing gainful employment in Industry.

Faculty

Robert E. Adams, B.Sc. . . . . . . . . . . . . . Mechanical Drafting
M. A. Anderson (Mrs.), man.oper.cert. . . . . . . . Hairdressing
W. Bellamy (Mrs.) . . . . . . . . . . . . . . . . Commercial
A. Berezowecki (Miss), voc.comm.cert. . . . . . . . Commercial
L. K. Bjornson (Mrs.) . . . . . . . . . . . . . Commercial
Thorkell Brandson, B.Sc. . . . . . . . . . . . . . Trade Science
J. Briggs (Mrs.), voc.comm.cert. . . . . . . . . . . . Commercial
I. M. Buchanan . . . . . . . . . . . . . . . . . . Watch Repair
Andre Deroche, voc.ind.cert. . . . . . . . . . . . Autobody Repair
Roy Dillon, voc.ind.cert. . . . . . . . . . . . . . . Gas Welding
Joyce Dixon (Mrs.), b.a. . . . . . . . . . . . . . Commercial
G. W. Donaldson, voc.ind.cert. . . . . . . . . . . Radio Operating
R. P. Dripps, voc.ind.cert. . . . . . . . . . . . . Diesel Mechanics
C. A. Finn . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Arc Welding
L. Forcées, man.journ.cert. . . . . . . . . . . . Steamlfitting
D. Friesen, man.journ.cert. . . . . . . . . . . . . . . . . Automotive
Radio Operating
Electrical Construction
Food Services
Food Services
Barbering
Trade Mathematics
Radio Servicing
Architectural Drafting
Trade Literature
Electrical Appliance
Machine Shop
Electrical Construction
Electrical Construction
Plumbing
Architectural Drafting
Machine Shop
Automotive
Electrical
Television
Upholstery
Practical Nursing
Refrigeration
Diesel
Radio Servicing
Bricklaying
Factory Woodworking
Practical Nursing
Autobody Repair
Diesel

Department Heads

G. Bell (Miss), voc.comm.cert. . . . . . . . . . Commercial
J. G. Cartwright, voc.ind.cert. . . . . . . . . . Food Services
A. F. Ursel, man.journ.cert. . . . . . . . . . Automotive
Industrial Division

Calendar of Events

1964-65

1964

Tuesday August 4 Second Practical Nurses' Course opens.

Tuesday September 8 Industrial program commences.

Tuesday September 8 Pre-employment courses open in Designated Trades, as enrollment warrants.

Wednesday September 30 & Thursday October 1 Registration for the fall term of Evening classes.

Monday October 5 Fall term of Evening classes for adults opens for a period of ten weeks (two nights per week).

Wednesday November 11 Remembrance Day.

Wednesday December 23 Institute closes for Christmas recess.

1965

Monday January 4 Institute reopens. Apprenticeship courses open in the designated trades.

Monday January 4 First Practical Nurses' course opens.

Wednesday January 6 & Thursday January 7 Registration for the winter term of Evening classes.

Monday January 11 Winter term of Evening classes for adults opens for a period of ten weeks (two nights per week).

Thursday April 15 Institute closes for Easter recess.

Tuesday April 20 Institute reopens after Easter recess.

The Institute reserves the right to cancel any courses for which there is insufficient enrollment.
PRE-REQUISITES FOR ADMISSION

Applicants must meet the entrance requirements as listed under each course.

Persons who lack academic Pre-requisites to enter training for a trade may meet these requirements by successfully completing Level II of the Basic Training for Skill Development course. Further information concerning this Program may be obtained from any National Employment Service Office in Manitoba.

ENTRY DATES

The Industrial Division of the Manitoba Institute of Technology and the Brandon Vocational Centre do not operate on a term basis. Instruction is on an individual basis and students may commence their training at any time during the year when there is a vacancy. When classes are filled to capacity additional applications are placed on a waiting list. As vacancies occur students are called from this waiting list.

APPLICATION FOR ADMISSION

Only written applications are considered for admission. These should be completed and returned to the Institute or to the Brandon Vocational Centre at the earliest possible date. A transcript of the marks received by an applicant in his last completed grade of academic schooling is required.

All candidates for admission must have sound general education prior to entrance. The student must be of good moral character, have good health, and must be sixteen years of age or over. Although a complete High School education is desirable, it is not essential in all courses. Minimum requirements have been laid down and are indicated in the course outlines.

FEES AND DEPOSITS

Fees for all courses are confined to registration. They are on a quarterly (three months each) basis, payable as follows:

MANITOBA RESIDENT — $20.00 per quarter or portion thereof payable in advance. $50.00 for Welding Courses Nos. 73 and 74.

NON-RESIDENT — $40.00 per quarter or portion thereof payable in advance. $100.00 for Welding Courses Nos. 73 and 74.

All cheques or money orders should be made payable to “The Manitoba Institute of Technology” or to “The Brandon Vocational Centre”, at Winnipeg or Brandon respectively. These small registration fees are not refundable.
A tool deposit fee may be required of students attending certain shop courses. This amount, less any deductions for tools lost or damaged, will be returned to the student if application is made within thirty days after the completion of the course.

**SCHOLASTIC REGULATIONS**

A student enrolled in any Industrial Course must maintain a satisfactory scholastic standing. The result of a student's work in each subject is expressed by a single letter grade at the end of approximately each quarter, and reports of the student's progress will be sent to parents or guardians at Christmas, Easter, and at the end of July.

The letters A, B, C, D, F, I, are used. These indicate the following standards:

- **A** — Excellent .................. 90 — 100%
- **B** — Very Good .................. 80 — 89%
- **C** — Average .................... 70 — 79%
- **D** — Passing ..................... 60 — 69%
- **F** — Failure ...................... Below 60%
- **I** — Incomplete

A student doing unsatisfactory work may be placed on probation or dismissed.

(If the time required to complete a course is excessive, no Certificate of Attainment will be granted.)

**CERTIFICATES OF ATTAINMENT**

Students meeting the following requirements will be presented Certificates of Attainment:

1. Satisfactory completion of a full-time day course with at least 90% attendance.
2. Attainment of a minimum 60% in all required subjects.
3. Completion of six months satisfactory employment in their selected field after completing their course.
4. Recommendation of their Home Room or Shop Instructor.

(Duplicate certificates will be issued on payment of a fee of $1.00.)
GRADUATION

Graduations are held periodically, at which time “Certificates of Attainment” are awarded to the candidates meeting the prescribed requirements.

Graduates may order pictures of the Graduating Class from the Registrar on the evening of Graduation.

Suitable certificate cases may be obtained also from the Registrar in the General Office, at the time of Graduation at a cost of $2.00 each.

*  

Apprenticeship

Annual training courses for indentured apprentices in the designated trades are offered in full-time day classes at the Manitoba Institute of Technology, Industrial Division, as outlined in the attached schedule of classes. Periodically evening classes for senior apprentices are offered at the Brandon Vocational Centre and at the Industrial Division of the Manitoba Institute of Technology. Candidates between the ages of 16 and 21 wishing to enter any designated trade should contact directly the Director of Apprenticeship, Department of Labour, Norquay Building, Winnipeg 1, Manitoba and make application to enter pre-employment training in the course of his choice. Pre-employment courses may be organized in any designated trade, providing enrolment warrants same. All indentured apprentices in designated trades will be notified in writing by the Director of Apprenticeship when they will attend classes for their annual training.
APPRENTICESHIP COURSES
(OFFERED IN CO-OPERATION WITH THE
DEPARTMENT OF LABOUR)

<table>
<thead>
<tr>
<th>TRADE</th>
<th>LENGTH OF COURSE</th>
<th>PRE-REQUISITES</th>
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</thead>
<tbody>
<tr>
<td>AUTO BODY REPAIR</td>
<td>LEVEL I 6 WEEKS</td>
<td>I MINIMUM AGE 16 YEARS</td>
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<tr>
<td></td>
<td>II</td>
<td>II APPROVAL OF THE</td>
</tr>
<tr>
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<td>III 4</td>
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<td>BRICKLAYING</td>
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<td>III 4</td>
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<tr>
<td>CARPENTRY</td>
<td>LEVEL I 8 WEEKS</td>
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<td>IV 4</td>
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<tr>
<td>ELECTRICAL CONSTRUCTION</td>
<td>LEVEL I 8 WEEKS</td>
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<td>II 6</td>
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<td>IV 4</td>
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<tr>
<td>FACTORY WOODWORKING</td>
<td>LEVEL I 8 WEEKS</td>
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<tr>
<td>MACHINE SHOP</td>
<td>LEVEL I 8 WEEKS</td>
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<td>III 4</td>
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<tr>
<td>PAINTING AND DECORATING</td>
<td>LEVEL I 8 WEEKS</td>
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<td>II 6</td>
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<td>III 4</td>
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<tr>
<td>PLASTERING</td>
<td>LEVEL I 8 WEEKS</td>
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<td>PLUMBING</td>
<td>LEVEL I 8 WEEKS</td>
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<tr>
<td>REFRIGERATION</td>
<td>LEVEL I 8 WEEKS</td>
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<tr>
<td>SHEET METAL</td>
<td>LEVEL I 8 WEEKS</td>
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<td></td>
<td>IV 4</td>
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<tr>
<td>STEAMFITTING</td>
<td>LEVEL I 6 WEEKS</td>
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<td>II 4</td>
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<td>III 4</td>
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</tbody>
</table>

The Provincial Departments of Labour and Education in Co-operation with the Government of Canada sponsor and promote the Apprenticeship Training Program in Manitoba. For further information contact directly:

APPRENTICESHIP & INDUSTRIAL TRAINING DIVISION
Department of Labour
Room 609, Norquay Building
WINNIPEG 1, MANITOBA
Telephone WHitehall 5-7551

The Department of Labour
Court House
Brandon, Manitoba
Telephone: PA 9-6467

The Department of Labour
Provincial Building
The Pas, Manitoba
Telephone: MA 3-3522

"SKILL FOR SECURITY"
## MINIMUM STANDARDS REQUIRED IN THE COMMERCIAL DEPARTMENT

### Business Machines:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Passing Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comptometer</td>
<td>70%</td>
</tr>
<tr>
<td>Dictaphone</td>
<td>70%</td>
</tr>
<tr>
<td>Typewriting</td>
<td>70%</td>
</tr>
<tr>
<td>Typewriting Speed</td>
<td>50 wpm</td>
</tr>
<tr>
<td>Bookkeeping Machine</td>
<td>70%</td>
</tr>
<tr>
<td>Monroe Calculator</td>
<td>70%</td>
</tr>
<tr>
<td>Spelling</td>
<td>72%</td>
</tr>
<tr>
<td>English</td>
<td>70%</td>
</tr>
<tr>
<td>Business Correspondence</td>
<td>70%</td>
</tr>
<tr>
<td>Elementary Bookkeeping</td>
<td>60%</td>
</tr>
<tr>
<td>Penmanship</td>
<td>60%</td>
</tr>
<tr>
<td>Duplicator</td>
<td></td>
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</tbody>
</table>

### Stenographic:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Passing Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shorthand Theory</td>
<td>85%</td>
</tr>
<tr>
<td>Shorthand Speed</td>
<td>110 wpm</td>
</tr>
<tr>
<td>Shorthand Transcription</td>
<td>80%</td>
</tr>
<tr>
<td>Typewriting</td>
<td>70%</td>
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<tr>
<td>Typewriting Speed</td>
<td>50 wpm</td>
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<tr>
<td>English</td>
<td>70%</td>
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<tr>
<td>Business Correspondence</td>
<td>70%</td>
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<tr>
<td>Spelling</td>
<td>72%</td>
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<tr>
<td>Office Practice</td>
<td>60%</td>
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<tr>
<td>Penmanship</td>
<td>60%</td>
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<tr>
<td>Dictaphone</td>
<td>70%</td>
</tr>
<tr>
<td>Rapid Calculation</td>
<td>80%</td>
</tr>
<tr>
<td>Bookkeeping (Optional)</td>
<td>60%</td>
</tr>
<tr>
<td>Duplicator</td>
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</tr>
</tbody>
</table>
Course No. 31

MANITOBA INSTITUTE OF TECHNOLOGY

Business Machines (approximately 12 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:


In addition to these subjects, National Cash Billing Machine, Monroe Calculator, Ten Key Calculator, I.B.M. Key Punch 024, Friden Calculator.

Textbooks:

"Gregg Typewriting for Colleges — Intensive Course" — Rowe, Lloyd, Winger, and Smith.
"Typing for Accuracy" — White.
"Comptometer Course"
"Basic Bookkeeping and Supplies" — Seggie, Sutherland, and Downes.
"20,000 Words" — Louis A. Leslie.

Supplies:

1 Stenographer's notebook
1 ledger
1 ruled pad
2 folders
1 straight pen and fine nib
1 pencil
2 pads 5½ x 8½
1 large notebook
1 ruler
Course No. 32

MANITOBA INSTITUTE OF TECHNOLOGY

Stenography (approximately 12 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:

Textbooks:
"Accuracy in Speed and Calculation" — Day and Staples.
"Gregg Typewriting for Colleges" — Intensive Course" — Rowe, Lloyd, Winger, and Smith.
"Typing for Accuracy" — White.
"Words", Their spelling, pronunciation, definition, and application — Fourth Edition — Gregg.
"Sprott’s Metronomic System of Writing” — Part 2 — Pitman.
"New Basic Course in Pitman Shorthand” — Pitman.
"Shorthand Dictation and Transcription” — Pitman.
"Students’ Shorthand Dictionary & Phrase Book” — Pitman.
"20,000 Words” — Louis A. Leslie.
"Basic Bookkeeping and Supplies” — Seggie, Sutherland, and Downes.

Supplies:
2 small typing pads
3 shorthand notebooks
1 fountain pen
1 straight pen, ink
1 letterhead paper
1 large typing pad
1 large ruled pad
1 eraser
1 nib, No. 292
1 large notebook
2 folders
Course No. 41

MANITOBA INSTITUTE OF TECHNOLOGY
AND
BRANDON VOCATIONAL CENTRE

Architectural Drafting (10-12 months)

Pre-Requisites: A minimum of a complete Grade XI or the consent of the Principal.

Contents:
A. Introduction to Architectural Drafting —
   use of instruments, symbols and conventions and lettering.
B. Perspective—
   instrumental perspective, architectural perspective, orthographic and perspective projections, and perspective construction by projections from the side plane and vanishing points.
C. Isometric Projections—
D. Architectural Design—
   balance, harmony, proportions, rhythms, emphasis, and orientation.
E. Procedure in Architectural Drawing—
   Floor plans, elevations, room planning, and arrangement.
F. Construction Principles—
   Study of building materials, frame building, brick and brick veneer construction, excavation, masonry, and reinforced concrete.
G. Preparing Floor Plans, Elevations, and Working Drawings—
   (1) Bungalow type dwellings.
   (2) Two-storey type dwellings.
   (3) Apartment buildings.
H. Use of surveyors' instruments in laying out and leveling buildings, including some practical field experience.
I. Estimating.

Related Subjects:
   Industrial Mathematics
   Trade Literature
   Trade Science

Textbooks:
   "Building Construction"—Huntington.
   "Lessons in Lettering I & II"—French & Turnbull.
Course No. 42

MANITOBA INSTITUTE OF TECHNOLOGY

Mechanical Drafting (10-12 months)

Pre-Requisites: A minimum of a complete Grade XI or the consent of the Principal.

NOTE:—This course is designed for those who wish to find employment as mechanical draftsmen, particularly as detailers or layout men, in practically any branch of industry.

Contents:
4. Section Views, Auxiliary Views: Full half, partial, revolved, removed, offset, and assembly sections. Primary and secondary auxiliary views and partial views.
5. Pictorial Drawings: Isometric, oblique (cabinet and cavalier), perspective (one-point, two-point), shading for illustration, exploded views.
7. Welding, Gears and Cams: Basic weld symbols, welded machine parts, welded structures; spur, bevel, worm gears, gear drives, gear housings.

Related Subjects: Trade Science
Industrial Mathematics Machine Shop
Trade Literature Sheet Metal

Textbooks:
“Technical Drawing”—Giesecke
“Lessons in Lettering”—French & Turnbull

Supplies:
1 Drafting Set
1 T - square 2 Triangles (45° and 30° — 60°)
Course No. 50

MANITOBA INSTITUTE OF TECHNOLOGY
AND
BRANDON VOCATIONAL CENTRE

Electrical Construction (8 months)
Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate (Level II)

Contents:

Related Subjects:
Industrial Mathematics
Shop Drawing and Blueprint Reading
Trade Literature
Trade Science
Machine Shop

Textbooks:
Direct Current Fundamentals—E. Loper
Wiring Simplified—Richter
Canadian Electric Code—City of Winnipeg Edition
Mathematics for Trades
Alternating Current Fundamentals—J. R. Duff
Blueprint Reading for Electrical Trade (Residential)
Electric Motor—Rosenberg

Course No. 51

MANITOBA INSTITUTE OF TECHNOLOGY

Electrical Appliance Repair (9-10 months)
Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Theory: Fundamental Principles of D.C. and A.C. Electrical Laws; Wire sizes; Magnetism; Motors and meters;
Relays and controls; Signal and electric circuitry; Electrical calculations; Analysis of the mechanical and electrical construction of heating and motor-driven appliances; Elementary motor rewinding.

**Practical:** Fundamental jobs in electricity, Elementary circuitry; Repairing, servicing and trouble-shooting of heating and motor-driven small and major appliances; Servicing and maintenance of electric motors; Rewinding appliance motors.

**Related Subjects:**
- Industrial Mathematics
- Trade Literature
- Trade Science
- Elementary Shop Drawing
- Machine Shop
- Refrigeration

**Textbooks:**
- Direct Current Fundamentals—E. Loper
- Alternating Current Fundamentals—J. R. Duff
- Electrical Appliance Service Manual—Gabbert
- Major Appliance Servicing—P. Brockwell
- Electric Motor Repair—Rosenberg
- Canadian Electrical Code
- Basic Mathematics for Trade—Ruttan

**Course No. 52**

**MANITOBA INSTITUTE OF TECHNOLOGY**
**AND**
**BRANDON VOCATIONAL CENTRE**

**General Electrical Course (10 months) (1200 hours)**

**Pre-Requisites:** A minimum of a complete Grade X or a Pre-Vocational Certificate. (Level II)

**Contents:**

**Theory:** Fundamental principles of D.C. and A.C.; Magnetism; Electrical machines; Generators; Motors and meters; Transformers and relays, Single-phase and three-phase; Controls; Signal and lighting circuitry; heating and motor-driven appliances, motors and elementary motor re-winding; Canadian Electrical Code; Electrical blueprint reading and sketching (residential, commercial and industrial); Basic electronics and fundamental principle of refrigeration.
Practical: Fundamental Jobs in Electricity; Elementary Circuitry; House Wiring and Control Circuits; Sketching and Wiring Devices for Residential, Commercial and Industrial. Repairing, servicing and trouble-shooting of heating and motor-driven appliances; Servicing and Maintenance of common types of electric motors. Rewinding electric motors.

Related Subjects:
Industrial Mathematics; Elementary Shop Drafting and Drawing; Trade Literature; Trade Science; Machine Shop; Refrigeration; Boiler Controls.

Textbooks:
"Direct Current Fundamentals"—E. Loper
"Alternating Current Fundamentals"—J. R. Duff
"Electric Motor Repair"—Rosenberg
"Electrical Appliance Service Manual"—Gabbert
"Electrical Trades Blueprint Reading Residential, Commercial, Industrial"
Canadian Electrical Code (1962)
"Wiring Simplified"—H. P. Richter
"Basic Electronics"—Duff, Johannsen, Journigan
"Basic Mathematics for Trade"—Ruttan

Course No. 53

MANITOBA INSTITUTE OF TECHNOLOGY

Radio Operating and Electronic Communications (11 months)

Pre-Requisites: A minimum of a complete Grade XI, or the consent of the Board of Admissions.

Contents:
Theory: Current, voltage and resistance, Direct current circuits; Magnetism; A.C. theory; Inductance and transformers; Capacitance; A.C. circuits; Resonance and filters; Vacuum tubes; Power supplies, Measuring devices; Oscillators and multivibrators; A.F. amplifiers; R.F. amplifiers; Amplitude modulation; multichannel communications receivers; Amplitude modulated transmitters; Frequency Modulation; Transistor theory and application; Antennas; Batteries; Motors and generators; Radio Direction finders; International communication regulations; Message handling; Automatic sending and receiving devices; Transmission lines.

Practical: Experimental work and labs on above equipment; Alignment of receivers; Fault finding with the use
of test equipment; Morse Code (20 words per minute); Practical operation and testing of Marine equipment.

NOTE:—This course qualifies a student to write for the Department of Transport second class Commercial Radio Operators Certificate. Due to the high standards required for this course, both the Institute and the Department of Transport require a pass mark of 75%.

Textbooks:
"Electronic Communications"—Schrader
"Essentials of Electricity for Radio and T.V."—Slorzberg
"Radio Operators' Handbook"
"Mobile Services Handbook"
"Tube Characteristic Manual"

Course No. 54

MANITOBA INSTITUTE OF TECHNOLOGY

Radio and Industrial Electronic Servicing (10 months)

Pre-Requisites: A minimum of a complete Grade XI, or consent of the Principal.

Contents:

Theory: Basic Electrical Theory, A.C. and D.C.; reactance, impedance, and resonant circuits; vacuum tube applications including amplifiers, detectors, oscillators, and phase inverters; basic A.M. transmitter design; receiver circuits including TRF and superheterodyne, A.V.C. circuits, communication receivers; transistor sets; servicing procedures and use of test equipment including multimeters, signal generators, tube tester, capacitor tester, oscilloscope and V.T.V.M. Industrial applications of electronic circuits, thyatrons, pliotrons and solid state devices.


Related Subjects:
Industrial Mathematics
Trade Science
Trade Literature

Textbooks:
Basic Electricity—Zbar & Shilkraut
Elements of Radio Servicing—Marcus & Levy
Tube Characteristics Manual
Course No. 55

MANITOBA INSTITUTE OF TECHNOLOGY

Television and Industrial Electronics Servicing
(5 months)

Pre-Requisites: Complete Radio Servicing Course No. 54, or at least three years' experience in Radio Servicing.


Unit 2—Television receivers and test equipment — 1 month. Diagnosis of trouble by analysis of symptoms displayed on C R T. General consideration of receiver circuits. Test equipment.


Unit 4—Television receivers — The deflection and auxiliary circuits. A G C, Sync, deflection circuits, Color and transistor receivers.

The course is approximately half theory and half practical in content with 50 shop experiments involving all circuits of monochrome and color television, and actual receiver repair.

Textbooks:
- Television Servicing—Levy and Frankel
- Basic Television—Zbar and Schildkraut
- Basic Television—Grob (3rd edition)
- Color TV Fundamentals—Kiver

Course No. 61

MANITOBA INSTITUTE OF TECHNOLOGY

Auto Body and Fender Repair (8 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:


Related Subjects:
- Industrial Mathematics
- Trade Literature
- Welding

Remarks:
- Applicants must be physically fit and not allergic to lacquers and paints.

Testbook:
- "Modern Autobody & Fender Repair"—Vale.

NOTE:—Students must supply themselves with welding and chipping goggles.
Course No. 62

MANITOBA INSTITUTE OF TECHNOLOGY
AND
BRANDON VOCATIONAL CENTRE

Automotive Mechanics (9 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate. (Level II).

Contents:


Related Subjects:
Industrial Mathematics
Trade Literature
Trade Science
Machine Shop
Soldering

Textbook:
"Automotive Mechanics"—Crouse
**Course No. 63**

**MANITOBA INSTITUTE OF TECHNOLOGY**

**Diesel Mechanics (9 months)**

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate. (Level II).

This course consists of nine units of one month each, plus related subjects, totaling one month.

Unit I—Tractor Shop — Tools, safety, axles, clutches, transmissions.

Unit II—Engine Shop — Gasoline engines, types, construction, overhaul, cooling and lubrication systems.

Unit III—Diesel Lab — Induction systems, carburetion, fuel pumps, blowers, and superchargers.

Unit IV—Tractor Lab — Steering clutches, final drives, torque converters, automatic and power transmissions.

Unit V—Engine Shop — Diesel engine construction, overhaul, and maintenance.

Unit VI—Diesel Lab — Electrical, ignition, starting, AC and DC charging, and lighting systems, automatic controls.

Unit VII—Tractor Shop — Front-end and steering, brakes, hydraulics, tracks and frames, lubrication.

Unit VIII—Engine Shop — Tune-up and trouble shooting.

Unit IX—Diesel Lab — Fuel injection systems, mechanical and hydraulic governors, operation, overhaul, maintenance.

Related Subjects:
- Industrial Mathematics
- Trade Science
- Machine Shop
- Welding

Textbooks:
- "Diesel and High Compression Gas Engines"—Kates
- "Automotive Mechanics"—Crouse
- "Fuel Injection Systems"—Diesel Publications Inc.
- "Delco Remy Electrical Equipment"
- "Delco Remy Test Specifications"

Supplies:
- Students must provide themselves with coveralls, welding goggles.
Course No. 64

MANITOBA INSTITUTE OF TECHNOLOGY

Refrigeration and Air Conditioning (10 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate. (Level II).

Contents:


Related Subjects:
- Shop Drawing and Blueprint Reading
- Electric Motors, Relays and Starters
- Industrial Mathematics
- Trade Literature
- Trade Science
- Machine Shop
- Welding

Textbooks:
- "Commercial and Industrial Refrigeration" — C. Wesley Nelson
- "Modern Refrigeration" — Althouse & Turnquist

**NOTE**—Students must supply themselves with welding goggles.

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Course No. 65

**MANITOBA INSTITUTE OF TECHNOLOGY**
**AND**
**BRANDON VOCATIONAL CENTRE**

**Plumbing (8 months)**

Pre-Requisites: A minimum of Grade 10 or a Pre-Vocational Certificate. (Level II).

Contents:


**PRACTICAL**: Making of joints (threaded, calked, soldered, wiped). Installation of all types of pipes. Installation of fixtures. Lead work. General repairs and maintenance. Installation of range boilers and storage tanks.

Related Subjects:
- Industrial Mathematics
- Trade Science
Course No. 71

MANITOBA INSTITUTE OF TECHNOLOGY

Machine Shop Practice (10 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate. (Level II).

Contents:


Related Subjects:
Industrial Mathematics
Trade Literature
Metallurgy
Trade Science
Shop Drawing & Blueprint Reading

Textbooks:
"Machine Tool Operation"—Burghardt and Axelrod
"Workbook on Machine Tool Operation"—Burghardt and Axelrod
Course No. 72

MANITOBA INSTITUTE OF TECHNOLOGY

General Sheet Metal Course (8 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-vocational Certificate. (Level II).

Contents:


Practical: Work on projects to develop skills in the use of measuring instruments, hand tools, and hand and power operated tools and equipment. Forming, edging, reinforcing, grooving, beading, punching, riveting, and drilling. Use of solders and soldering equipment. Single, double, dovetail, and flanged seams, slip seam, standing seam, Pittsburgh lock, drive cleats, etc. Above seams applied to tees, mitres, gutters and downspouts, air-conditioning fittings, etc. Safety habits.

Related Subjects:
Industrial Mathematics
Trade Science

Textbooks:
"Sheetmetal Pattern Drafting and Shop Problems"—Daugherty
"Sheetmetal Shop Practice"—Bruce

Course No. 73

MANITOBA INSTITUTE OF TECHNOLOGY

Oxy-Acetylene Welding Course (3 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-vocational Certificate. (Level II).

Contents:

Theory: Historical development of the oxy-acetylene process. Care and use of tools and equipment. Welding techniques. Test for identifying metals. The general theory...


Related Subjects:
Industrial Mathematics
Shop Drawing and Blueprint Reading
Trade Science

Textbook:
"The Oxy-Acetylene Handbook"

NOTE:—All students will provide themselves with suitable goggles, tip cleaners, gauntlets, aprons, etc.

Special Fees:
Special registration and laboratory fees are as follows:
Resident of Manitoba — $50.00
Non-Resident — $100.00

Course No. 74

MANITOBA INSTITUTE OF TECHNOLOGY

Electric Arc Welding Course (3 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:


Related Subjects:
Industrial Mathematics
Shop Drawing and Blueprint Reading
Trade Science
Textbook:
"New Lessons in Arc Welding"—Lincoln Electric Co.

NOTE—All students will provide themselves with suitable goggles, gauntlets, aprons, etc.

Special Fees:
Special registration and laboratory fees are as follows:
Resident of Manitoba — $50.00
Non-Resident — $100.00

Course No. 81

MANITOBA INSTITUTE OF TECHNOLOGY

General Woodworking (8 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:


Practical: Common woodworking joints to be made first by hand and later by machine. Instruction in use, maintenance, operation, and safety factors of common woodworking tools and machines used in cabinet making. Instruction in blueprint reading and layout boards. Machining and assembling of all types of cabinets, built-in cupboards, mantels, etc. Elementary construction of sash, doors, window and door frames, and stairs. Elementary framing and roof construction.

Related Subjects:

Industrial Mathematics
Shop Drawing and Blueprint Reading
Trade Literature
Trade Science
Textbooks:

“Operation of Common Woodworking Machines”
—Herman Hjorth
“Principles of Woodworking”—Herman Hjorth
“The Use of Hand Woodworking Tools”—Delmar

Supplies:

2 Nail Sets
1 Pencil
1 3-foot folding rule or steel tape

Course No. 82

MANITOB A INSTITUTE OF TECHNOLOGY

Pre-Employment Carpentry (6-7 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:


Related Subjects:

Industrial Mathematics
Shop Drawing and Blueprint Reading
Trade Literature
Trade Science

Remarks:

Applicants should be physically fit and able to work at heights.

Textbooks:

“Use of Hand Woodworking Tools”—Delmar
“Operation of Common Woodworking Machines”
—Hjorth
“Framing, Sheathing and Insulation”—Delmar
“Simplified Stair Layout”—Delmar
Course No. 91

MANIToba INSTITUTE OF TECHNOLOGY

Assistant Hotel Cook (12 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

General good health. Medical and dental certificates and a chest X-ray will be required from each applicant, prior to training.

This course is designed for those who desire to learn the basic knowledge and practical training to prepare themselves for employment as hotel or restaurant cooks or as institutional cooks.

Contents:

Theory: General routine of a commercial kitchen. Care and use of machines, equipment and tools of the trade. Sanitation and hygiene. Basic principles of preparing menus, ordering supplies, food storage and refrigeration. Food cost and portion control. Theory of selecting, preparing, and cooking of soup stocks, soups, vegetables, meats, sauces, pies, cakes, cookies, yeast goods, and salad making.

Practical: Preparing and cooking and serving of a variety of foods, using basic recipes in soups, sauces, vegetables, desserts, pies, cakes, cookies, and yeast goods. Cutting, preparing, cooking, and serving of meats, fish, and poultry. Some salad making and sandwiches. Selecting and costing of menus and individual dishes. Students must attend both theory and practical classes.

Related Subjects:
Industrial Mathematics
Trade Literature

Supplies:
3 White cook’s jackets
2 White wedge caps
1 Looseleaf book
1 Mathematics book

Textbooks:
"Quantity Cookery"—Treat and Richards
"The Meat We Eat"—Ziegler

Field Trips:
Selected by Instructor and provided through the courtesy of the Manitoba Section of the Canadian Restaurant Association.
Course No. 92

MANITOBA INSTITUTE OF TECHNOLOGY

General Cooking (6 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-
Vocational Certificate, (Level II).

General good health. Medical and dental certificates and
a chest X-ray will be required from each applicant, prior
to training.

This course is designed for those who have some know-
ledge of cooking, but desire to be employed in restaurants,
institutions, or hotels, as assistant cooks, cooks, or short-
order cooks.

Contents:

Theory: General routine of a commercial kitchen. Care
and use of machines, equipment and tools of the trade.
Sanitation and hygiene. Theory of selecting, preparing
and cooking of soup stocks, soups, vegetables, meats,
poultry, fish, and sauces. Basic knowledge of making pies,
desserts, cakes, yeast goods, salads, and sandwiches.
Basic principles of food storage and refrigeration.

Practical: Preparing, cooking and serving of a variety of
foods, using basic recipes, in soups, sauces, vegetables,
meats, poultry, fish. Some practical in pies, cakes, cookies
and yeast goods, salad making and sandwiches. Portion
control and some costing.

Students must attend both practical and theory classes.

Related Subjects:

Industrial Mathematics
Trade Literature

Supplies:
3 white Cook’s jackets
3 white wedge caps
1 looseleaf book
1 Mathematics book

Textbook:
"Quantity Cookery"—Treat and Richards

Field Trips:
Selected by Instructor and provided through the courtesy
of the Manitoba Section of the Canadian Restaurant Asso-
ciation.
Commercial Baking (8 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

General good health. Medical and dental certificates and a chest x-ray will be required from each applicant, prior to training.

Contents:


Practical: Care of tools and equipment. Receiving and dispensing stocks. The preparation of bread, rolls, biscuits, cookies, cakes, pies, pastries, doughnuts, and other bakery goods, cake decorating. The finishing of baked items.

Related Subjects:
Industrial Mathematics
Trade Literature
Supplies:
3 White baker's jackets
2 White baker's caps
1 Looseleaf book
1 Mathematics book

Textbooks:
Cakes for Bakers — Richards
Breads, Rolls and Sweet Doughs—Richards

Course No. 94

MANITOBA INSTITUTE OF TECHNOLOGY

Meat Cutting (3 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

General good health. Medical and dental certificates and a chest x-ray will be required from each applicant, prior to training.

This course is designed for those who wish to be employed as meat-cutters in hotels, restaurants, institutions, and meat markets.

Contents:
Theory: Sanitation and hygiene. Care and use of refrigerators, freezers, equipment tools of the trade. Displaying meats, weighing meats, selling technique, wrapping meats, meat storage. Principles of meat cookery.

Practical: Breaking quarters, sides or carcasses of beef, veal, pork, lamb, into retail cuts as roasts, chops, steaks, ground meats and stew meats. Preparation and process of curing meats for small markets. Preparing fresh sausages. Eviscerating and cutting up poultry. Preparing fish for sale.

Students must attend both theory and practical classes.

Related Subjects:
Industrial Mathematics
Trade Literature

Supplies:
3 White jackets
2 Wedge caps
1 Mathematics book
1 Notebook and pencil

Textbook:
"The Meat We Eat"—Ziegler
Course No. 95

MANITOBA INSTITUTE OF TECHNOLOGY

Barbering (8 months) (1000 hours)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

General good health. Medical and dental certificates and a chest x-ray will be required from each applicant, prior to training.

Contents:


Textbook:
"Practice and Science of Standard Barbering"—Thorpe

Workbook:
"Standard Workbook for Modern Barber Science"

NOTE:—Each student is requested to provide himself with a kit of tools and two white coats.

Course No. 96

MANITOBA INSTITUTE OF TECHNOLOGY

Hairdressing and Beauty Culture (8 months) (1000 hours)

Pre-Requisites: A minimum of a complete Grade 10 or a Pre-Vocational Certificate, (Level II).

General good health. Medical and dental certificates and a chest x-ray will be required from each applicant, prior to training.

Contents:

Theory: Lectures, class discussions. Visual aids. Theoretical knowledge imparted to the student on all subjects contained in the course. Salesmanship. Shop practice. Shop management and ethical conduct.


Textbooks:
“Standard Textbook of Cosmetology”—Milady
“Safety Practices in Beauty Culture Schools”—Milady

Workbooks:
“Hair Styling Sketch Book”—Milady
“Workbook for Beauty Culture Schools”—Milady
“Workbook for Practical Beauty Culture”—Milady

NOTE:—Each student is requested to purchase a fitted beauty kit, which may be purchased from the Institute Canteen. In addition, each student must provide herself with two white short-sleeve uniforms and white low-heeled shoes.

Course No. 98

MANITOBA INSTITUTE OF TECHNOLOGY

Manicuring (3 months) (350 hours)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

General good health. Medical and dental certificates and a chest x-ray will be required from each applicant, prior to training.

Contents:

Textbook:
“Science and Art of Manicuring”—Cimasha.

Examination after completion of course leads to a license for the Province of Manitoba.

NOTE—All students are requested to purchase their own manicuring implements, two white short sleeved uniforms, and white low heeled shoes.
Course No. 99

MANITOBA INSTITUTE OF TECHNOLOGY

Practical Nursing (12 months)

Pre-Requisites: A minimum of a complete Grade X as assessed by the Registrar, Manitoba Department of Education. (Exceptions may be made for applicants born before 1920.)

General good health. Medical and dental certificates and a chest x-ray are required.

Character references will be requested from business and professional people who are not related to the applicant.

Contents:

**Theory:** Basic Nursing Arts, Anatomy and Physiology, Personal and Community Health, Surgical and Medical Nursing, Drugs and Solutions, Mother and Newborn, Nutrition and Homemaking, Personal and Vocational Relationships, The Child, Microbiology.

**Practical:** In relation to the above, plus 7½ months clinical experience in hospitals.

Remarks:

Training consists of a 4 month classroom period at the Manitoba Institute of Technology, 2 weeks vacation, plus
7½ months supervised clinical experience in the hospitals before a certificate is issued. (16 Manitoba hospitals are used for the supervised clinical experience.)

NOTE—Apply at least six months prior to the opening date of the course to:

The Director, Central School for Practical Nurses,
Room 415, Norquay Building,
York and Kennedy,
Winnipeg 1, Manitoba.

(See Page 71 for date of course)

Textbooks are purchased on the first day of class. Expenses, in addition to room and board, include uniforms approximately $40 and textbooks approximately $30.

Course No. 100

MANITOBA INSTITUTE OF TECHNOLOGY

Upholstery (8 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Contents:


NOTE—All the practical work throughout the course is given on the actual upholstery of foot stools, occasional chairs, bedroom chairs, hostess chairs, and chesterfield suites of various designs.

Related Subjects:
Industrial Mathematics
Trade Science
Textbooks:
‘New Essentials of Upholstery”—Bast
“Upholstering and Re-Upholstering”—Criswell

Supplies:
1 Magnetic Hammer
1 Steel measuring tape
Mathematics Book
1 Pair of shears
Twine needles
Notebook

Course No. 101

MANITOBA INSTITUTE OF TECHNOLOGY

Watch Repair (12 months)

Pre-Requisites: A minimum of a complete Grade X or a Pre-Vocational Certificate, (Level II).

Length of Course:
Students who successfully complete one year of study and who desire to enter the trade at the level of an improver will qualify for a junior certificate from the Canadian Jewellers Institute. They will be required to complete the senior examination within twelve months to qualify for a permanent certificate.

NOTE—This course is one of the five courses in Canada that is recognized by the Canadian Jewellers Institute.

Contents:

Theory: Lectures on the various escapements, drafting escapements, movements, etc. Springing, timing, adjusting to position, temperature compensation, and isochronism.

Practical: Lathe work is a very necessary part of watchwork, and in this section the students take up turning on a watchmaker’s lathe. In acquiring the use of the lathe, the following articles are made: Centre punch, round burnishers, hair spring colletor, tapers for lathe, cement chucks, drilling, large and small screws (harden and blue), square shoulders on four millimeter wire, conical pivots, large balance staffs, etc. The uses of grinding materials and color tempering processes.

Escapement work of all kinds is taken up, such as turning staffs, setting jewels, calculating size and fitting lost
pinions, staking on and truing wheels, making collets, drilling and fitting pivots. Instruction is given in setting palet stones, adjusting the banking pins, drop, let-off, locking, fork and roller action; fitting jewel pins to roller, etc.

Related Subjects:
- Industrial Mathematics
- Shop Drawing and Blueprint Reading
- Machine Shop

Textbook:
"The Watch Repairer's Manual"—Fried

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EVENING CLASSES FOR ADULTS

An extensive evening program, covering a variety of different courses, is offered in the following areas:

1. Trade Improvement
2. Industrial
3. Commercial
4. Technology

Extension Course Certificates may be granted in Electronics and Business Administration to students who complete a prescribed course of studies by attending a number of evening sessions.

Day students with supplementals who are successful in the Technology Evening Program, may obtain credits towards the day program.

* 

CANADIAN VOCATIONAL CORRESPONDENCE COURSES

Direct all enquiries to:

Vocational Branch, Department of Education,
115 Edmonton Street, Winnipeg 1, Manitoba
DEPARTMENT OF EDUCATION

VOCATIONAL BRANCH

SYNOPSIS OF COURSES

offered by

BRANDON VOCATIONAL TRAINING CENTRE

11th Street South at Queens Avenue
BRANDON, MANITOBA

R. A. JONES, SUPERVISOR

A Provincial Vocational Centre
The
Brandon
Vocational
Centre
*

Brandon, Manitoba

Staff

R. A. Jones, voc.ind.cert. .......... Supervisor
W. A. Scott, man.journ.cert. ..... Automotive
W. R. Howe, man.journ.cert. ..... Electrical
J. C. Walczak, man.journ.cert. ... Plumbing
J. W. Gorchynski, voc.ind.cert. ... Drafting
D. A. Keenan (Mrs.) ............. Commercial
L. M. Partaker (Mrs.) ............ Commercial

Note: Student regulations for the Brandon Vocational Centre are similar to those outlined for the Industrial Division of the Manitoba Institute of Technology.
Course Outlines

Course No. 1

AUTOMOTIVE MECHANICS
(SEE PAGE 87)

Course No. 2

ELECTRICAL CONSTRUCTION
(SEE PAGE 81)

Course No. 3

PLUMBING
(SEE PAGE 90)

Course No. 4

ARCHITECTURAL DRAFTING
(SEE PAGE 79)

For detailed descriptions see the M.I.T. Industrial Division Section of this Calendar.
Course No. 5

BRANDON VOCATIONAL CENTRE

Stenography and General Office Practice Course

Pre-Requisites: Minimum complete Grade 10, or consent of the Supervisor; or completion of the Basic Training for Skill Development Course, (Level II).

Contents:
Typing, Shorthand, Spelling, Penmanship, Business English, Business Arithmetic, Basic Bookkeeping, Filing, General Office Practice, Duplicating and Business Orientation, including office deportment, dress and personnel relations; Business Law; Advertising and Sales methods; customer relations.

Textbooks:

"Business Letter Writing"—E. Warner—Sir Isaac Pitman & Sons (Canada) Limited

"Basic Course in Pitman Shorthand"—Sir Isaac Pitman & Sons (Canada) Limited

"Pitman Shorthand Workbook"—I. H. Young—Sir Isaac Pitman & Sons (Canada) Limited

"Vocational Speller"—G. H. Dickinson—Sir Isaac Pitman & Sons (Canada) Limited

"Basic Bookkeeping" — A. P. Seggie, G.R. Sutherland, & W. J. Downes—Sir Isaac Pitman & Sons (Canada) Limited


Course No. 6

BRANDON VOCATIONAL CENTRE

Clerical and Office Machines

Pre-Requisites: Minimum Grade 10, or permission of the Supervisor, or completion of the Basic Training for Skill Development Course. (Level II).

Contents:

Typing Transcribing Machines, Penmanship and Spelling, Elementary Business Arithmetic, Elementary Business English, Basic Bookkeeping, Elementary Business Machines, including 10 key Adding Machine, Monroe Calculator, Duplicating Machines, both Spirit and Ink, Clerical General Office Practice and Filing. Business Orientation including office department, dress and personnel relations; Business Law; Merchandising with emphasis on purchasing, sales, advertising, merchandise control, and customer relations.

Textbooks:


"Business Letter Writing"—E. Warner—Sir Isaac Pitman & Sons (Canada) Limited

"Vocational Speller"—G. H. Dickenson—Sir Isaac Pitman & Sons (Canada) Limited

"Basic Bookkeeping"—A. P. Seggie, G. R. Sutherland, & W. J. Downes—Sir Isaac Pitman & Sons (Canada) Limited


Basic Training For Skill Development

This upgrading program is being offered in full-time day classes to a limited number of persons who are interested in improving their standing in Communications (English), Industrial Mathematics, and Trade Science. Two levels of training are offered: Level III for persons having less than Grade VII and Level II for persons who have Grade VII but less than Grade X. The courses are of fourteen weeks duration.

Purpose:

The purpose of this course is to enable students to upgrade themselves so that they may enter and profit from formal Vocational Trade Training classes which may be offered under the Provincial Apprenticeship Training Program or the Vocational Industrial courses offered at the Manitoba Institute of Technology and at the Brandon Vocational Centre which require less than a High School education for entrance.

Where Are the Courses Offered?

One school is located at the Brandon Vocational Centre.

Another school is located in Winnipeg at 442 William Avenue, Winnipeg 2, Manitoba.

Other centres will be opened wherever sufficient number of persons apply and when facilities and staff can be arranged.

Eligibility:

Persons, at least seventeen years of age, with a formal education of less than Grade X, who are unemployed, who have not attended school for at least one year and are interested and have the ability to upgrade their education.

All applications must be made to and approved by the National Employment Service.

Those who successfully complete Level II may then apply at one of the two Provincial Trade Schools for trade training in any course which does not require High School graduation.

NOTE—All Students upon entering the upgrading classes should have the understanding that if their attitude, attendance or progress is unsatisfactory their training will be terminated.
SUBJECTS OFFERED

1. Communication Skills

As suggested in the title, the main aim in this subject is for students to learn how to communicate with others. This may be by means of speaking, writing, spelling, testing or reading, or, by a combination of these. Although formal grammar is taught, it is done so chiefly with the object in mind of teaching the use of words and the ability to build them into good sentences and good paragraphs in a united, coherent whole. All communication skills are taught with the primary goal of their use in the various trades which a student may wish to acquire. Citizenship studies can be interwoven incidentally here in the manner of essays, discussions, reports, etc.

2. Industrial Mathematics

Mathematics that is applicable to our way of life. It is a functional program that will give adequate attention to basic mathematical concepts, principles, facts and skills. It must also stress real life problems and applications within the potential range of experience of the students. In other words, theory and practice, skills and their application to the world of work should be closely correlated.

3. Trade Science

The course in applied science is designed to give the student an orderly understanding of the materials and forces which make up man's environment. All units of work selected have practical applications for the trades and industry in general. It will be noted that emphasis has been placed upon the physical sciences.
APPLICATION FOR ADMISSION
TECHNOLOGY DIVISION

PROVINCE OF MANITOBA
DEPARTMENT OF EDUCATION

MANITOBA INSTITUTE OF TECHNOLOGY
BROOKLANDS, MANITOBA

DATE ........................................ 19

PRINT (Block Letters) ..............................................
NAME Mr. .............................................. Mrs. .............................................. Miss ..............................................

PRINT
1st NAME ..............................................

PRINT
2nd NAME ..............................................

PRINT
PERMANENT HOME ADDRESS ..............................................
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PRINT
MAILING ADDRESS ..............................................
(If different from above)
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DATE OF BIRTH ..............................................
Age.. Height .. Weight
Month Day Year

MARITAL STATUS ..............................................
NUMBER OF CHILDREN ..............................................

DISABILITIES (Eyesight, Loss of Limb, Etc.) ..............................................

NAME OF PARENT (Or Guardian) ..............................................

ADDRESS OF PARENT (Or Guardian) ..............................................

I hereby make application for admission to the course checked below in the class to begin in September, 19............,

☐ Electrical Technology
☐ Electronics Technology
☐ Mechanical Technology
☐ Civil Technology

☐ Business Administration
☐ Secretarial Science
☐ Library Assistants
☐ Operating Engineers

NOTE Persons interested in applying for either of the two courses listed below should complete this application and send it DIRECTLY TO THE TRAINING HOSPITAL of their choice. No registration fee is required for these two courses. DO NOT APPLY DIRECTLY TO The Manitoba Institute of Technology.

☐ Medical Laboratory Technology
☐ Medical Radiological Technology
Name of High School last attended...

LIST The High School Activities in which you participated (for example, football, curling, debating, choir, etc.)

What extra-curricular activities did you participate in while in High School?

What practical work experience have you had? (Include any part time, and vacation employment.)

Where did you first learn of M.I.T.?

Submit the names of three persons other than relatives as references. (Please Print).
1. Name
   Address
   Position

2. Name
   Address
   Position

3. Name
   Address
   Position

ENCLOSURES TO ACCOMPANY THIS APPLICATION ARE:
1. Your $15.00 registration fee must accompany this application. It is refundable only if your application is rejected.
2. An official transcript of all high school marks, showing necessary credits and grades for admittance to the course desired. OR a statement from the Principal of a high school stating that the applicant is expected to obtain the necessary credits and grades for admittance to the course desired. This statement must be substantiated by an official transcript of marks when it becomes available.

If and when my application is accepted I agree to abide by the rules and regulations of the Manitoba Institute of Technology.

Signed

THIS SPACE FOR OFFICE USE ONLY
APPLICATION FORM

The Principal, Industrial Division
Manitoba Institute of Technology
2055 Notre Dame Avenue
Winnipeg 23, Manitoba
OR
Supervisor, Brandon Vocational Centre,
11th Street South,
Brandon, Manitoba

I hereby make application for a ______ month's course in __________________ at the Manitoba Institute of Technology, Winnipeg, Manitoba, starting _________________ 19 ______ with the understanding that the first four to eight weeks is a probationary period.

Name ___________________________ (surname) PRINT ___________________________ (Christian names) ___________________________ (Mr., Mrs., Miss)

Permanent Address ___________________________
Winnipeg Address ___________________________
Next of Kin ___________________________ Local Telephone ___________________________
Date of Birth _________________ 19 ______ Marital Status ___________________________
What was the highest school grade you completed? ___________________________
What Year? _________________ Where? ___________________________
What vocational or technical education have you had? ___________________________

Where? ___________________________
What trade experience have you had? ___________________________
Employer ___________________________ Address ___________________________
Occupation—How Long? ___________________________

Are you a Canadian subject? ___________
Manitoba Resident? ___________________________
Have you any physical defects? ___________ If so, what? ___________________________

What type of training do you desire?
1st choice ___________________________
2nd choice ___________________________

Have you any prospects of employment when your training is completed? ___________ If so, give details ___________________________

Date of application: ___________________________
Signature of applicant: ___________________________

(Please have reverse side completed)
Certificate of the Principal of the School
Last Attended

This is to certify that ........................................... (name of pupil)
attended ........................................ (name of school)
in ........................................ (municipality)
from ........................................ to ........................................

and completed Grade ........................................... his/her final marks in the subjects listed were as follows:

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Signature of Principal

NOTE:—To be completed by all applicants. Those who are attending school should present a record of the marks they obtained for their last term examinations.

THIS APPLICATION IS APPROVED for a Course in ...........................................
of ........................................... months' duration.

........................................... (counsellor)

FEES

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Enrolled ........................................... (date) (registrar)