MANITOBA INSTITUTE OF TECHNOLOGY

INDUSTRIAL DIVISION

DEPARTMENT OF EDUCATION
PROVINCE OF MANITOBA

Administered by
VOCATIONAL BRANCH
Manitoba Department of Education
with financial assistance provided by
the Federal Government 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
W. R. DALTON, B.A., B.ED. . . Asst. Deputy Minister of Education
E. B. ANGOOD, B.SC., (ENG. S.C.) . . . . . . . . . . Director,
Provincial Vocational Schools Division

Approved by, and issued under, the authority of the Minister of Education
The Honourable George Johnson, M.D.
Minister of Education
Foreword

Forthcoming developments in Manitoba’s economy will increase the already critical demand for skilled workers. The proposed pulp and paper mill at The Pas, the new chemical fertilizer complex at Brandon, the vast Nelson River project, and the Aluminum Rodmill and Electrical Conductor Plant, are only a few of the developments which indicate a spectacular increase in employment opportunities for highly skilled people. If Manitoba wished to further attract new industries and to remain industrially competitive with other Provinces, and countries, it must meet the need for a highly skilled work force, by providing the necessary technical education and specialist training.

The Manitoba Institute of Technology, along with the new Vocational Training Centres at Brandon and The Pas, provides instruction under the direction of the Department of Education to prepare young people to meet the demands of an increasingly competitive and complex society.

Working in close liaison with other government departments and with Advisory Committees, the Department of Education has developed courses relevant to the modern demands of industry and has provided competent instructors to teach them. Advisory Committees, as well as providing direction in developing courses and in keeping them up-to-date, provide a means for maintaining close liaison with Business, Industry and the Professions. This liaison makes it possible for young people to receive guidance in planning their careers and also helps to ensure the placement of graduates. Business and Industry have also contributed in a more tangible way by providing individual scholarships and bursaries, recognizing that education is an investment in the future for all of us.

The Vocational Branch of the Department of Education is responsible for the actual administration and operation of the Institute. The financial support for its operation is provided jointly by the Province of Manitoba and the Government of Canada through the terms of the Federal-Provincial Vocational Training Agreement.

Honourable George Johnson, M.D.
The Manitoba Institute of Technology is basically four schools in one.

The Technology Division provides for the education of technicians at the post-secondary school level in order to develop their ability to apply engineering, scientific, business and professional concepts to trade, industry, research, business and professional operations in their chosen field.

The Industrial Division provides pre-employment, occupational and trades training in over 35 different vocational areas as well as providing the in-school training for the indentured trades.

The Teacher Training Division has the responsibility for the pedagogical training of teachers for Industrial Arts, Vocational Industrial and Vocational Commercial courses in the public schools, institutes and vocational centres of the Province.

The Extension Course Division provides up-grading and up-dating courses in most any area of training, where sufficient demand exists. These courses are normally given in evening sessions and over 1,300 Manitoba residents attend annually.

We invite you to consult with our staff, the guidance teachers in the High Schools, our graduates and the employers of our graduates, for additional information and counselling which they can provide to ensure that a proper choice of a career has been made.

Superintendent's Message

Industry and Business today are demanding responsible young men and women, able to adapt to change, who are prepared to meet today's challenges with courage and resourcefulness. The Industrial Division is confident that its graduates will meet this challenge and continually look ahead to a rewarding future.
Administrative Staff


General Administration:

Registrar ............... D. H. DeBRINCAT

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

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

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

Librarian .......... MRS. G. DAKSHINAMURTI, M.A.

Industrial Division:

Principal ............... G. L. TALBOT, B.Ed., (Ind. Arts)

Assistant Principal .......... J. GREENAWAY, B.Sc., P.Eng.

Technology Division:

(on leave of absence)

Acting Assistant Principal .......... R. A. DUNHAM, B.Sc.

Faculty

MRS. M. A. ANDERSON .... Hairdressing
MISS MARY A. BEATTIE .... Practical Nursing
MISS GLADYS BELL .... Commercial
MISS A. BEREZOWECKI .... Commercial
MRS. J. BRIGGS .... Commercial
MRS. W. BELLAMY .... Watch Repair
MR. I. BUCHANAN .... Sheet Metal
MR. H. BURES, B.Eng. .... Drafting
MR. L. BOILY, B.Sc. .... Related
MR. C. BROWN .... Practical Nursing
MISS C. CHALMERS .... Commercial
MRS. S. CHANG, B.A. .... Food Services
MR. J. G. CARTWRIGHT .... Woodworking
MR. S. CLAYTON (Dept. of Labor) .... Commercial
MRS. J. DIXON, B.A. .... Automotive
MR. R. DANIELSON .... Auto Body
MR. A. DEROCHE .... Diesel
MR. R. DRIPPS .... Welding
MR. R. DILLON .... Radio Operating
MR. G. DONALDSON ....
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<th>Department</th>
<th>Courses Offered</th>
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<tr>
<td>MR. J. DAVIDSON</td>
<td>Dept. of Labor</td>
<td>Painting and Decorating</td>
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<tr>
<td>MR. P. ELVERS, B.Sc.</td>
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<td>Woodworking, Automotive, Welding</td>
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<td>MR. D. FRIESEN</td>
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<td>MR. C. FINN</td>
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<td>MR. L. FORCSESE</td>
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<td>MR. R. FOULDS</td>
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<td>MR. L. R. GROSS</td>
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<td>MR. D. GRAY</td>
<td>(Baking) Food Services</td>
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<td>MR. E. J. GLADYZ</td>
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<td>MR. J. GEMMEL</td>
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<td>MRS. E. HEPBURN</td>
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<td>MRS. D. HUNT</td>
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<td>MR. W. HASSELFIELD, B.A.</td>
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<td>MR. V. KNOFF</td>
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<td>MRS. T. LAMONT</td>
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<td>MR. J. F. LANE</td>
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<td>MRS. W. McEWEN</td>
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<td>MISS J. McKILLOP</td>
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<td>MR. L. MOUSSEAU, B.A.</td>
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<td>MR. E. MARCH</td>
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<td>MR. J. P. McCoy</td>
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<td>MR. A. McIntyre</td>
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<td>MR V. MANN</td>
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<td>MRS. E. NOBLE</td>
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<td>MR. G. NESS</td>
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<td>MR J. PATTERSON</td>
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<td>MR. J. PEDORA</td>
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<td>MR. J. PANKIW</td>
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<td>MISS E. RUSSELL</td>
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<td>MR. J. RATHJE, Dipl. Eng.</td>
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<td>MR. F. REID</td>
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<td>MR. V. ROUND</td>
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<td>MISS A. STEVENSON</td>
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<td>MR. J. SAWCHYN</td>
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<td>MR. A. SHURA</td>
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<td>MR. J. STARK</td>
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<td>MR. J. SKINNER</td>
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<td>MRS I. STUKO</td>
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<td>MR. R. SCHWEEDIC</td>
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<td>MR. R. SMITH</td>
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<td>MR. A. URSEL</td>
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<tr>
<td>MISS P. WASSELL</td>
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<td>Woodworking, Automotive, Welding</td>
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<tr>
<td>MR. K. WALKER, B.Sc. (M.E.)</td>
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<td>Woodworking, Automotive, Welding</td>
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<tr>
<td>MR. W. YOUNG</td>
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<td>Woodworking, Automotive, Welding</td>
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# Industrial Division

## Calendar of Events

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<tr>
<td><strong>MONDAY</strong></td>
<td><strong>SEPTEMBER 5TH</strong> Labour Day (School Closed).</td>
</tr>
<tr>
<td><strong>TUESDAY</strong></td>
<td><strong>SEPTEMBER 6TH</strong> Fall Term for Industrial Pre-employment and Apprentice courses commences.</td>
</tr>
<tr>
<td><strong>WEDNESDAY</strong></td>
<td><strong>SEPTEMBER 14TH</strong> Registration for fall term of Evening classes.</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>SEPTEMBER 26TH</strong> Fall term of Evening classes for adults opens for a period of ten weeks. (Courses are held Monday &amp; Wednesday or Tuesday &amp; Thursday.)</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>OCTOBER 10TH</strong> Thanksgiving Day (School Closed).</td>
</tr>
<tr>
<td><strong>FRIDAY</strong></td>
<td><strong>NOVEMBER 11TH</strong> Remembrance Day (School Closed).</td>
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<tr>
<td><strong>FRIDAY</strong></td>
<td><strong>DECEMBER 23RD</strong> Last day of classes before Christmas Vacation.</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>DECEMBER 26TH</strong> Boxing Day (School Closed).</td>
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### 1967

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<tr>
<th>Date</th>
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<tr>
<td><strong>TUESDAY</strong></td>
<td><strong>JANUARY 3RD</strong> Classes reopen.</td>
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<tr>
<td><strong>WEDNESDAY</strong></td>
<td><strong>JANUARY 4TH</strong> Registration for winter term of Evening classes.</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>JANUARY 16TH</strong> Winter Adult Evening Program commences for a period of ten weeks.</td>
</tr>
<tr>
<td><strong>TUESDAY</strong></td>
<td><strong>MARCH 21ST</strong> Registration for spring term of Evening classes.</td>
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<tr>
<td><strong>FRIDAY</strong></td>
<td><strong>MARCH 24TH</strong> Good Friday (School Closed).</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>MARCH 27TH</strong> Easter Monday (No Classes).</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>APRIL 3RD</strong> Spring Adult Evening Program commences for a period of ten weeks.</td>
</tr>
<tr>
<td><strong>THURSDAY</strong></td>
<td><strong>APRIL 13TH</strong> Open House for High School students.</td>
</tr>
<tr>
<td><strong>FRIDAY</strong></td>
<td><strong>APRIL 14TH</strong> Open House for High School students.</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>MAY 22ND</strong> Victoria Day (School Closed).</td>
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<tr>
<td><strong>SATURDAY</strong></td>
<td><strong>JULY 1ST</strong> Dominion Day (School Closed).</td>
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<tr>
<td><strong>MONDAY</strong></td>
<td><strong>JULY 3RD</strong> Departmental Summer School opens.</td>
</tr>
<tr>
<td><strong>TUESDAY</strong></td>
<td><strong>JULY 4TH</strong> Civic Holiday (School Closed).</td>
</tr>
<tr>
<td><strong>MONDAY</strong></td>
<td><strong>AUGUST 7TH</strong></td>
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General Information

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 does not operate on a term basis. Instruction in certain courses 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 at the earliest possible date. A transcript of the marks received by an applicant in his last completed grade of academic schooling must be attached to the application.

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". These small registration fees are not refundable.
A tool deposit or caution 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.

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. Program 5 students late three or more times in one pay period will be deducted one day.

DISCIPLINE
Students are expected to exhibit adult behavior. All students are subject to the rules and regulations of the Institute and may be suspended or dismissed if their conduct, progress, attendance, or attitude proves unsatisfactory. The Institute 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 AND APPEARANCE
Students are expected to dress, and maintain a neat and tidy personal appearance, appropriate to the classroom, laboratory, or workshop in which they are working. In some shops, special protective clothing or coveralls must be worn. This clothing may be purchased at the Institute's Book Store.

BOARD AND ROOM
No dormitories are operated in connection with the Institute. The General Office has a list of board accommodation for students who wish to obtain board and room in the city. This list changes from day to day, and it is recommended students consult this list one or before registration day. The acceptability of all boarding places listed is left entirely to the discretion of the students.
ILLNESS, ACCIDENTS AND INJURIES

The Institute reserves 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 incorporate 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 Institute's policy governing accidents or illness as hereon set forth.

A safety program is in 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.

CLASS HOURS

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

Second shift, (where necessary) 4:30 p.m. to 11:30 p.m.

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 Institution 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.
SCHOLASTIC REGULATIONS

A student enrolled in any course must maintain a satisfactory scholastic standing. Periodic progress reports are maintained and will be sent to Parent, Guardian or Sponsor, upon request.

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%
- **IW** — Incomplete—Withdraw

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

DURATION OF COURSES

The duration of any course is the minimum enrollment time (hours) required to obtain a Certificate of Attainment. A student may require a longer period of instruction, however, this should ordinarily not exceed 10 per cent of the duration of the course if a Certificate of Attainment is to be awarded.

CERTIFICATES OF ATTAINMENT

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

1. Satisfactory completion of a full-time day course (enrollment for designated duration) with at least 90% attendance.
2. Attainment of a minimum 60% in all required subjects.
3. Recommendation of their Home Room or Shop Instructor.
   (Duplicate certificates will be issued on payment of a fee of $1.00.)
4. Completion of six months satisfactory employment in their selected field after completing their course.

GRADUATION

Graduations are held periodically, at which time, "Certificates of Attainment" are awarded to the candidates meeting the prescribed requirements. Upon proof of six months satisfactory employment a seal will be affixed to the certificate.

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 $2.50 each.
FINANCIAL ASSISTANCE

Unfavorable financial circumstances need not deter deserving students from enrolling in the Manitoba Institute of Technology. Assistance is available in the form of interest free loans, bursaries, and scholarships.

1. Canada Student Loans Plan:
This plan is designed to make bank loans (up to $1,000.00 per year) available to students who need financial help and who are enrolled in courses of at least 26 weeks duration and where the entrance requirement is Grade XI. Application forms are available at the Manitoba Institute of Technology.

2. St. James Kiwanis Golden Anniversary Loan Fund:
This fund provides for short term emergency loans ($5.00 - $25.00) to assist M.I.T. students in meeting unforeseen financial difficulties. Application forms are available at the Manitoba Institute of Technology.

3. Department of Education Bursaries:
Applicants for admission and students presently enrolled may apply for bursaries to The Registrar, Department of Education, 50 Legislative Building, Winnipeg 1, Manitoba. These awards are based upon financial need and scholarship.

4. Children of War Dead (Education Assistance) Act:
Tuition fees and monthly allowances are provided for children of veterans whose deaths were attributable to military service. Inquiries should be directed to the nearest district office of The Department of Veterans Affairs.

5. Program #5 — Training Allowance:
(a) These allowances are available to unemployed persons enrolling in courses of one year duration or less.
(b) Applicants must be registered for employment with the National Employment Service and recommended by National Employment Service to the Province for training.
(c) 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
6. **Program #6 — Training Disabled Persons:**

Under the Program "6" 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 the Program "6" is determined by a Training Selection Committee under the Provincial Department of Education.

Students training under the Program "6" 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.

**BOOK STORE**

Textbooks and supplies may be purchased from the Manitoba Institute of Technology Book Store.

**CAFETERIA**

The modern cafeteria at the Institute provides excellent, low cost meals during the mid-day break period.

**LIBRARY**

The Institute Library functions as a centre through which students and faculty are enabled to carry on many of their research and study activities. The library collection consists of approximately 4,500 volumes and a wide selection of magazines, indexes, pamphlets and newspapers; which provide both the breadth and the specialization of resources necessary for study in the diverse fields of technical, industrial and business education. It is open from 8:30 a.m. to 5:00 p.m. Monday through Friday.

**NATIONAL EMPLOYMENT SERVICE**

To meet the need for an effective placement service for all students, the Winnipeg office of the National Employment Service has established a Student Placement Office at the Institute. All students will be given the opportunity to register with the Student Placement Office while attending courses at this Institute.

**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 instructors 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. The Institute therefore reserves the right to make whatever changes circumstances require.
Course No. 31  Duration — 1200 Hours (approx. 10 months)

Clerical, Bookkeeping and Office Machines

Pre-requisites: Minimum of Grade X, or permission of the Principal or completion of the Basic Training for Skill Development Course — Level II.

Contents:
- Typing (theory, speed, forms), Business English (grammar, correspondence, spelling), Office Routine, Filing, Business Machines, (duplicating, transcribing, electric typewriter, billing machine and selected calculating machines) Bookkeeping (intermediate), Business Arithmetic, Business Law, Business Orientation (deportment, dress, personnel relations).

Textbooks:

**English**

**Office Practice**

**Rapid Calculation**
- "Business and Consumer Arithmetic" — McNeilly, Adams and Olson — Prentice Hall.
Spelling
“Words” — Crank, Crank and Connelly — Gregg.

Typewriting
“Gregg Typewriting for Colleges”, 2nd edition — intensive course, Rowe, Lloyd and Winger.
Workbooks — two.
“Typing for Accuracy” — White — Rowe.

Bookkeeping
“Basic Bookkeeping” — Seggie, Sutherland and Downes — Isaac Pitman.
“Student Dictionary of Bookkeeping and Accounting Terms” — Gage.

Machines
“How to Use Adding & Calculating Machines” — Walker, Roach & Hanna — Gregg.
“Canadian Law” — Jennings — Pittman Workbook.
“20,000 Words” — Leslie — Gregg.

Course No. 32  Duration — 1200 Hours (approx. 10 months)

Stenography
Pre-requisites: A minimum of a complete Grade X or permission of the Principal. Grade XI preferred.

Contents:
Shorthand (theory and speed), Typewriting (theory, speed, forms), Business English (correspondence, grammar, spelling), Office Routine, Filing, Business Machines (duplicating, transcribing, electric typewriter), Business Orientation (deportment, dress, personnel relations).

Textbooks:

**English**

**Office Practice**

**Rapid Calculation**
“Business and Consumer Arithmetic” — McNeilly, Adams and Olson — Prentice Hall.

**Spelling**
“Words” — Crank, Crank and Connelly — Gregg.
Typewriting

"Gregg Typewriting for Colleges" 2nd edition — intensive course, Rowe, Lloyd and Winger.
Workbooks — two.
"Typing for Accuracy" — White — Rowe.
"20,000 Words" — Leslie — Gregg.

Shorthand

"New Basic Course in Pitman Shorthand" — Pitman.
"Shorthand Dictation and Transcription" — Pitman.
"Students Shorthand Dictionary & Phrase Book" — Pitman.
"Shorthand Speed Drills" — Paul R. Moser.

Course No. 33  Duration — 750 Hours (approx. 6 - 8 months)

Clerk-Typist

Pre-Requisites: Minimum complete Grade X, or Basic Training for Skill Development Level II, or consent of the Principal.

Contents:

Typing (transcribing, speed, forms), Business English (grammar, correspondence, spelling), Office Routine, Filing, Business Machines (duplicating, transcribing), Clerical Record Keeping, Business Arithmetic, Business Orientation (deportment, dress, personnel relations).

Textbooks:

English


Office Practice
Gregg Quick Filing Practice — Kahn, Stewart and Yeriam.

Rapid Calculation

Spelling
"Words" — Crank, Crank and Connelly — Gregg.

Typewriting

"Gregg Typewriting for Colleges" 2nd edition — intensive course — Rowe, Lloyd and Winger.
Workbooks — two.
"Typing for Accuracy" — White — Rowe.
"20,000 Words" — Leslie — Gregg.
Course No. 41  Duration — 1200 Hours (approx. 10 months)

Architectural Drafting

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

Contents:
1. Introduction to Architectural Drafting — Use of Instruments, symbols, conventions and lettering.
2. Visualization — Multiview Projection — Isometric.
3. Construction Principles —
   a) Building Procedures
   b) Methods of Construction
   c) Allied Building Trades
   a) Bungalow Type Dwellings.
   b) Two-Storey Type Dwellings.
   c) Industrial Buildings.
   d) Commercial Buildings.
5. Quantity Take-Offs.
6. Structural, Air Conditioning, Plumbing, Heating, and Electrical Drawings pertaining to Architects sets of working drawings.
7. Perspective — Instrumental perspective architectural perspective, orthographic and perspective projections.

Related Subjects:
Industrial Mathematics
Industrial Communications
Industrial Science

Textbooks:
"Building Construction"—Huntington.
"Lessons in Lettering I and II" — French and Turnbull.
Course No. 42  Duration — 1200 Hours (approx. 10 months)

MANITOBA INSTITUTE OF TECHNOLOGY

Mechanical Drafting

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. Theory of Tolerancing — Section Views, Auxiliary Views: Full, half, partial, revolved, removed, offset, and assembly sections. Primary only.
5. Pictorial Drawings: Isometric, oblique (cabinet and cavalier), 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:

- Industrial Mathematics
- Industrial Science
- Industrial Communications
- Machine Shop
- Slide Rule

Textbooks:

"Technical Drawing"—Giesecke
"Lessons in Lettering"—French & Turnbull

and others to be selected.

Supplies:

1 Drafting Set
1 T-square
2 Triangles (45° and 30° — 60°)
Course No. 50A  Duration — 600 Hours (approx. 5 months)

Electrical Course: (Part A)

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development - Level II. Grade XI is preferred.

Note: This course (Part A and B) is designed to provide the basic knowledge and fundamental skills for those who seek employment in the Electrical Construction trade, in the field of service of electrical equipment, its maintenance and repair. For students planning on continuing to Part C, Course No. 51, a Grade XI or Grade XII standing is recommended.

Contents:

Theory: The Electric circuit; the free electron, coulomb, ampere, volt, resistance, circular mil, mil-foot, temperature co-efficient, joule, watt, the magnetic field; flux, flux density, permeability, hysteresis, saturation, residual magnetism, coercive force, magnetomotive force, magnetising force, reluctance, the magnetic circuit, electromagnetic devices, — the changing magnetic field, induced e.m.f. inductance, Henry, cutting lines of force; Induced e.m.f., D.C. Generator, Commutation, Armature Reaction, Armature windings, D.C. Motor, Back e.m.f., Torque, Series—Shunt and Compound Machines, Self-excitation,

**Practical:** Fundamental jobs; filing, drilling, tapping, cutting, soldering, joining, splicing, fastening, measuring, care of tools — installations, house wiring, control circuits, maintenance, repair and testing of electrical equipment, residential controls, D.C. Generators and Motors.

**Related Subjects:**
- Industrial Mathematics
- Industrial Science
- Industrial Communications

**Textbooks:**
- "Direct Current Fundamentals" — E. Loper
- "Wiring Simplified" — Richter
- "Canadian Electrical Code" — Metro Edition
- "Mathematics for Trades" — Ruttan
- "Blueprint Reading for Electrical Trades (Residential)"

**Note:** The student who completes this course and enters the Electrical Construction Trade will receive credit for Level I.

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**Course No. 50B** Duration — 600 Hours (approx. 5 months)

**Electrical Course:** (Part B)

Pre-requisites: Completion of Part A Course No. 50 with satisfactory standing, or the permission of the Principal.

**Contents:**

**Theory:** Generation of Alternating Current; the Resistive Circuit; RMS and average values of Voltage and Current. The Inductive circuit; inductive reactance, reactive power. The resistive — inductive circuit; impedance, apparent power, power factor. The capacitor; electric field, dielectric, farad, energy in a capacitor, time constant — the capacitive circuit; reactance, reactive power, inductive-capacitive circuits; resonance, power factor correction. Three phase systems; Wye and Delta connections, D.C. and A.C. instruments, single phase transformers, transformer efficiency, transformer ratings, polarity marking, paralleling of transformers, voltage regulation, transformer construction,
three-phase transformer connections; tap-changing transformers — autotransformers, regulators, instrument transformers, alternators, three-phase synchronous and induction motors and controllers, single phase motors; motor controls; Electrical Code; blueprint reading and sketching; job lay-out and estimating pertaining to commercial buildings; commercial controls.

**Practical:** Installations, commercial buildings, maintenance, repair and testing of electrical equipment, A.C. and D.C. generators, motors and controls, transformers, etc. Motor winding.

**Related Subjects:**
- Advanced Industrial Mathematics.
- Industrial Science.
- Drafting.

**Textbooks:**
- "Blueprint reading for Electrical Trades (Commercial)".
- "Electric Motor Repair" — Rosenberg.
- "Canadian Electrical Code".
- Mathematics — (to be selected)

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**Course No. 51**  
**Duration:** 600 Hours (approx. 5 months)

**Electrical Course**  
**Industrial Electrician**

**Pre-Requisites:** A minimum of complete Grade XI and completion of Part B Course No. 50, or  
A minimum of complete Grade X and completion of Part B with a sufficiently high standing, or  
Permission of the Principal.

**Note:** This course is not available until September 1967. Details will be published in the Manitoba Institute of Technology Calendar for 1967-68 (Industrial Division).
Course No. 52  Duration — 1200 Hours (approx. 10 months)

**Electrical Appliance Repair**

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development Level II. Grade XI is desirable.

Contents:

**Theory:** Fundamental principles of D.C. and A.C. laws, resistance of wires, electromagnetic induction, single phase and three phase motors, relays and controls, elementary transformer and generator, stator and armature winding, heating effect.

Analysis of the mechanical and electrical construction, servicing, rewinding of motors.

Analysis of the mechanical and electrical construction, servicing of heating and motor-driven small appliances.

Analysis of the mechanical and electrical construction, installation, and servicing of cooking and laundry equipment.

Electrical code required for Limited Appliances Licence.

**Practical:** Fundamental jobs in electricity, elementary circuitry; repairing, servicing and trouble-shooting of heating and motor-driven cooking and laundry equipment.

Servicing and maintenance of electric motors, rewinding single and three-phase D.C. motors.
Related Subjects:
- Industrial Mathematics
- Industrial Communication
- Industrial Science
- Shop Drawing
- Elementary Welding
- Machine Shop
- Elementary Refrigeration

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

Course No. 55 Duration — 1300 Hours (approx. 11 months)

Courses start in September and January.

Radio Operating and Electronic Communications

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

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 70%.

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

Course No. 56 Duration—1200 Hours (approx. 10 months)

Radio and Basic Electronics Servicing

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

Contents:
Theory: Basic Electrical Theory, A.C. and D.C., resistance, capacitance and inductance, impedance calculations, phase relationships, resonant circuits, tube applications including amplifiers, detectors, oscillators, phase inverters
and push-pull circuits, transistor theory and circuit application, basic A.M., transmitter design, receiver circuits, T.R.F. and superheterodyne, A.V.C. circuits with tube and transistor sets, F.M. receiver circuits, communication sets, servicing procedures and use of test equipment including multimeters, signal generators, tube testers, capacitor testers, oscilloscopes, and vacuum tube voltmeters, electronic circuits. **Practical:** Experimental work. Construction and testing of receivers and amplifiers. Trouble-shooting and alignment procedures. Use of test equipment, Multimeters, V.T.V.M.'s, signal generators and oscilloscopes.

**Related Subjects:**
- Industrial Mathematics
- Industrial Communications

**Textbooks:**
- "Basic Electronics"—Marcus
- "Elements of Radio Servicing"—Marcus & Levy
- "Tube Characteristic Manual"

**Course No. 57** Duration — 600 Hours (approx. 5 months)

**Television Servicing**

Pre-Requisites: Complete Radio and Basic Electronics Servicing Course or three years relevant experience in industry.

**Contents:**

Unit 2 — DEFLECTION AND AUXILIARY CIRCUITS —
Synchroguide, Phase Detector, and Synchrolock AFC
Systems. Horizontal Output and High Voltage Circuits.
Unit 3 — THE SIGNAL CIRCUITS — Wideband Amplifiers,
RF, VIF, and VF amplifiers. FM Sound Systems. Sweep
and Marker generators, and alignment and response
measurements in RF, VIF, and Sound FM circuits.
Unit 4 — COLOR TELEVISION — NTSC Standards, Color
transmission. Chrominance and Luminance Circuits,
Three gun Picture tube, Color Sync Systems Alignment
and Testing and troubleshooting these circuits. Con-
sideration of the other circuits, which have a counterpart
in Monochrome Television, but have important circuit
differences.
Unit 5—TRANSISTOR TELEVISION RECEIVERS, and other
topics. Test Equipment and Circuit Variations, with
emphasis on actual repair work.

**Practical:** Students conduct over 60 experiments and con-
struction projects involving all circuits of monochrome and
color Television receivers, and gain experience doing
actual receiver repairs.

*COURSE NO. 58* Duration — 500 Hours (approx. 4 months)

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**Industrial Electronics**

Pre-Requisites: Complete Radio and Basic Electronics Servicing
Course or 3 years relevant experience in In-
dustry.
Contents:

Unit 1 — INDUSTRIAL TUBES AND SEMI-CONDUCTORS
Instruments used to service Industrial Electronic Equipment. Single and Three Phase Regulated Power Supplies. Gradual Control of power using Thyratrons and Silicon Controlled Rectifiers.


Unit 3 — INDUSTRIAL ELECTRONIC APPLICATIONS — Photoelectric Controls, One and Two Way Register controls, Side Register Controls. Timing Circuits, Electronic Sequence Control for Welding Machines, Phase Shift Heat Controls, Electronic Control of Motor Speed.

Unit 4 — INDUSTRIAL TELEVISION — (This is the same as Unit 1 in the Television Course) Camera Tubes, Cathode Ray Tubes, Deflection Circuits, Sync Circuits, Video Amplifiers, Monitors. Closed Circuit Television Systems.


Unit 6 — AERONAUTICAL RADIO — History of radio aids to navigation — low frequency radio range (LFR) instrument landing systems (ILS) Runway localizer and glide-path — omni-directional range, VOR aircraft receivers. Tacan.

Practical: Students construct many experimental circuits designed to illustrate Industrial Electronic Principles.
Course No. 61  Duration — 1000 Hours (approx. 9 months)

Auto Body and Fender Repair

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

Contents:


Related Subjects:
- Industrial Mathematics  Industrial Science
- Industrial Communications  Welding

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

Textbook:
"The Key To Metal Bumping" — Frank Sargent.

NOTE:—Students must supply themselves with welding goggles and chipping goggles, striker and tip cleaner.
Course No. 62- A Duration — 600 Hours (approx. 5 months)

**General Automotive (Part A)**

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development — Level II.

Contents:

**Theory:** Construction of the automobile. Basic general shop practice, safety in shop practice. Operating principles of the cooling system, principles of lubricating system. Principles of fuel system including exhaust system related to mufflers and tail pipe. Running gear including transmission, clutch, springs, shock absorbers, wheel bearings, tie rod end, wheels and tires servicing, engine components. Types of gas engine, two and four stroke cycle, steering, geometry, automotive electricity, including battery ignition system, generator, alternator, starter, windshield wiper.

**Practical:** Shop safety, dismantling, cleaning, inspecting, and assembly, battery and tire service, remove exhaust manifold muffler and tail pipes, adjust brakes, adjust clutch linkage, clean and adjust ignition system, generator and starters.

Related Subjects:

- Industrial Communications
- Industrial Mathematics
- Industrial Science

**NOTE:** Students must provide themselves with coveralls and a kit of hand tools that will be designated by instructor. Students in the 16-20 age group completing this part of the course will be encouraged to follow an apprenticeship if they do not wish to enroll in Part B.

Course No. 62-B Duration — 600 Hours (approx. 5 months)

**General Automotive (Part B)**

Pre-Requisites: Completion of Part A or 2 years relevant Auto Mechanics experience.

Contents:

**Theory:** Generators, alternators, starters, windshield wipers, engines, overhaul of transmissions and clutches. Steering gear and wheel alignment. Rear axle, differentials, brakes, drive lines, carburetors. Motor Tune-up.

Related Subjects: Industrial Mathematics
Industrial Science
Industrial Communications

NOTE: Students must provide themselves with coveralls and a kit of hand tools that will be designated by instructor.

Course No. 63 Duration — 1200 Hours (approx. 10 months)

Diesel Mechanics and Highway Tractor Maintenance

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development Certificate. (Level II). Grade XI preferred.

This course consists of nine units, plus related subjects.

Contents:
Unit 1—Tractor Shop — Tools, safety, axles, clutches, transmissions.
Unit II—Engine Shop — Internal combustion engines, types, operation, construction, overhaul, cooling and lubrication systems.

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

Unit IV — Tractor Shop — Power take off, 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, controls, 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
  Industrial Science
  Machine Shop
  Welding

Textbooks:
"Diesel Engine Operation & Maintenance"—Maleer
"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. 71  Duration — 1200 Hours (approx. 10 months)

Machine Shop Practice

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development Certificate (Level II).

Contents:

**Theory:** Bench work. Use of hand tools. Layout work. Lathe work, shaper and planer, milling machines, drilling machines, Grinding machines, Safety precautions.

**Practical:** Filing, Drilling, chipping, tapping, reaming, fitting, Lathe work, shaper work, milling machine work, precision Grinding, tool and cutter grinding, fastening devices.

Related Subjects:
- Industrial Mathematics
- Industrial Communications
- Industrial Science
- Shop Drawing and Blueprint Reading

Textbooks:
"Machinist Ready Reference" — C. Weingartner
Course No. 72  Duration — 960 Hours (approx. 8 months)

General Sheet Metal Course

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development 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
Industrial Science
Industrial Communications

Textbooks:
"Sheetmetal Pattern Drafting and Shop Problems"
—Daugherty
"Sheetmetal Shop Practice"—Bruce
**Course No. 73**  Duration — 360 Hours (approx. 3 months)

**Oxy-Acetylene Welding Course**

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development Certificate. (Level II).

Contents:


**Practical:** Fusion welding of steel sheet, plate, and pipe (all positions). Welding, repairs, of cast iron, brass, copper, stainless steels, aluminum, and zinc die castings. Bronze welding and hard surfacing applications. Fabrication and use of jigs and fixtures. Face and root bend tests. Oxy-acetylene flame cutting (both manual and machine).

Related Subjects:
- Industrial Mathematics
- Industrial Communications
- Industrial 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  Duration — 360 Hours (approx. 3 months)

Electric Arc Welding Course

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development Certificate. (Level II).

Contents:

**Theory:** History of Arc Welding process. Safety precautions at work. Care and operation of welding machines. Alternating current type and direct current type equipment. Test for identifying metals. Theory of expansion and contraction of metals. Arc cutting procedures.

**Practical:** Arc Welding of mild steel in all positions. Cast iron welding of machinable and non-machinable types. Hard-surfacing application and repair of worn and broken parts. Flame cutting with the oxy-acetylene process. Welding of pipe in all positions. Testing of welds by the face bend and root bend tests.

Related Subjects:
- Industrial Mathematics
- Shop Drawing and Blueprint Reading
- Industrial 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. 75 Duration — 1200 Hours (approx. 10 months)

Refrigeration

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development Certificate. (Level II). Grade XI preferred.

Contents:


Related Subjects:
Shop Drawing and Blueprint Reading — Machine Shop Welding
Industrial Mathematics — Industrial Communications
Industrial Science

Textbooks:
"Commercial and Industrial Refrigeration"—C. W. Nelson
"Modern Refrigeration"—Althouse & Turnquist
"Electrical Principles and Practices"—Adams
"Electrical Code Book"—Metro
"Trane Refrigeration Manual"—Trane Co. of Canada
"Trane Air Conditioning Manual"—Trane Co. of Canada

Supplementary:
"Audels Refrigeration and Air Conditioning Guide"—Edwin P. Anderson

NOTE:—Students must supply their own textbooks, goggles, writing paper, pressure gauges, testing manifold with pressure hoses and pocket type thermometer (approx. $90 including texts).

Course No. 76 Duration — 750 Hours (approx. 6 months)

Air Conditioning

Pre-Requisites: A complete Grade XI and Course No. 75 or, A complete Grade X and sufficiently high standing in Course No. 75 or, Permission of the Principal.

NOTE:—This course is not available at present but will probably be available by September 1967. Further details will be given in the Manitoba Institute of Technology Calendar for 1967-68.
**Course No. 81**  Duration — 750 Hours (approx. 6 months)

**General Woodworking**

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development Certificate. (Level II).

Contents:

**Theory:** Tools and equipment. Materials. Fastening methods. Emphasis on accuracy and correct procedure in operation of both hand and machine tools. Theory of conditioning saws, planes, knives, cutter knives, etc. Instruction in the values of woods (soft and hard). Glues and their uses. All types of cabinet hardware and methods of fastening.

**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 Communications
Industrial Mathematics  Industrial Science
Shop Drawing and Blueprint Reading

**Textbooks:**
"Hand Woodworking Tools"—Delmar
"Basic Mathematics for Trades"—Rutan
"Operation of Modern Woodworking Machines"—Holtrop & Hjorth
"Interior and Exterior Trim"—Delmar
"Simplified Stair Layout"—Delmar
"Cabinet Making and Millwork"
Course No. 82  Duration — 750 Hours (approx. 6 months)

Carpentry

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development Certificate. (Level II).

Contents:


Related Subjects:
Industrial Mathematics
Shop Drawing and Blueprint Reading
Industrial Communications
Industrial 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. 83  
Duration — 600 Hours (approx. 5 months)

**Bricklaying**

Pre-Requisites: Grade IX or the permission of the Principal.

Contents:


- **Practical:** Spreading mortar, Buttering Bricks, Gauging, Plumbing corners, Bonds, Use of different materials.

Related Subjects:
- Mathematics (Estimating)
- Drafting and Blueprint Reading

Remarks:
- Aptitude and Dexterity are a necessity.

Textbooks:
- "Bricklaying I & II"—Delmar
Course No. 84  Duration — 960 Hours (approx. 8 months)

Plumbing

Pre-Requisites: A minimum of Grade X or a Basic Training for Skill Development Certificate — Level II.

Contents:

Theory: Tools and materials, Pipe sizes, Drainage Systems, Traps and Vents. Domestic water supply.


Related Subjects:

Industrial Mathematics
Industrial Science
Blueprint Reading
Related Welding
Course No. 85  Duration — 1200 Hours (approx. 10 months)

Upholstery

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development 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 chester-field suites of various designs.

Related Subjects:

- Industrial Mathematics
- Industrial Science

Textbooks:

- "New Essentials of Upholstery"—Bast
- "Upholstering and Re-Upholstering"—Criswell

Supplies:

| 1 Magnetic Hammer | 1 Pair of shears |
| 1 Steel measuring tape | Twine needles and |
| 1 Ripping tool | Upholstery Skewers |
| Mathematics Book | Notebook |
Course No. 86  Duration — 600 Hours (approx. 5 months)

Painting and Decorating

Pre-Requisites: Grade IX or Basic Training for Skill Development Certificate or permission of the Principal.

Contents:
Theory: Tools and equipment. Study of basic components of paint, basic color theory, application of various materials, paint failures, causes — preventions — remedies — spray equipment and use.

Related Subjects: Mathematics (estimating)
Trade Science, Industrial communications

Textbooks:
"Painting and Decorating Encyclopedia" — Jarvis
"Painting and Decorating" — Chlystyk
"Painting and Decorating Manual" — Audels

Course No. 90  Duration — 600 Hours (approx. 5 months)

Short Order Cooking

This course is designed for those who desire to learn the basic knowledge and practical training to prepare themselves for employment as Short Order Cooks in hotels, restaurants and drive-ins.

Pre-Requisites: A minimum of a complete Grade X or the permission of the Principal, or Basic Training for Skill Development — Level II.

Theory: General routine of Short Order Cooking and scope of the trade. Care and use of machines, equipment and tools of the trade. Sanitation and hygiene. Safety practices. Time and motion. Beverage making, sandwiches, soda fountain work, storage, food purchasing, menu planning, record keeping. Methods of cooking meats, vegetables, soups, etc., as it may pertain to short order cooks.

Practical: Preparing, cooking and serving of a variety of foods and dishes normally used in this trade, using grills, broiler, deep-fryers, high-frequency ovens, sandwich bars, soda fountains, beverages, salads, selecting and costing menus, portion control, storage.
Students must attend both theory and practical classes.
Supplies:
Five short sleeve white shirts, personally laundered,
Two bow ties, clip on type, dark green,
Three wedge caps, button back, green trim,
One loose leaf, three ring binder, 8½ x 11" refills, lined,
One each, pencil, pen, ruler,
One lock (for locker)

Textbooks:
To be selected.

**Course No. 91**  Duration — 1200 Hours (approx. 10 months)

**Commercial Cooking**

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development 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
- Industrial Communications

**Supplies:**
- 3 White cook's jackets
- 2 White wedge caps
- Pen, pencil, ruler, lock for locker

**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.

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**Course No. 092**

**Duration — 360 Hours (3 months)**

**Baking for Cooks**

This course is intended as a supplement to the Commercial Cooking Course.

Pre-Requisites: Successful completion of Course No. 91 Commercial cooking or proof of three years' experience as a cook in a commercial establishment. A minimum of Grade X or the permission of the Principal.

**Contents:**

**Theory:** Terms of the trade. Sanitation and personal hygiene. Care and use of tools and equipment of the trade. Storage of supplies. Scope and use of materials in the trade. Theory in respect to ingredients, their functions in production and the effects of temperature, light, humidity.

**Practical:** Preparation and production of breads, rolls, biscuits, pies, cakes, cookies, pastries, and puddings. Finishing of baking products.

Related Subjects:
- Industrial Mathematics
- Industrial Communications

**Supplies:**
- 3 White Bakers jackets
- 2 White Bakers caps
- 1 Looseleaf Book
- 1 Mathematics book

**Textbooks:**
- "Bread, Rolls and Sweet Doughs"—Richards
- "Cakes for Bakers"—Richards
Course No. 93 Duration — 1000 Hours (approx. 9 months)

Commercial Baking
Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development 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
Industrial Communications

Supplies:
3 White baker's jackets
2 White baker's caps
Pen, pencil, ruler, padlock for locker

Textbooks:
"Cakes for Bakers"—Richards
"Breads, Rolls and Sweet Doughs"—Richards
Course No. 94  Duration — 600 Hours (approx. 5 months)

Meat Cutting

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development 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 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.


Students must attend both theory and practical classes.
Related Subjects:
- Industrial Mathematics
- Industrial Communications

Supplies:
- 3 White jackets
- 2 Wedge caps
- 1 Mathematics book
- 1 Looseleaf book, pen, ruler, lock

Textbook:
"The Meat We Eat"—Ziegler

Course No. 95  Duration — 1000 Hours (approx. 9 months)

Barbering

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development 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 Duration — 1200 Hours (approx. 10 months)

Hairdressing and Beauty Culture

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development 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: Personal Hygiene, Sanitation, Disorders of the Skin, Scalp and Hair. Anatomy, Ethics, Chemistry and Shop Procedure and Management.

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

Workbooks:
"Hair Styling Sketch Book"—Milady
"Workbook for Beauty Culture"—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 Bookstore. In addition, each student must provide herself with two white short-sleeve uniforms and white low-heeled shoes.

Examinations after completion of course leads to Improvers Licence for the Province of Manitoba.

Course No. 98  Duration — 350 Hours (approx. 3 months)

Manicuring

Pre-Requisites: A minimum of a complete Grade X or a Basic Training for Skill Development 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: Personal Hygiene, Sanitation, Disorders of the Nails, Chemistry, Shop Procedure.
Practical: Manicuring, plain, oil and electrical. Hand and Arm Massage.

Textbook:
"Science and Art of Manicuring"—Cimaslia.
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. 100 Duration 480 Hours (approx. 4 months)

Practical Nursing

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 7 1/2 months clinical experience in hospitals.

Remarks:

Training consists of a 4 month classroom period at the Manitoba Institute of Technology, 2 weeks vacation, plus 7 1/2 months supervised clinical experience in the hospitals before a certificate is issued. (18 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.

Textbooks are purchased on the first day of class. Expenses, in addition to room and board, include uniforms approximately $40 and textbooks approximately $35. Tuition $40, if not eligible for Vocational training benefits.
Course No. 101 Duration — 1500 Hours (approx. 12 months)

Watch Repair

Pre-Requisites: A minimum of a complete Grade X or Basic Training for Skill Development 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 for a permanent certificate.

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 colleter, tapers for lathe, cement chucks, dulling, 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.
Extension Classes for Adults

I. TECHNOLOGY COURSES
   a. Structural Design 1
   b. Structural Design 2
   c. Design & Testing of Asphalt and Portland Cement
   d. Design of Reinforced Concrete
   e. Writing Fundamentals (English G-101)
   f. Electronics E1-102, Electronics E1-202
   g. Physics G-103, Chemistry G-205
   h. Maths G-202, Maths G-102
   *i. Virology
   j. Biochemistry
   k. Parasitology
   l. Haematology

   *Successful candidates who are proceeding to advanced certification in Bacteriology will be allowed one credit.

   For courses E to I — Pre-requisite — Junior Matriculation or its equivalent if secured prior to December 31, 1963.

II. EXTENSION CERTIFICATE COURSES
   An Extension Certificate will be offered to all those who successfully complete 240 hours of study or six 40-hour courses.

A. Business Administration
   Bookkeeping 1
   Bookkeeping 2
   Cost Accounting 1
   Cost Accounting 2
   Financial Statement Analysis
   Principles of Management
   Economics 1
   Economics 2
   Marketing 1
   Marketing 2A (Salesmanship)
   Marketing 2B (Salesmanagement)
   Business Law 1
   Business Law 2
   Business Psychology
   Communication Business

   Pre-requisite — Grade XI or three years in the business world.
II. EXTENSION CERTIFICATE COURSES (Cont’d.)

B. Drafting

Mechanical Drafting — Terms 1 to 6 inclusive
Architectural Drafting — Terms 1 to 6 inclusive
Pre-requisite — Grade X.

C. Radio and Television Electronics

Electronics 1
Electronics 2
Radio Electronics 1
Radio Electronics 2
Television Electronics 1
Television Electronics 2
Television Electronics 3
Television Electronics 4
Pre-requisite — Grade XI or Practical Maths.

D. Commercial

Comptometer 1
Comptometer 2
Shorthand 1
Shorthand 2
Elementary Typewriting
Advanced Typewriting
Office Practice
Business Machines
Business English
Pre-requisite — Grade X or 3 years experience in the business world.

E. Chemistry

These courses are designed to meet the standards of Chemical Institute of Canada.
General & Physical Chemistry 1
General & Physical Chemistry II
Analytical & Inorganic Chemistry I
Analytical & Inorganic Chemistry II
Organic Chemistry I
Organic Chemistry II
Pre-requisite — Grade XII or Grade XI and several years lab experience.

F. Master Electrician Course

8 - 40 hour courses.
Pre-requisite — Journeymen Electricians
III. INDUSTRIAL
Arc Welding
Oxy-acetylene Welding
Basic Electricity and House Wiring
Practical Maths
Blueprint Reading — Mechanical
Domestic & Commercial Refrigeration

IV. TRADE IMPROVEMENT COURSES
For those working at the following trades as apprentices, helpers, improvers or journeymen.
Machine Shop
Plumbing
Refrigeration & Appliance Electrical
Electrical — Terms 1 to 3
Electrical Code
Sheet Metal
Blueprint Reading — Architectural
Trade Maths
Auto-Mechanics
Stationary Engineering — Terms 1 to 3 — 2nd Class
Stationary Engineering — 3rd Class — Terms 1 to 3
Heavy Duty Mechanics
Carpentry
Commercial Cake Decorating
Painting and Decorating
D.C. & A.C. Circuits
Refrigeration R.S.E.S. — Terms 1 to 3
Color Television
Automatic Transmission

V. SPECIAL COURSES
Foremanship
Food Service Management
Autobody Estimating

VI. EXTENSION TECHNICIAN COURSES
A. Building Construction—six 40-hour courses.
The Council of the Canadian Institute of Quantity Surveyors has approved this course and successful students will be exempt from the Institute's first examination and eligible for membership as a Probationer.

VII. RADIiological TECHNICIAN COURSES
A series of courses are offered to prepare the candidate for The Fellowship in The Canadian Society of Radiological Technicians.
Pre-requisite—Candidates must be registered Technicians with The Canadian Society of Radiological Technicians
VIII. GENERAL INFORMATION

Registration Dates — Fall — 1966

Wednesday, September 14th       7:00 p.m. - 9:00 p.m.
Thursday,   September 15th       7:00 p.m. - 9:00 p.m.
Friday,      September 16th       8:30 a.m. - 4:00 p.m.

Classes will commence on September 26th and 27th.

Winter — 1967

Wednesday,   January 4th         7:00 p.m. - 9:00 p.m.
Thursday,    January 5th         7:00 p.m. - 9:00 p.m.
Friday,      January 6th         8:30 a.m. - 4:00 p.m.

Classes will commence on January 16 and 17.

Spring — 1967

Tuesday,    March 21st           7:00 p.m. - 9:00 p.m.
Wednesday,  March 22nd           7:00 p.m. - 9:00 p.m.
Thursday,   March 23rd           8:30 a.m. - 4:00 p.m.

Classes will commence on April 3rd.

The Evening Program is divided into three 40-hour, 10-week sessions.
Fall session commences in September—ends in December.
Winter session commences in January—ends in March.
Spring session commences in April—ends in June.
Courses are held two evenings a week, either Monday and
Wednesday or Tuesday and Thursday from 7:30 p.m. -
9:30 p.m. at the Manitoba Institute of Technology.
Day students with supplementals who are successful in the
Technology Evening Program, may obtain credits towards
the Day Program.
Courses will be started only when enrolment is sufficient
to warrant formation of a class.
At the present time the Adult Evening Program is under-
going a rapid expansion and as a result new courses will
be added in the coming months.

For further information contact:
Supervisor of Auxiliary Services,
Manitoba Institute of Technology,
2055 Notre Dame Avenue,
Winnipeg 23, Manitoba.
Phone 786-1486 — Extension 4.
Basic Training
for Skill Development

This is an upgrading program which is offered in full-time day classes to 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 having Grade VII but less than Grade X. The duration of the courses is approximately 14 weeks in each instance.

At the end of the Level III course, students write exams which, if successfully passed, entitle them to enter Level II training. The successful completion of Level II Final examinations permits the graduate to enter further Vocational Industrial training.

Purpose:

The purpose of these courses is to enable students to upgrade their education to a point which will permit them to enter into 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 Provincial Vocational Centres including the Manitoba Institute of Technology.

Where Are The Courses Offered?

Permanent centres are located in Winnipeg at 442 William Avenue and at the Manitoba Vocational Centre (Brandon).

Courses have also been held at a considerable number of centres in various parts of Manitoba. Whenever a sufficient number of persons require this type of training, a centre can be opened provided that adequate facilities and qualified instructors are available.

Eligibility:

In order to qualify, applicants must be at least seventeen years of age, have a formal education of less than Grade X, be unemployed, have not attended school for at least one year and have the interest and ability to upgrade their education.

Applications can only be obtained from the local National Employment Office and must be approved by NES officials before training can be considered.
Allowances:

During training under this program, students may be paid while training. The scale will vary according to circumstances and details may be obtained from the National Employment Office.

NOTE:

Students entering upgrading classes will be given a period of 4 weeks in which to demonstrate to their instructor by their punctuality, attendance, attitude, and work progress, the reasons why they should be allowed to continue training.

Students who do not satisfy their instructor in the above respects may be withdrawn from the course without further notice.

Subjects Offered

1. Communication Skills

The main aim in this subject is to teach students to communicate better with others. This may be by means of speaking, writing, spelling, testing or reading, or a combination of these. Although formal grammar is taught, this is chiefly to teach the use of words and the ability to build them into good sentences and good paragraphs in a united, coherent whole. Communication skills are becoming increasingly important in all trades and vocations and the subject material offered is slanted in this direction. Citizenship studies may also 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.
Apprenticeship

An apprentice is a person at least 16 years of age who enters into a written agreement to learn a skilled trade. The apprenticeship provides for a co-ordinated program of practical experience and related technical instruction.

Persons over the age of 21 MAY be registered if approved by the Apprenticeship Board. If they have had previous experience or training in the trade, the length of the apprenticeship term may be reduced. Many persons over 21 years of age now become apprentices so that they may avoid remaining helpers or labourers.

In all trades but one, at least a complete Grade Nine is required, the exception being the electrical construction trade where a minimum of Grade Ten is necessary.

Annual training courses for indentured apprentices in the designated trades are offered in full-time day classes and in some trades at evening classes at the Manitoba Institute of Technology, Industrial Division, as outlined in the attached schedule or classes.

All apprentices will be notified in writing by the Director of Apprenticeship when they will attend for their training.

These courses are at graduated levels and are attended at set intervals throughout the apprenticeship term. In most trades the apprentice is required to attend three or four courses averaging six weeks in length.

The courses provide instruction in practice and theory of the trade together with necessary related subjects such as mathematics, science, blueprint reading and in some trades, welding and machine shop.

These courses, coupled with on-the-job training, are planned to make an apprentice a fully competent journeyman.

The Federal and Provincial Governments finance this training jointly and the courses are given to the apprentice free of cost.

The apprentice agrees to attend regularly at his place of employment, to serve his employer faithfully, honestly and diligently and to make an honest effort to learn his trade. He also agrees to attend all classes and sit for examinations as required by the Director of Apprenticeship.
The employer agrees to provide adequate training for the apprentice in all branches of the trade. He agrees to keep the apprentice employed so long as work is available and also to co-operate with the Apprentice Training Division to ensure that his apprentice attends trade courses regularly.

A person who successfully completes an apprenticeship is granted a Certificate of Qualification in his trade. This certification identifies the holder as a journeyman and he is recognized by employers and the public as a trained and competent tradesman. In several trades the certificates are officially recognized across Canada.
# Apprenticeship Courses

(Offered in Co-operation with the Department of Labour)

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<thead>
<tr>
<th>Trade</th>
<th>Length of Course</th>
<th>Pre-Requisites</th>
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<tbody>
<tr>
<td>Auto Body Repair</td>
<td>Level I 6 Weeks</td>
<td>I Minimum Age 16 years.</td>
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<td>Automotive Repair</td>
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<td>Bricklaying</td>
<td>Level I 8 Weeks</td>
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<td>Carpentry</td>
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<td>Electrical Construction</td>
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<td>Factory Woodworking</td>
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<td>Machine Shop</td>
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<td>Painting and Decorating</td>
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<td>Plastering</td>
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<td>Plumbing</td>
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<td>Refrigeration</td>
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<td>Sheet Metal</td>
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<td>Steamfitting</td>
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<td>&quot; III 80 Hours</td>
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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 6-7551

The Department of Labour  
The Court House  
Brandon, Manitoba  
Telephone: PA 9-6487

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

"Skill for Security"