DEPARTMENT OF COLLEGES AND UNIVERSITIES AFFAIRS
PROVINCE OF MANITOBA

Hon. Saul Miller ........................................................ Minister

B. Scott Bateman, B.A. .................................................. Deputy Minister

COMMUNITY COLLEGES DIVISION

E. B. Angood, B.Sc. (Eng. Sc.) ................... Assistant Deputy Minister
Review and Development

J. E. McCannel, B.S.A. .............................. Assistant Deputy Minister
Operations
Minister
Colleges and Universities Affairs

Manitoba's Community Colleges continue to experience a condition of growth and expansion. In their ongoing task of providing a learning environment responsive to the needs of the community, they are continually faced with the challenge of increasing enrolments, and the need to introduce new programs, and to add to existing facilities. A very significant outcome of this trend has been the formation of the new Department of Colleges and Universities Affairs.

Each year a greater number of our citizens, both young and not-so-young, decide to take advantage of the opportunities provided by the Community Colleges for learning new and more advanced skills. Armed with this new knowledge, they can return to the community and contribute more effectively and productively in its general progress. They find themselves better equipped to assume roles in business, industry, and government and derive the greater satisfaction that comes with the realization that one is a more useful and integral part of society.

Trends for the future indicate a striving toward a greater flexibility within the Community College system. Where the demand exists and sufficient enrolment permits, multiple entry dates are being introduced for several programs. While batteries of core subjects are being maintained, the varieties of options available are being widened in scope. In these ways it is hoped we will approach still more closely, our ultimate goal of creating true Colleges of the Community.

Saul A. Miller
Manitoba Community Colleges Council

Chairman:
Mr. W. John A. Bulman, Winnipeg

Community Representatives:
Mr. Les Butterworth, Winnipeg
Rev. Adam Cuthand, Winnipeg
Mrs. Una Deeter, Winnipeg
Dr. A. L. Dulmage, Brandon
Mr. Charles Hovey, Winnipeg
Mr. I. B. Margolese, Winnipeg

Student Representatives:
Mr. L. J. Ewasiuk, Assiniboine Community College
Mr. Warren Neufeld, Keewatin Community College
Mr. Brian Preston, Red River Community College
Mr. R. W. Spector, Red River Community College

Faculty Representatives:
Mr. M. A. Wish, Assiniboine Community College
Mr. L. J. Sawatsky, Keewatin Community College
Mr. J. W. Redston, Red River Community College
Mr. R. Schweedic, Red River Community College

Regional Board Representatives:
Mr. W. F. Clarke, Lynn Lake, Chairman, Keewatin Community College Advisory Board
Mr. C. M. Kraeling, Brandon, Chairman, Assiniboine Community College Advisory Board

Provincial Government Representatives:
Mr. E. B. Angood, Department of Colleges and Universities Affairs, Winnipeg
Mr. J. E. McCannel, Department of Colleges and Universities Affairs, Winnipeg
Mr. I. H. Blicq, Department of Industry and Commerce, Winnipeg
Mr. C. K. Shepherd, Department of Labour, Winnipeg

Secretarial Staff:
Mr. J. Greenaway, Community Colleges Division, Winnipeg
Mr. R. J. Reynolds, Community Colleges Division, Winnipeg
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# Red River Community College
## Administrative Staff

G. L. Talbot, B. Ed. ............... Director

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<tbody>
<tr>
<td>S. P. Dicote, B.Sc. (I.E.)</td>
<td>Principal, Industrial &amp; Technology Division</td>
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<tr>
<td>C. H. Howard, B.Sc. (C.E.), P. Eng.</td>
<td>Assistant Principal, Industrial &amp; Technology Division</td>
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<td>R. A. Dunham, B.Sc., B.Ed.</td>
<td>Principal, Health Sciences Division</td>
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<td>P. F. Penner, B.A., B.Ed.</td>
<td>Principal, Extension, Community &amp; Student Services Division</td>
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<td>R. A. Sanburn, B.Sc., (Bus. Admin.)</td>
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<td>W. A. Porter, B.A.</td>
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<td>W. Yanchyshyn, B.A.</td>
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<td>Mrs. A. Armstrong, Dept of Manpower &amp; Immigration</td>
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<td>G. Anderson</td>
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<td>J. G. Cartwright</td>
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<td>G. Dobbin, B.A.</td>
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<td>J. Graham</td>
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<td>W. H. Grant</td>
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<td>H. V. F. Hume, B.Sc., B.Ed.</td>
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<td>Mrs. P. A. Law, R.N.</td>
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# Calendar of Events

### 1972

- **Saturday July 1st**: Dominion Day (College closed).
- **Monday July 3rd**: Departmental Summer School opens.
- **Monday July 31st**: Departmental Summer School second session opens.
- **Monday August 7th**: Civic Holiday (College closed).
- **Monday September 4th**: Labour Day (College closed).
- **Tuesday September 5th**: Fall Term commences (see page 18 for other entry dates).
- **Monday September 11th**: Final date for late Registration for Day School Courses.
- **Monday September 11th**: Registration begins for Fall Term Evening Courses.
- **Monday September 18th**: Fall term Evening Courses commence.
- **Monday October 9th**: Thanksgiving Day (College closed).
- **Saturday November 11th**: Remembrance Day (College closed).
- **Friday December 22nd**: Last day of classes before Christmas vacation.

### 1973

- **Monday January 1st**: New Year's Day (College closed).
- **Tuesday January 2nd**: College reopens.
- **Wednesday January 3rd**: Classes recommence.
- **Monday January 8th**: Registration begins for Winter Term Evening Courses.
- **Monday January 15th**: Winter Term Evening Courses commence.
- **Wednesday January 17th**: Fall Term Day courses examinations commence.
- **Saturday January 27th**: Where applicable, mid-term break begins.
- **Monday February 5th**: Spring Term Day School Courses Registration.
- **Friday February 9th**: Final date for late Spring Term Registration.
- **Monday April 2nd**: Registration begins for Spring Term Evening Courses.
- **Monday April 9th**: Spring Term Evening Courses commence.
- **Friday April 13th**: Open House.
- **Friday April 20th**: Good Friday (College closed).
- **Monday April 23rd**: Office re-opens.
- **Tuesday April 24th**: Classes recommence.
- **Monday May 21st**: Victoria Day (College closed).
- **Monday June 11th**: Spring Term Day Courses examinations commence.
- **Thursday June 28th**: Convocation.
- **Friday June 29th**: Convocation.
"CERTIFICATE COURSES"

ENTRY DATES

The first entry date shown can be considered as a firm date. Subsequent dates are tentative dates only. If classes are filled on the first date shown, subsequent dates will be null and void. Subsequent dates may be changed if the training situation warrants such a change. Where only one date is shown subsequent dates may be established if sufficient applications are received and if staff is available. Such additional classes may be operated on a second shift.

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<td>Winnipeg Sept. 5</td>
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<tr>
<td>Electrician, Industrial</td>
<td>Winnipeg Sept. 5</td>
<td>Feb. 5</td>
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<tr>
<td>Electronics, Industrial</td>
<td>Winnipeg Aug. 28</td>
<td>Feb. 5</td>
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<tr>
<td>Food Service Supervisors</td>
<td>Winnipeg Sept. 5</td>
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<tr>
<td>Graphic Arts</td>
<td>Winnipeg Sept. 5</td>
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<tr>
<td>Operating Engineers</td>
<td>Winnipeg Sept. 5</td>
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<tr>
<td>Painting and Decorating</td>
<td>Winnipeg Sept. 5</td>
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<tr>
<td>Photographic Technician</td>
<td>Winnipeg Sept. 5</td>
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<td>Plumbing</td>
<td>Winnipeg Sept. 7</td>
<td>Feb. 5</td>
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<tr>
<td>Practical Nursing</td>
<td>Brandon Sept. 5</td>
<td>Nov. 6</td>
<td>Jan. 2</td>
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<td>Radio Operators</td>
<td>Winnipeg Sept. 5</td>
<td>Jan. 2</td>
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<tr>
<td>Radio &amp; T.V. Servicing</td>
<td>Brandon Sept. 5</td>
<td>Feb. 5</td>
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<tr>
<td>Refrigeration &amp; Air Cond.</td>
<td>Winnipeg Sept. 5</td>
<td>Jan. 2</td>
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<td>Service Station Attendant</td>
<td>The Pas Sept. 5</td>
<td>Feb. 5</td>
<td>(Tentative)</td>
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<td>Sheet Metal</td>
<td>Winnipeg Oct. 30</td>
<td>Mar. 12</td>
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<td>Social Services</td>
<td>Winnipeg Oct. 2</td>
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<td>Stenography</td>
<td>Brandon Oct. 2</td>
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<td>Survey Technician</td>
<td>The Pas Oct. 2</td>
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<td>T.V. Servicing</td>
<td>Winnipeg Aug. 28</td>
<td>Feb. 5</td>
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<td>Upholstery</td>
<td>The Pas Sept. 5</td>
<td>Feb. 5</td>
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<td>Vocational Teacher Training</td>
<td>Winnipeg Sept. 5</td>
<td>As Vacancies Occur</td>
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<td>Watch Repair</td>
<td>Winnipeg Sept. 5</td>
<td>As Vacancies Occur</td>
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<td>Welding</td>
<td>Winnipeg Sept. 5</td>
<td>Nov. 6</td>
<td>Jan. 8</td>
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<td>Brandon Sept. 5</td>
<td>Nov. 6</td>
<td>Jan. 2</td>
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<tr>
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<td>The Pas Sept. 5</td>
<td>Oct. 30</td>
<td>Jan. 2</td>
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<td>Feb. 26</td>
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FACULTY
APPLIED ARTS COURSES

Sanburn, R. A., B.Sc. (Bus. Adm.). Principal
Yanchysyn, W., B.A. ...................... Assistant Principal
Angel, M., B.A., B.L.S. ................. Library Technicians
Baergen, J. R., B.Sc. .................... Industrial Mathematics
Barr, R. M., B.Sc. ....................... Technology Mathematics
Blicq, R. S., M.I.E.E.E. ................. Department Head, Ind. & Tech. Communication
Boily, L., B.Sc., C.E.T. ................ Technology Mathematics
Burns, R. D., B.Sc., P.Eng., C.A.P. .... Technology Physics
Campbell, K. G., B.Sc., M.I.E.E.E., C.E.T. Technology Mathematics
Cartwright, J. G. ....................... Supervisor, Food Services
Chopek, F., B.Sc. (H. Ed.) .......... Child Care Services
Chubb, B. J., M.I.B.B. .................. Food Services
Cuthbert, J. B. ......................... Creative Arts
Demedash, D., B.Sc. (C.E.), P. Eng. ... Technology Mathematics
Demiany, N. J., B.A. .................. Child Care Services
Emeruwa, L. E. (Mrs.), B.A ........ Bus. & App. Arts Communication
Fife, R. F. ......................... Food Services (Production)
Forest, L., B.A., M.S.W., R.W.S... Social Welfare Services
Frame, G. A. ........................... Industrial Mathematics
Galavan, D. N. ......................... Creative Arts
Geddes, W., C.E.T. ..................... Industrial Science
Goodine, L. O., B.Sc. (Ed.), M.A. .. Social Sciences
Gray, D. ............................... Food Services
Gray, W., B.A. (Hon.), M.C.I.C .. Department Head, Technology Maths. & Physics
Gross, L. W. ........................... Food Services
Hallas, F. ............................. Department Head, Hairstyling
Hammel, J. R., A.A.S ................. Creative Arts
Harris, N., B.A., B.Arch. .......... Creative Arts
Hoffman, K. ........................... Food Services
Holms, R. S. ......................... Creative Arts
Huber, D. (Mrs.) ...................... Hairstyling
Hughes, L. A. (Mrs.), B.A., (Hon.) ......................................................... Bus. & App. Arts Communication
Huppe, D. ................................................................. Food Services
Jivan, A. P., B.Sc., P.Eng. ...................... Technology Mathematics
Kane, R. O. ................................................................. Industrial Mathematics
Karasick, I. J. (Mrs.), B.A. ......................... Bus. & App. Arts Communication
Kell, K. A. J. ................................................................. Industrial Mathematics & Science
Kennedy, C. M. (Mrs.), B.A. ......................... Study Skills Centre
Klasz, J. ................................................................. Industrial Mathematics
Kiszinger, O. ................................................................. Department Head, Food Services
Koperno, M., B.A. ................................................................. Social Sciences
Kozak, J. ................................................................. Creative Arts
Knoff, V. R., B.Acc. ................................................................. Industrial Communication
Kramer, B. E. ................................................................. Industrial Science
Lam, P. T., B.Sc. ................................................................. Social Sciences
Lazar, L., B.A., C.E.T. ................................................................. Social Sciences
Lewis-Smith, J., Dip. F.A. ................................................................. Creative Arts
Marsh, R. J. ................................................................. Food Services
Mathieson, G. ................................................................. Industrial Mathematics
McKibbin, I. (Mrs.) ................................................................. Hairstyling
Monkman, R. E. ................................................................. Industrial Science
Morrison, T. R. ................................................................. Industrial Mathematics
Nicholls, K. E., B.Ed., C.E.T. ................................................................. Technology Communication
Nishibata, M., B.Sc., B.Ed. ................................................................. Technology Mathematics
Notley, G. D., B.Sc. ................................................................. Department Head, Industrial Mathematics
Onyschak, S., B.Sc., B.Ed. ................................................................. Industrial Science
Pankiw, D. B., Dip. F.A. ................................................................. Creative Arts
Parr, J. L., B.A. ................................................................. Bus. & App. Arts Communication
Paterson, M., B.F.A. ................................................................. Creative Arts
Pickering, J. ................................................................. Industrial Communication
Peterer, J. ................................................................. Food Services
Pollock, G., B.A. ................................................................. Social Sciences
Ridgeway, W. J. ................................................................. Industrial Communication
Rizvi, S. I. H., B.Sc., (Hons. Phy.), M.Sc. ................................................................. Technology Physics
Shere, S. W., B.Sc., M.A.M.S., M.E.M.S. ................................................................. Technology Mathematics
Simmonds, A. H. ................................................................. Creative Arts
Simeons, L., Dip. F.A. ................................................................. Creative Arts
Simpson, D. H. (Mrs.), B.A. ................................................................. Social Sciences
Smith, B. A., B.A., C.E.F. .............Department Head, Social Sciences
Smith, F. A. ..................................Technology Communication
Southon, F. C. G., B.Sc., M.Sc. .....Technology Physics
Spencer, L. A. ..................................Food Services,
                           Lab. Demonstrator
Sprunt, O. E. .........................Creative Arts
Surtees, A. E. .........................Creative Arts
Thurston, G. S., B.A. .................Technology Communication
Undiks, H. O. ..........................Department Head,
                        Industrial Science
Vincent, J. M. ..............................Industrial Mathematics
                          & App. Arts Communication
Warmbrod, M., B.Sc., M.Sc. ........Child Care Services
Watts, D., B.A. (Hons.) ..............Technology Communication
Wawryk, J. D. .................................Food Services, Lab. Demonstrator
Whitley, J. (Mrs.), B.F.A. ............Creative Arts, Lab. Demonstrator
Wiebe, H. D., B.A., B.Ed.,
                      C.E.T. ..................................Technology Mathematics
Williamson, D. S., B.A., B.Ed. ......Department Head, Creative Arts
Woroniuk, J. .................................Creative Arts, Lab. Demonstrator
FACULTY
BUSINESS COURSES

W. A. G. Porter, B.A. .............. Assistant Principal
Alford, A. R., B.S.C.,
B. Comm. ....................... Department Head
Ahluwalia, R. S.,
B. Comm. D.B.M ... Business Administration
Anderson, T. J., B.A., M.B.A. Business Administration
Balanduk, J. G. ................ Office Management
Barbaza, W., R.P.I. Dipl. ... Business Administration
Bechert, J. L. (Mrs.) .......... Office Management
Bellamy, W. R. (Mrs.) ......... Office Management
Biebrach, W. H., B. Comm. ... Economics Insurance Law
Bird, J. (Mrs.) ................... Secretarial Science
Boyaniwsky, M. (Mrs.) ....... Office Management
Briggs, J. (Mrs.) ............... Office Management
Brown, K. E. .................... Computer Analyst/Programmer
Cameron, D. B.,
B. Comm. C.A. .................. Business Administration
Campbell, G. R. D., C.A.
B. Comm. M.B.A. ............... Business Administration
Carroll, M. (Mrs.) .............. Office Management
Caverly, J. A., B.E., P.Eng. .. Commercial & Industrial Sales
Ceaser, R. J., B.A.,
B. Comm. ...................... Business Administration
Chang, S., (Mrs.) B.A. ........ Office Management
Chopp, L. H. .................... Computer Analyst/Programmer
Collins, Y., (Mrs.) B.A. ..... Secretarial Science
Daly, P. M. (Mrs.) ............. Office Management
Deleeuw, B. (Mrs.) .......... Office Management
Derksen, A. (Miss) R.I.A. ... Department Head Accounting
Dixon, J. (Mrs.) B.A. ........ Office Management
Dryburgh, K., B.Sc. .......... Computer Analyst/Programmer
Dutchuk, M., B. Comm. ....... Business Administration
Edwards, L. (Mrs.) ........... Office Management
Fitzgerald, J. F., B.A. ......... Office Management
Fletcher, J. J., B. Comm. ..... Computer Analyst/Programmer
Funk, H., C.G.A. .............. Office Management
Funk, H. H., R.I.A. .......... Business Administration
Goatcher, R. E., B. Comm. .... Computer Analyst/Programmer
Granda, S. L., (Mrs.)
Dipl. A.A. ....................... Secretarial Science
Harvey, B., B.A. (Hons.) .... Business Administration
Harvey, L. G., Dipl. A.A. ..........Department Head,  
                         Typewriting & Accounting  
Hastman, D. (Miss) B.A. .........Office Management  
Henry, M. (Mrs.) ................Office Management  
Herman, J. R., B.Sc. (M.E.)  
                         M.B.A., P. Eng. ..........Business Administration  
Hooper, R. E. (Mrs.) ............Secretarial Science  
Hunt, L. L., B.B.A. .............Business Administration  
Jennings, P. W. .................Computer Analyst/Programmer  
Kaglik, P. A., C.I.M.,  
                         B. Comm. (Hons.) ..........Business Administration  
Karlik, G. M., B.Sc. (C.E.)  
                         M.B.A., P.Eng. ............Business Administration  
Kennedy, D. B., B.A. ..........Business Administration  
Kennedy, R. A., B.Sc.  
                         (E.E.) M.B.A., P.Eng. ........Business Administration  
Kuxhouse, C. F. S. (Miss) ......Department Head,  
                         Office Practice & Shorthand  
Kyle, C. (Mrs.) B.A. ..........Office Management  
Lamont, F. M. (Mrs.) ..........Office Management  
Langevin, E. J., B.A. ..........Office Management  
Lenton, C., B.A. (Hons.) ......Business Administration  
Locken, P., (Mrs.) ...............Office Management  
                         Dipl. A.A. ..........Office Management  
MacDonald, G. G., B.Sc.,  
                         B.Ed. .......................Department Head, Business  
                         Machines, Mathematics, EDP  
Mackenzie, H. J., B. Comm. ...Business Administration  
Mackintosh, J. W., B.Sc.,  
                         M.A. ......................Business Administration  
March, M. J., B.A. ............Department Head,  
                         Marketing & Merchandising  
Martini, M. (Mrs.) .............Office Management  
Mitchell, J. G., B.Sc. B.A. ....Business Administration  
Mohr, A., B. Comm. (Hons.) ...Business Administration  
Nedohin, N. .....................Office Management  
Newton, D. .......................Office Management  
Nicolle, P., B.A.Sc. (M.E.) ...Business Administration  
O'Kell, I., B.A., LL.B. ........Business Administration  
Ostermann, K., (Mrs.) ..........Office Management  
Partaker, L. M. (Mrs.) ........Office Management  
Plummer, V. J. (Miss)  
                         B.Sc., B.Ed. ..........Office Management  
Pollon, M. A. (Mrs.),  
                         Dipl. A.A. .................Computer Analyst/Programmer
Primeau, E., (Mrs.) ..........Office Management
Redekop, I., B. Comm ..........Business Administration
Redston, J. W., B.B.A .........Business Administration
Reichardt, F. L., A.P.A ........Business Administration
Reid, A. D. .....................Computer Analyst/Programmer
Rempel, A., R.I.A. ..........Computer Analyst/Programmer
Rodgers, K. W. .................Office Management
Rodkin, L., B. Comm ...........Department Head,
Computer Analyst/Programmer
Ruby, M. R. (Mrs.) ..........Office Management
Sheldon, C., P.P.I. Dipl ........Hotel, Motel & Restaurant
Management
Schmeichel, R. A., B.A .......Business Administration
Schmidt, J., B.Sc. ...............Computer Analyst/Programmer
Sjoberg, K., B. Comm ..........Business Administration
Smith, S. J., (Mrs.) ..........Office Management
Sweeney, J. J., B.Sc., B.A .....Business Administration
Tascona, R. (Mrs.) B.A .......Office Management
Vincent, G. D., Dipl. A.A .....Computer Analyst/Programmer
Warman, H. (Miss) B.A ......Secretarial Science
Watt, M. A. F., (Miss) ........Office Management
Young, V. H., B.A.,
B. Paed., B.Ed .................Business Administration
Zamuda, J., R.I.A. ..........Business Administration
Zuke, E., B.Sc. (M.E.) M.B.A.Business Administration
EXTENSION, COMMUNITY AND STUDENT
SERVICES DIVISION

P. F. Penner, B.A., B.Ed. ...... Principal

Basic Training for Skill Development

R. C. Gobert, B.A., B.Ed. ...... Supervisor, Winnipeg
A. B. Ramrattan, B.A.,
    Dip. in Adult Ed. ............... Supervisor
    East Central Manitoba
J. B. Froese, B.Sc. ............... Assist. Supervisor, Winnipeg
F. J. Gamaldo, B.A.
    Cert. in Education .............. Assist. Supervisor, Winnipeg
L. R. Fletcher, B.A., B.Ed. ...... Curriculum Consultant

INSTRUCTORS

J. Ali, B.Sc.
F. W. Barnes
E. Betke (Mrs.)
V. Bird (Mrs.)
J. Boon, (Mrs.) B.A.
E. Boyachek, B.A.
B. Bozyk, (Miss) B.A.
M. Braid (Mrs.)
V. Brown (Miss) B.A.
G. Buchanan, B.Sc.
A. Burkhardt (Miss)
    B.A., B.Ed.
H. Burtniak, (Miss) B.A.
T. Cox, B.Sc.
D. Darvill, B.A.
T. Eischen, B.A.
J. Elias, B.S.A.
W. Faryon, B.A., L.L.B.
D. Fitzgerald, (Miss) B.A.
D. Forsyth, B.A.
P. Fortune, B.Sc.
D. Foss, (Mrs.)
P. Fraser, (Miss) B.A.
M. Furlan, B.A.
E. Gibbings, (Mrs.)
S. Glennie, (Mrs.) B.A.
J. Graeb, B.A.
P. Greig, (Mrs.)
A. Griller
M. Hackett, (Mrs.) B.A.
M. Hansen, (Mrs.)
    B.Sc. (H.Ec.)
S. Harvey, B.A.
F. Heuchert, B.A., B.Ed.,
    A. Johnston
M. Karalnick, B.A., B.Ed.
D. Keep, B.A.
W. Klassen
R. Knudsen, B.A.
F. Koch-Schulte, B.Sc.
L. Larson, (Mrs.)
W. Leckie, B.A.
K. McLeod, A.M.M., B.Sc.
C. MacKay, (Mrs.) B.A.
J. Mackay
S. Mandziuk
R. Mankasingh, B.Sc.
F. Martin
P. Masniuk, (Miss) B.A.
H. Meledszus, B.Sc.
A. B. Mohammed, B.A.
C. Nelson
S. Nicholson, (Mrs.)
R. Oliver
G. Ordonez, (Mrs.)
E. Payne, B.A.
N. Peech, B.Sc., B.Ped.,
    B.Ed.
G. Ram, B.Sc., M.Sc., M.S.,
    A.I.I.S., P.Eng., A.P.E.M.
R. Rampersadsingh, B.Sc.
B. Ranville
K. Riddell (Mrs.)
C. Sacher, (Miss)
M. Samborski, (Mrs.)
P. Sampson, (Mrs.) B.A.
C. Shirk, (Miss) B.A.
L. Siewsankar, (Mrs.)

W. Slipetz
D. J. Staniland (Miss) B.A.
T. Thorsteinson, B.A.
D. Tickner, B.A.
H. van Hartvelt (Mrs.)
G. Vatnsdal, B.A.
P. Zwolak, (Miss) B.A.

Agriculture and Special Courses

A. C. Chorney, B.S.A., B.Ed. Asst. Supervisor, Agriculture & Special Courses

M. Barnabe, B.A., B.S.A.
J. A. Boerchers,
B.S.A. (Hons.)
J. M. Bowman, B.S.A.
H. A. Brust,
Dip. Agriculture
J. Findlay, B.S.A.
G. Gaudet, B.S.A.
D. L. Gervin,
Dip. Agriculture
O. B. K. Halldorson,
Dip. Agriculture
K. C. Henry, B.S.A.
C. C. Hunter,
Dip. Agriculture
T. Jenkins,
Dip. Agriculture
K. W. Johnson,
Dip. Agriculture
M. H. Johnston, B.S.A.
J. Kostel, Dip. Agriculture
P. J. Maguet, Dip. Agriculture
J. Martens, B.S.A.
J. Martin, B.S.A.
C. J. Masse, (Mrs.), B.S.A.

D. E. McGregor,
Dip. Agriculture
T. McGregor,
Dip. Agriculture
E. Meyer, Dip. Agriculture
M. S. More, Dip. Agriculture
R. Pasieczka, Dip. Agriculture
J. R. Pedersen, Dip. Agriculture
W. M. Polon, B.S.A.
K. Proven, Dip. Agriculture
R. Radcliffe, Dip. Agriculture
B. D. Randell, B.S.A.
L. Rankin, Dip. Agriculture
R. Rasmussen, B.S.A.
G. Redd, B.Sc. Business
J. Remus, Dip. Agriculture
D. Richmond, Dip. Agriculture
V. Sauderson, Dip. Agriculture
G. C. Smith, B.S.A.
B. E. Stober, Dip. Agriculture
L. B. Sweetser,
Dip. Agriculture
R. Thomas, B.S.A.
H. Watson, Dip. Agriculture
K. Wells, Dip. Agriculture
R. White, Dip. Agriculture

Heavy Equipment Instructors

P. Demuriak
R. Kubic
Counselling Services

H. V. F. Hume, B.Sc., B.Ed. ......Supervisor
D. Curtis, B.A., B.Ed. ...............Counsellor
R. M. Floch (Miss) B.S.
   H. Ec., B.Ed. ........................Counsellor
W. Kelsall, B.A., M.Ed. ..............Counsellor
J. N. Neufeld, B.A.,
   B. Paed., B.Ed. ........................Counsellor
M. H. Sawka, B.Sc. (E.E.),
   B.Ed. .................................Counsellor

Evening Program

G. S. Ross, B.Sc. ........................Supervisor
G. Dobbin, B.A. ........................Assistant Supervisor

Management Development & Training in Industry

W. S. Jeffries, C.A. .....................Senior Consultant
J. Ducharme, C.A. .....................Consultant
J. Ferguson ............................Consultant
N. J. Panchysak ........................Consultant
L. J. Sinnot ............................Consultant
FACULTY
HEALTH SCIENCES DIVISION

Dunham, R. A., B.Sc., B.Ed. .......... Principal
Ames, L. (Mrs.), R.T ................. Lab Student Supervisor
Barnard, B. (Miss), Reg.N., B.N. .. Department Head, Practical Nursing
Beattie, M. (Miss), Reg.N., B.N. ... Practical Nursing
Black, R.G., Reg.N., B.N. .......... Diploma Nursing
Chalmers, A. M., (Miss),
Collett, B. (Mrs.), Reg.N.,
B.Sc.N. .................................. Diploma Nursing
Curle, D. C., B.Sc., A.R.T .......... Medical Laboratory, Technology
Dalenger, P. (Miss), Reg.N., B.N.. Diploma Nursing
Dick, D. M. (Miss), Reg.N.,
B.Sc., M.A. ........................... Supervisor, Diploma Nursing
Ellis, N. (Mrs.), B.Sc., A.R.T.  Medical Laboratory Technology
Felix, M. A. (Miss), Reg.N., B.N. Practical Nursing
Gramek, G. M. (Miss), A.R.T. .... Lab Student Supervisor
Greenwood, M. (Mrs.),
Reg.N., B.N. .......................... Diploma Nursing
Hirst, E. (Miss), B.Sc., A.R.T. .... Medical Laboratory Technology
Holden, L. (Mrs.), R.T. ........... Lab Student Supervisor
Howlett, C. M. (Miss), R.N.,
L.C.S.L.T. ............................. Department Head, Medical Laboratory Technology
Kaminsky, J. H. (Miss),
B.Sc., A.R.T. .......................... Medical Laboratory Technology
Labun, E. (Miss), Reg.N., B.N. .... Diploma Nursing
Lafreniere, G. (Mrs.), Reg.N.,
B.Sc. Nursing Education .......... Diploma Nursing
Maxwell, R. T. (C.S.R.T.),
R.T. (C.S.L.T.) ........................ Medical Radiological Technology
McCartin, M. (Miss),
Reg.N., B.N. .......................... Diploma Nursing
McCoulm, A. P. (Mrs.), Reg.N. .... Practical Nursing
McEwen, L. D. (Mrs.),
B.A., Reg.N. .......................... Practical Nursing
McIvor, N. (Mrs.),
Reg.N., Cert. P.H.N. ............... Practical Nursing
McLennon, L. E. (Mrs.),
L.C.S.L.T. ............................. Medical Laboratory Technology
Patz, S. (Miss), Reg.N., B.N. .......Diploma Nursing
Penner, A. M., A.R.T. ......................Medical Laboratory Technology
Rempel, M. (Miss), Reg.N., B.N. ....Practical Nursing
Scanlan, J. (Mrs.), Reg.N., B.N. .......Diploma Nursing
Scorer, L. (Miss), Reg.N., B.Sc.N. ....Diploma Nursing
Tsujimoto, A. (Miss), B.Sc., (L.A.) ....Medical Laboratory Technology
Wayne, P. (Mrs.), Reg.N., B.N. .......Diploma Nursing
Pollock, R. D., B.Sc. (Phys. Ed.) ....Department Head, Physical Education
Kaplan, J., B.Sc., M.Ed. ...............Instructor, Physical Education
Graham, J. (Miss), B.A., B.Ed. ......Instructor, Physical Education
FACULTY
INDUSTRIAL AND TECHNOLOGY DIVISION

S. P. Didcote, B.Sc., (I.E.) ..........Principal
C. H. Howard, B.Sc.,
(C.E.), P.Eng. ..........................Assistant Principal
L. E. Mousseau, B.A. .................Technical Services
Co-ordinator, Industrial &
Technology Division

I. Appleyard (Miss) ....................Operations Co-ordinator,
Industrial & Technology
Division

W. G. Allen, C.E.T. ....................Automotive
G. E. Anderson .......................Civil Technology
R. J. Bale .............................Carpentry and Woodworking
C. A. Balfour ..........................Drafting
R. S. Beech ...........................Watch Repair
J. A. Bell (Jr.),
B.Sc. (E.E.), P.Eng. .................Electronic Technology
M. W. Boroskae, C.E.T. .............Industrial Electrical
A. P. Bourke ..........................Electrical Appliance Servicing
H. Braun ..............................Automotive
C. C. Brown ...........................Sheet Metal
L. E. Carmichael .....................Technician, Electronic Technology
M. P. Challenger, B.Sc.,
(Hons.), (M.E.),
M.C.S.M.E., P.Eng. .....................Mechanical Technology
R. Chin, B.Sc., (E.E.),
P.Eng. .................................Electronic Technology
S. T. Chisholm .......................Radio Operating
S. H. Clayton ..........................Carpentry and
Woodworking
B. H. Crandell, Dipl.T.
(Electronics), C.E.T. ............ Electronic Technology
D. N. Dales ...........................Automotive
J. C. B. Davidson .................. Painting and Decorating
A. G. Deroche .......................Auto Body
N. A. Drabyk ........................ Technician, Electrical
Technology
B. I. Dreger, M.L.S., B.Sc.,
(C.E.) .................................Civil Technology
D. Drul ..............................Technician, Civil
Technology
G. W. Duncan, B.Sc.,
(E.P.), M.Sc., P.Eng. .............Electronic Technology
A. R. Dunlop ........................ Industrial Electrical
W. Dychuk, B.Sc. .........................Chemical Technology
W. P. Dyck, B.Sc., M.C.I.C ............Chemical Technology
P. Elvers, B.Sc., B.Ed. .................(Department Head)
                                  Construction
T. A. Evans, C.E.T. ....................Civil Technology
C. A. Finn ................................Welding
L. Forcese ................................Steamfitting
R. S. Foulds ................................Industrial Electronics
S. J. Franklin ...........................Welding
V. J. Fraser, C.E.T. ....................(Department Head)
                                  Metals
H. H. Friend ............................Machine Shop
R. J. Friesen, B.Sc.,            (C.E.), P.Eng. ..................Civil Technology
          G. O. Gaboury .................Basic Electronic Servicing
G. B. Garbutt, B.Sc.            (Hons.), Ph.D ..................Chemical Technology
J. F. Gemmel ..........................Radio Operating
R. J. Giesbrecht, B.Sc.,        (E.E.), P.Eng. ..................Electronic Technology
          E. J. Gladysz, C.E.T. ...........Industrial Electrical
W. M. Gray, B.A.                  (Hons.), M.C.I.C. ..............(Department Head)
                                  Related Maths and Physics
R. Hamelin ............................Drafting
D. J. Harris, C.E.T. ..............Civil Technology
G. W. Harrison, B.Sc.,        (C.E.), P. Eng ..................Civil Technology
R. S. Hayes ...........................Drafting
A. E. Heinrichs,              B.Sc., (C.E.), P.Eng. ..........Civil Technology
          G. D. Hermanson, B.Sc., (C.E.), P.Eng. ...........(Department Head)
                                  Civil Technology
L. H. Herrington, C.E.T. ..........Basic Electronics Servicing
N. N. Hildebrand ........................Auto Body
F. B. Hill, C.E.T. ....................Electronic Technology
S. Hodge, B.Sc., (E.E.),       M.Sc., Ph.D. ..................Electrical Technology
R. R. Holder ..........................Industrial Electrical
P. Hunt (Mrs.) .........................(Department Head)
                                  Drafting
M. Jacobs, B.Sc., (Hons.),     M.Sc., Ph.D. ..................Chemical Technology
H. L. Johnson ...........................Industrial Electrical
J. D. Johnson ................................ Plumbing
A. T Johnston ................................ Industrial Electrical
E. S. Kolaski, B.Sc.,
(C.E.), P.Eng. ......................... Civil Technology
S. Krywy, B.Sc., (E.E.), P. Eng. .... Electrical Technology
J. Laczkos ................................ Diesel
J. F. Lane ................................ Machine Shop
A. W. Larson ................................ Welding
B. Law ...................................... Drafting
J. A. Laxdal ................................ Refrigeration
C. E. Littler, B.A., Man.
1st Class Op. Eng. ..................... Operating Engineers
R. C. Locken ................................ Diesel
G. Love, B.S.E.E., M.Sc.,
D. P. Lowe ................................ Electrical Technology
L. E. Lussier, C.E.T. .................... Drafting
M. A. Mayer, B.Sc.,
(Eng. Phys.). D. (E.E.)
P. Eng. ..................................... (Department Head)
Electronic Technology
R. D. Mikkelsen ............................ Plumbing
W. E. Moffat, B.Sc., (Hons.) ........ Chemical Technology
D. F. Moroz, M.Sc., (E.E.),
M.I.E.E.E., P. Eng. .................... Electrical Technology
G. D. Morris ................................ Automotive
G. A. Morrison, B.Sc.,
(C.E.), P. Eng. ......................... Civil Technology
P. Moskal .................................. Industrial Electrical
J. P. McCoy ................................ Industrial Electrical
M. B. McCurdy, B.Sc.,
(M.E.), P. Eng. ......................... Mechanical Technology
S. L. McLean, C.E.T. .................. Sheet Metal
G. D. Ness ................................ Machine Shop
T. Nishimura ............................. Industrial Electrical
R. Nuttal .................................. Industrial Electrical
T. M. Olsen ................................. Basic Electronics Servicing
J. Pankiw ................................... Plumbing
E. G. Patterson ............................. Industrial Electrical
J. T. Patterson, C.E.T. ................. (Department Head)
Auto/Diesel
W. J. Patton, B.Sc.,
(M.E.), P. Eng. ......................... Mechanical Technology
J. M. Pedora ................................ Welding
J. Rathje, Dipl.-Ing., P. Eng. ........... Industrial Electrical
H. A. Reece, B.Sc. ................. Civil Technology
E. H. Reed ................................ Basic Electronics Servicing
D. D. Reid .................................. Carpentry and Woodworking
F. J. Reid, B.Sc., (I.E.),
C.E.T., M.I.E.E.E. ................... T.V. Servicing
A. H. Robbins, B.Sc., M.Sc.,
(E.E.), M.I.E.E.E., P. Eng. .... (Department Head)
..................................... Electrical Technology
L. Ross, B.Sc., (Hons.),
M.Sc., M.C.I.C. ..................... (Department Head)
..................................... Chemical Technology
V. N. Round ............................ Upholstery
E. C. Roy ................................ Industrial Electrical
R. R. Roziere, B.Sc., (C.E.),
M.Sc. (Structural), P.Eng. ...... Civil Technology
D. N. Ruck ................................ Welding
J. I. Sawchyn ........................... Automotive
A. M. Schroeder, B.Sc.,
(Ed.), C.E.T. ......................... Drafting
D. H. Shand, C.E.T. .................. Electronic Technology
L. A. Shirtlife, Dipl. T.,
M.I.E.E.E. .......................... Electronic Technology
L. B. Shulakewych, B.Sc.
(E.E.), M.Sc. (E.E.) .............. Electronic Technology
A. D. Shura .............................. Diesel
J. D. Skinner ......................... (Department Head)
..................................... Electrical and
..................................... Electronic-Industrial
S. M. Skrynyk, B.Sc.
(Hons.), M.Sc. ................. Chemical Technology
B. J. Small ........................... Auto Body
E. S. Smendziuk, B.Sc.,
(C.E.), B.Ed., P. Eng. .......... Civil Technology
G. H. Smith .......................... Masonry
E. W. Sobkowicz, B.Sc., (E.E.) ... Electronic Technology
S. E. Solmundson, B.Sc.,
(C.E.), P.Eng. ....................... Civil Technology
J. Stark ................................ Carpentry and Woodworking
T. Stephens ............................ Operating Engineers
T. R. Stratton ........................ Civil Technology
W. D. Sutherland .................. Drafting
P. R. Suzanne ......................... Technician, Mechanical
..................................... Technology
G. B. Szebeledy, C.E.T. .......... Chemical Lab.
          Demonstrator
W. Taubner .......................... Drafting
F. J. Thiessen ........................ Automotive
F. C. Thody .......................... Automotive
C. Trylinski .......................... Industrial Electrical
H. J. Van de Mosselaer .......... Machine Shop
E. Van Humbeck,
    B.Sc. (E.E.) ........................ Electronic Technology
J. E. Vigfusson ........................ Carpentry and Woodworking
J. H. Vincent, B.Sc.,
    M.Sc., Ph.D. ........................ Chemical Technology
D. E. Walker .......................... Plumbing
K. Walker, B.Sc.,
    (M.E.), P. Eng. ........................ Mechanical Technology
J. M. Waring .......................... Drafting
D. A. Watson .......................... Machine Shop
R. G. Wheeler .......................... Automotive
T. A. Williams, B.Sc.,
    (C.E.), P. Eng. ........................ Civil Technology
H. Wilson, B.Sc., (M.E.,
    M.C.S.M.E., P. Eng. ............... (Department Head)
          Mechanical Technology
W. K. Young .......................... Diesel
FACULTY
TEACHER EDUCATION
PROGRAMS

L. E. Judt, B.Sc., M.Sc. .......... Acting Supervisor,
Teacher Education, and
Department Head,
Industrial Education

S. Bogucki, B.Sc.Ed ................ Instructor

C. G. Cockburn, B.A.,
(Ind. Ed.) ......................... Instructor

Mrs. L. C. Falconer ................. Instructor

K. W. Hardy, B. Comm.,
B. Ed., ....................................... Department Head,
Business Education

Mrs. M. A. Langlois ................. Instructor

W. Rampaul, B.A., B. Ed.,
M. Ed. ....................................... Instructor

E. A. Ramsay, P.Eng.,
B.Sc. in E.E., B. Ed. ................ Instructor

R. R. Rosendahl, B.Sc. Ed. ........ Instructor

C. L. E. Wells, B.Sc., M.Sc.,
M.Ed. ....................................... Instructor
General Information

This calendar offers detailed information on the courses and subjects available through the divisions listed below.

1. The Applied Arts and Business Division offers arts-based courses, general education courses as a service to the other divisions, teacher education courses, business administration and commercial courses for business office training.

2. The Health Sciences Division offers courses in the paramedical fields in co-operation with hospitals and other medical organizations.

3. The Industrial and Technology Division offers pre-employment and apprenticeship training in trade and industrial areas, and engineering technology courses for high school graduates.

4. The Extension, Community and Student Services Division offers a wide selection of evening courses; basic training for skill development courses for persons lacking the pre-requisites for vocational courses, Occupational English for persons lacking the necessary proficiency in English, courses in Management Development and training in industry. The Division also provides counselling services for students and liaison with the Student Association.

Programs and courses are offered subject to sufficient enrolment and availability of instructional staff. Maximum limits on enrolment in some classes are governed, also, by availability of field work, placement, and capacity of facilities.

The College reserves the right to make changes in its offerings, regulations and procedures.

The Assiniboine Community College in Brandon and The Keewatin Community College in The Pas offer similar services to the communities which they serve.

A. A. Loveridge — Principal, Assiniboine Community College, 1430 Victoria Avenue East, Brandon, Manitoba.

G. A. Joseph, B.Sc. (Eng.) — Principal, Keewatin Community College, 7th Avenue at Charlebois Street, The Pas, Manitoba.
Admission Procedures

PRE-REQUISITES FOR ADMISSION:

Grades shown as prerequisites are Manitoba standings. Equivalent standings of applicants from other provinces and countries outside of Canada are acceptable. Applicants are urged to submit their academic transcripts to the College Registrar for evaluation.

Persons lacking the formal requirements for admission to any course at Red River Community College are strongly urged to contact the College Registrar to determine whether a suitable qualifying course is available.

ADMISSIONS COMMITTEE

Each Division has an Admissions Committee which is established by the Principal of the Division. All applications must be approved by this Committee. Applicants may be asked to appear before it for a personal interview and evaluation.

Where an applicant lacks the formal prerequisites and where there are extenuating circumstances, the Admissions Committee may approve admission on the basis of test results.

PART-TIME STUDENTS

Providing space is available, many individual subjects are open to part-time students who have the necessary prerequisites. Persons interested in taking partial courses are urged to contact the College Registrar for more details.

The courses of all part-time students are subject to approval by the Admissions Committee.

S.A.C.U. TEST SCORES:

The Community Colleges, at present, do not require the submission of S.A.C.U. scores for admission purposes because of the variety of qualifications currently acceptable for admission to their various courses.

SUBJECT CREDIT

Credit for work completed prior to enrolling in any course in the College may be considered by an Admissions Committee on a subject by subject basis. It is the responsibility of the student to:

(a) Make a written request for credit to the Registrar within three weeks of published commencement date for the course as stated in the College Calendar.

(b) Provide suitable documentation of subject content and the grade received for the work to be evaluated.
APPLICATIONS FOR ADMISSION:

A. Post Secondary Courses — The following regulations apply to courses which have a basic pre-requisite of Grade XII and to the Pre-College courses.

All applicants who are paying their own fees are required to:

1. Apply in writing using the approved application form for The Red River Community College.
2. Hold at least the minimum academic prerequisites listed under each course.
3. Submit a transcript of their high school marks (Grades XI and XII where applicable) which should accompany the application. Processing of applications cannot be completed until the official transcripts have been received by the College, although students currently in high school are encouraged to submit their applications before they receive their school results in June.
4. Applications must be received or postmarked not later than midnight, August 31st for those students applying for the Fall Term, and January 31st for those applying for the Spring Term.
5. Be 16 years of age or over, or as specifically set out.
6. Be physically qualified in reference to the type of course selected.
7. When the number of applicants exceeds the accommodation available, the Admissions Committee reserves the right to accept those who are considered most likely to succeed.

B. Other Certificate Courses — The following regulations apply to courses where basic pre-requisites are less than Grade XII.

Applicants who are not sponsored by Canada Manpower are classified as “Provincial Entry” applicants. Provincial Entry Applicants, when accepted, are required to pay tuition fees, and must provide their own textbooks, supplies and other equipment. Those applying for entry as “Provincial Entries” must use the approved application form. A transcript of the marks received by an applicant in his last completed grade of academic schooling must be attached to the application.

Provincial Entry Applicants, if accepted, will have their names placed on our waiting list and will be so notified. It is to be understood that, in most courses lasting one year or less, there may be a waiting list of some length. Acceptance into a course may not occur for a number of months.

C. Sponsored Applicants — Applicants who are being sponsored by Canada Manpower under the C.M.T.P. (Canada Manpower Training Plan) Program or by any other sponsoring agency must be documented by the sponsoring agency in accordance with agreements made with the Community College.
If the sponsor is other than a Canada Manpower Centre, a letter or other form of commitment as to extent of sponsorship (tuition, books, etc.) must be received by the Registrar. This documentation must be completed prior to registration day when the applicants arrive at the College to commence their courses.
FEES AND REFUNDS:

A. POST SECONDARY COURSES — The following regulations apply to courses which have a basic pre-requisite of Grade XII and to the Pre-College courses.

Fees: Tuition and student activity fees are $107.50 for each 5 month term payable in full on or before the date of registration for each term. Students who have had their applications approved by the Admissions Committee are encouraged to pay their tuition fees in advance of the registration date. This assists both the College and the individual student, as the time then spent on registration is kept to a minimum. See individual courses for specific fees and other expenses.

Refunds:
1. Where a satisfactory reason for withdrawal has been given to the Principal, he may recommend that a refund be granted to the student.
2. In those cases where refunds are granted, the following will apply:
   (a) Students withdrawing before the final date for late registration will be granted a refund of the full amount paid.
   (b) Students withdrawing after the final date for late registration but before the end of the first calendar month of instruction will be granted a refund of the full amount paid less $20.00.
   (c) Students withdrawing during the second calendar month of instruction will be granted a refund of the full amount paid less $40.00.
   (d) No refunds will be granted after the second calendar month of instruction (i.e. the end of October or the end of March) but, if a student transfers to another suitable course, credit up to the amount of the unused portion may be applied towards the payment of the fees of that course.

B. OTHER CERTIFICATE COURSES — The following regulations apply to courses whose entrance pre-requisites are less than Grade XII.

Fees: Fees for all courses are based on a monthly rate as described below. The number of months for each course is shown under course details in this calendar.

$7.00 per month for all courses except Welding. The rate for Welding is $14.00 per month.

Fees for courses of more than six months duration are payable as follows: the fee for the first five months at the time of registration, the remainder of the fee at the end of five months training.
Fees for courses of six months duration or less are payable in full at time of registration.

Cheques or Money Orders for the exact amount of the fees being paid should be made payable to “The Red River Community College”.

**Refunds:** A student leaving the course for any reason within the first 30 calendar days will be eligible for a refund of the fee paid less the fee for one month’s tuition. A student leaving during the second 30 days will be eligible for a refund of the fee paid less the fee for two months’ tuition. No refunds are made after the second 30 days unless special circumstances warrant consideration for a refund. The Principal may exercise discretionary powers in such cases.

C. **SPONSORED STUDENTS** — Students sponsored by Canada Manpower or any other agency normally will not be expected to pay their own fees. Applicants should abide by the regulations of the sponsoring agency.

**STUDENT ACTIVITY FEES:**

A fee of $1.50 per month will be collected at the time of registration.

**FINANCIAL ASSISTANCE:**

Unfavorable financial circumstances need not deter deserving students from enrolling at the Red River Community College. Assistance is available in various forms.

1. **Canada Manpower Centre — C.M.T.P. Programs:**
   Qualified persons may be referred to training at the Red River Community College through the Canada Manpower Training Program (C.M.T.P.) program through the Federal CANADA MANPOWER CENTRE. Dependent on age, marital status and status in the labor force, an applicant may qualify for tuition or tuition and a living allowance subsidy. Check with the local Manpower Centre to determine your eligibility.

2. **Canada Student Loans Plan:**
   This plan is designed to make bank loans (up to $1000.00 per year) available to students who need financial help to enable them to engage in full-time studies above high school level. Application forms are available at the College or the Student Aid Office, Room 506, 1181 Portage Avenue, Winnipeg 10, Manitoba.

3. **Department of Education Bursaries:**
   Applicants for admission and students presently enrolled may apply for bursaries. Application forms are available at the College or the Student Aid Office.
   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. **Vocational Rehabilitation Training:**
   This program is sponsored jointly by the Government of Canada and the Province of Manitoba under the provisions of the Vocational Rehabilitation of Disabled Persons Agreement. All applicants must be over 16 years of age. Interested persons may secure further information by corresponding with the Co-ordinator of Rehabilitation Services, Department of Health and Social Development, 141 Doncaster Blvd., Winnipeg 29, Manitoba.

**SCHOLARSHIPS AND AWARDS:**

**The Administrative Management Society bursaries** (two at $100.00 each) one available in each of the Third and Fourth Term to students in Secretarial Science.

**The American Society for Metals (Manitoba Chapter) Scholarships** — A scholarship of $50.00 and an ASM Handbook to be granted to the student receiving the highest combined standing in Manufacturing Processes 103 and 203 of Mechanical Technology provided a clear standing in all final examinations of that examination group is achieved.

**The Association of Administrative Assistants** awards two scholarships at $150.00; one available in each of the Second and Fourth Term to students in Secretarial Science.

**Association of Manitoba Land Surveyors Scholarships** (two at $100.00 each) to students entering the Third Term of Surveying Technology.

**Bird Construction Company Limited Scholarships** ($200.00 and $100.00) for students entering Third Term of Building Technology.

**Bristol Aerospace Ltd. Scholarships** (two at $100.00 each) to students entering the Third Term of Electronic and Mechanical Technology.

**Canadian Kodak Co., Bursary** ($100.00) to be awarded annually to the student in the Photographic Technician Course having the highest proficiency in photo techniques, leadership qualities, character and a potential for success in his or her chosen field.

**Canadian Laboratory Supplies Limited** — an annual Book Award to a Chemical student with the highest achievement in the Instrumentation subject. (CHEM 305 & 405).

**The Canadian Restaurant Association Foundation** (one bursary of $200.00) available to a student enrolled in the second year of Hotel and Restaurant Administration.
The Canada Packers Limited ($100.00) to be awarded annually to the student in the Commercial Meatcutting course having the highest proficiency in meatcutting skills, managerial qualities, character and potential in his or her chosen field.

Canadian Structural Clay Association Scholarship ($50.00 plus a Medallion) to a student in Design & Drafting Technology with the highest overall standing at the end of the fourth term.

Chemical Institute of Canada (Manitoba Chapter) — Book Award — to a student in First Year Chemical Technology for outstanding progress.

Chemical Institute of Canada — Silver Medal Award — to a student in Chemical Technology with the highest standing in the Fourth Term.

Chevron Standard Oil Scholarship ($250.00) to a student entering the Third Term of Civil or Structural Technology.

Codville Scholarship Fund ($100.00) awarded annually to a student in the Meatcutting course who is making favorable progress and who requires financial assistance.

Co-op Vegetables Oils Ltd. Scholarship ($50.00) to a student in the Operating Engineers Program who completes Term I successfully.

Crane Supply Limited — A $25.00 award for the best Utilidor Design in Plant Engineering in Heat and Power Technology.

Credit Grantors Association of Winnipeg. Two bursaries of $100.00 each, one available in each of the Third and Fourth Term, to students in Business Administration.

Department of Health and Social Development awards a gold medal each year to an outstanding student in the Social Services Course.

Fisher Scientific Company — Book Award — to a student in Term III of Chemical Technology who has shown outstanding performance in Organic Chemistry during the first year.

Garland Commercial Ranges Limited Award — An annual award of $100.00 will be made to an outstanding student enrolled in the Commercial Cooking or Commercial Baking courses.

Gladys Bell Scholarship — The Gladys Bell Scholarship is awarded annually by her former associates and students to some deserving student in the Clerical, Bookkeeping and Office Machines Program.

The Grummet Memorial Fund bursary — $125.00 — to a Manitoba student entering a Diploma Nursing Course in the province. Applications available from the Manitoba Association of Registered Nurses.

The Hudson Bay Company Service Award (summer employment and Second Year Tuition) to a student in Second Term of the Design and Drafting Technology Program.
Imperial Oil Higher Education Awards — Imperial Oil Limited offers annually free tuition and other compulsory fees to all children or wards of employees and annuitants who proceed to higher education courses. The courses may be taken at any Canadian university or other approved institution of higher learning.

Each award is tenable until the attainment of a first degree or for a maximum of four years. To be eligible a student must attain an average mark of 70% or higher in the appropriate secondary school examinations in the subjects required for admittance to the approved institution, or must have attained an average of 70% or more in a college year upon which application is based. Further information and application forms may be obtained from The Secretary, Committee on Higher Education, Imperial Oil Limited, 111 St. Clair Avenue West, Toronto 7, Ontario.

International Business Machines Company Limited Scholarships (two at $100.00 each) both available to students in the Second Term of the Computer Analyst/Programmer Course.

The International Nickel Engineering Technology Bursaries. (4 at $150.00 each) to deserving students who are pursuing a full time program leading to a diploma in engineering technology. They should be Canadian citizens, or possess landed immigrant status, of good scholastic record, with a demonstrated interest in extra curricular affairs.

James Robert Shore Memorial Award ($100.00) awarded to the graduate in Fourth Term with the highest standing in the Technology Program.

LIEUTENANT-GOVERNOR'S MEDALS FOR PROFICIENCY:

1) The Lieutenant-Governor's Medals will be awarded to students in the Community Colleges of Manitoba, who in the opinion of the selection committee combine to the greatest extent, in the graduating year:
   a) Academic and Technical Ability
   b) Participation in College Activities
   and      c) Good character and personality.

2) The Awards will be made to one student from each of the following groups:
   a) Diploma Course student from the science-based curricula.
   b) Certificate Course student from the science-based curricula.
   c) Diploma Course student from the arts-based curricula.
   d) Certificate Course student from the arts-based curricula.

The Manitoba Association of Registered Nurses. $100.00 to a student entering the 2nd year of the Diploma Nursing Course. Applications available from the M.A.R.N., 647 Broadway Ave., Winnipeg 1, Man.
The Manitoba Electrical Association Scholarship $100.00 for a student in the Third Term of Electrical Technology.

The Manitoba Hotel Association contributes two bursaries of $250.00 each; both of which are available to students entering the third term of the final year of Hotel and Restaurant Administration.

Manitoba Hydro Scholarship ($100.00) for a student entering Third Term of Electrical Technology.

The Manitoba Society of Certified Engineering Technicians and Technologists Award — A slide rule to the Engineering Technology student who shows the most improvement during Term I.

The Manitoba Society of Certified Engineering Technicians & Technologists, Inc. ($100.00) to a student member of MSCETT INC. who from among the student members, is the top student entering third term in the Technology courses at the Red River Community College.

The Manitoba Sugar Company Limited Bursary ($100.00) to a student entering Third Term of Heat & Power or Production Technology.

Manitoba Telephone System Scholarship ($100.00) to a student entering the Third Term of Electronic Technology.

MEDICAL LABORATORY TECHNOLOGY AWARDS:
Warner Chilcott Company — award for General Proficiency.
Canadian Laboratory Supplies — award for Theory in Microbiology.
Fisher Scientific Company — award for Theory in Microbiology.

Pritchard Engineering Co. Ltd. Bursary:
a) One at $300.00 to a student entering Third Term of a Mechanical Technology Program.
b) One at $100.00 to the student in Diesel Mechanics and Highway Tractor Maintenance who makes the most outstanding progress during the course.
c) One at $100.00 to the student in Machine Shop Practice who makes the most outstanding progress during the course.

Royal Canadian Engineers Memorial Scholarships:
Scholarships of up to $500 each are offered annually to students, both male and female, who are attending any educational course of study or practical training course beyond secondary school level. Scholarships are awarded on the basis of merit and need to the most suitable candidates from among those students who apply for the scholarship.
A candidate to be eligible for the Royal Canadian Engineer Memorial Scholarship must be the child or grandchild of a person who served in any rank in any of the following components of the Canadian Armed Forces:

a. A Royal Canadian Engineer component of the Canadian Army during World War 1, World War 2, or under the United Nations in Korea or

b. The Royal Canadian Engineers in the Canadian Army Regular or Permanent Force or Militia or Non-Permanent Active Militia for not less than three continuous years or

c. The Military Engineers Branch of the unified Canadian Armed Forces for not less than three continuous years after the First day of February, 1966.

Sears Limited (Winnipeg Branch) — Trophy: A miniature of the original trophy will be awarded annually to the student with the highest standing in the final year of the Graphic Arts course.

The Sales and Advertising Club of Winnipeg contributes substantial sums of money each year for specific aids to facilitate instruction in the Advertising and Sales field.

The T. Eaton Co. Canada Limited Bursaries (two at $150.00 each) one available in each of the Third and the Fourth Term, to students in Business Administration.

Templeton Engineering Scholarships (two at $200.00 each) to students entering the Third Term of Civil and Structural Technology.

Underwood McLellan and Associates Limited Scholarships (two at $100.00 each) to students entering the Third Term of Civil and Structural Technology.

The Winnipeg Opti-Mrs. Club (Two bursaries at $100.00 each) available to students in Office Practices and Skills Courses under one year in duration.

The Women’s Advertising and Sales Club of Winnipeg Bursaries (two at $100.00 each) one available to Second Term students in each of Advertising Art and Commercial & Industrial Sales.

Xerox of Canada Ltd. One $250.00 fellowship to a student in Electronic Technology, Industrial and Technology Division; one $250.00 fellowship to a student in Business Administration.

Stafford Foods Limited Award ($50.00) available annually to a student in the Commercial Cooking course.

Wiedman Brothers Limited and J. M. Schneider (Man.) Ltd. Award ($100.00) available annually to a student in the Commercial Cooking course.

Robin Hood Multifoods Limited ($50.00) awarded twice annually to students in the Commercial Baking course.
Student Services

BOARD AND ROOM

No dormitories are operated in connection with The Red River Community College. The Student Association Office has a list of accommodations for students who wish to obtain board and room in the city. This list changes from day to day, and it is recommended that students consult it on or before registration day. The acceptability of all boarding places listed is left entirely to the discretion of the student.

BOOKSTORE

Textbooks and supplies may be purchased from the College Bookstore. Students will be provided with a list of required items. The Book Store does not handle used books.

COUNSELLING SERVICES

The Counselling Services Department has recently been enlarged in order to meet the needs of the students at the Red River Community College. The counselling offices provide confidential settings in which clients may discuss any problems that are of importance to them. The clients are assisted by trained and experienced counsellors to improve self understanding, capacity for self management, and skills in formulating realistic goals.

Counselling services are also available to any members of the community who are interested in commencing studies at the R.R.C.C. Prospective applicants may obtain assistance in making important decisions concerning course selection, educational planning and vocational careers.

Some of the services available are:

1. Vocational and Educational Counselling:
With an increasing variety of courses, and new jobs emerging daily in the world of work, applicants and students may be assisted in planning and decision making.

2. Financial Counselling:
Information concerning bursaries, scholarships and loans, is available upon request.

3. Personal Counselling:
Personal problems usually interfere with academic and vocational achievement. Problems involving relationships with other people, anxiety, depression, family discord, lack of confidence, and so on, may be alleviated by talking with a counsellor.

4. Testing:
Information supplied by interest, aptitude, and scholastic ability
tests provides invaluable assistance to clients in making appropriate decisions.

5. **Information Services:**
A reading room containing occupational and educational information is available to students and applicants.

6. **Public Relations:**
The counselling staff participate in high school career days and give career talks to high school students and other interested groups.

**Location:**
The Counselling Centre is located in Room #C-115 on the plaza level of Building C. The office hours are 8:30 a.m. to 4:45 p.m., Monday through Friday. Appointments are preferred but are not always essential.

**Appointments:**
Appointments may be made personally or by writing or phoning the Secretary. The following telephone numbers are direct lines to the Counselling Centre: 786-6362, 786-6335, 786-6288.

**DINING AREAS**
The modern dining areas at the College provide excellent, low cost meals during the mid-day lunch periods.

**FIELD TRIPS**
The work at The Red River Community College is closely related to the work of industry. It is the policy of the College 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.

**HEALTH CENTRE**
The College operates a Health Centre with services available to all students. A Registered Nurse is on duty from 8:00 a.m. to 4:00 p.m., Monday through Friday, except for statutory holidays. The services consist mainly of emergency care for persons who are ill or injured, arranging transportation to hospitals or clinics for those requiring it, providing information and literature pertaining to health education and arranging appointments for students with doctors, dentists and counsellors. Special services are arranged for those students who have physical disabilities, who are affected by conditions such as diabetes or epilepsy, or who require regular medications.

**ILLNESS, ACCIDENTS AND INJURIES**
The Red River Community College reserves the right to call a physician in case of illness or accident, the expense to be borne by the student.
The Red River Community College has 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 Red River Community College's instruction program wherever conducted, or incidental to other activities on The Red River Community College's properties or elsewhere."

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

Students should consider obtaining adequate Medical, Hospital and Accident Insurance coverage for the period while they are attending the College.

LEARNING RESOURCES CENTRE

The Learning Resources Centre is located in the heart of the College complex. Among its facilities are individual study carrels, leisure reading areas, group study and seminar rooms, periodical study areas, a microfilm and photocopying room, an audio-visual storage room, the reference area, and the bibliography and index room.

The Learning Resources Centre's comprehensive collection includes books, periodicals, newspapers, government documents, films and filmstrips, transparencies, and other audio-visual materials and equipment in all major fields. Under its open-stack system, students and faculty have full access to almost all materials. Orientation is given to all new students to make them familiar with the Learning Resources Centre and its use.

The construction of a complete three studio television facility is now underway at the College. It will consist of two classroom studios for instructors' and students' in-service training and one major production studio to serve the educational programming needs of the entire College. The addition of videotape to the Library's resources will open a whole new area in the field of instructional aids in education.

LOCKERS

Lockers are available without cost to full-time students. However, as the College is not responsible for personal property students should provide themselves with their own locks. Combination padlocks may be purchased from the Bookstore.
MANITOBA WORKMEN'S COMPENSATION

All students (including apprentices) enrolled through the programs of Canada Manpower Training Plan or Vocational Rehabilitation Training are covered by Manitoba Workmen's Compensation. This will include medical, hospital and other necessary costs which are directly attributable to compensable accidents. For students receiving allowances it will cover income replacement.

This accident coverage under Workmen's Compensation does not cover extra curricular activities. It covers only activities related to the course which could be deemed necessary or compulsory.

A safety program is in continuous operation at all times in all Departments.

PHYSICAL EDUCATION

The Red River Community College physical education program will attempt to reach the following objectives.

1. To awaken an interest in a variety of activities usually associated with social and family life in our society. These would include archery, badminton, golf, tennis, folk and ballroom dance, co-ed volleyball, and table tennis.

2. To increase knowledge of those activities commonly found in colleges, including basketball, volleyball, wrestling and gymnastics.

3. To provide a framework of intramural competition within which each student and staff member might feel at ease competing with others of equal ability and interests.

The college will offer intramural competition in volleyball, basketball, hockey, badminton, table tennis, curling, bowling, co-ed volleyball and golf. Archery, judo, karate, fencing, and ski clubs will be operated, depending upon student demand. Red Cross "learn-to-swim" programs will be offered.

The new gymnasium at the college is the largest in Manitoba and offers a wide range of facilities and activities to fit the desires of almost everyone.

It is recommended that every student with spare periods in his timetable take the opportunity to use at least one of these periods each week to take part in one of the activities offered. The number of registrants for each class will be limited to fit the equipment or facilities so it will be "first come, first served."

The registration will normally take place during the regular registration week. A list of the activities to be offered, and the time periods will be available to each student at registration time.

Inter-Collegiate Competition

The Red River Community College is a member of the Manitoba Small College Conference. Other members include the University of Winnipeg, the University of Brandon and the Assiniboine Com-
munity College. Games are also scheduled with other colleges and senior teams. Teams from the Red River Community College compete in cross-country running, soccer, field hockey, volleyball, basketball, badminton and curling.

PLACEMENT AND CAREER PLANNING OFFICE

Head — Mrs. Allison Armstrong — 786-6345
Manpower Counsellors — Mrs. M. E. Wilson, Mr. F. Colebourn — 786-5654.

The Department of Manpower and Immigration, through its Canada Manpower Centres, operates on-campus Career Planning Offices at various Community Colleges across Canada. The Office at the Red River Community College is located in Room C-211 Bldg. (C). It co-ordinates all recruiting of graduates carried out by employers on campus for their Canadian operations. It also services orders from employers not recruiting on campus. Current information on career opportunities is readily available and those students seeking part-time or summer employment are also given assistance. All students in the College, are encouraged to take advantage of the services by contacting The Career Planning Office early in their academic year.

Hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday.

STUDENT ADMINISTRATIVE COUNCIL

There is an active Student Association at the Red River Community College. Membership in this organization gives a student many privileges. The Association levies a membership fee at the time of registration based on the duration of the course.

STUDY SKILLS CENTER

A well-equipped study skills center is available to students who wish to improve their skills in any or all of the following:

- Reading Speed and Flexibility
- Reading Comprehension and Vocabulary Development
- Listening and Study Skills
- Critical Reading and Thinking
- Language Development

A 30-hour course incorporating all of the above is offered on a voluntary basis. To those who complete the course successfully, 2 credit hours will be awarded and the credit may be used in any course where options apply.

TOOLS AND EQUIPMENT

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

CLASS HOURS

Classes are normally in session from 8:00 a.m. until 6:00 p.m. five days per week. Monday through Friday. However, these hours may be altered in accordance with training requirements and facilities.

OFFICE HOURS

The administrative offices and the switchboard are open from 8:00 a.m. until 5:00 p.m. Monday through Friday.

ATTENDANCE

Each student should attend in a manner satisfactory for the achievement of the objectives of his/her course. When a student remains away from school for a period of five consecutive days without notifying the College as to the reason for his/her absence, the student shall be considered as discontinuing his/her course.

DISCIPLINE

All students are subject to the rules and regulations of the College and may be suspended or dismissed if their conduct or progress is unsatisfactory.

Disciplinary problems of an extreme or persistent nature will be dealt with by the Disciplinary Board of the College.

Students causing damage to facilities, property or equipment will be dealt with immediately by Administrative Personnel. Penalties will range from a minimum of financial reparation to dismissal from the College.

DRESS

Students are expected to dress in a manner appropriate to the classroom, laboratory or workshop in which they are working. In some shops, special protective clothing must be worn. Special items such as goggles, gloves, etc., are available from The Red River Community College's Bookstore. Coveralls, smocks and other such regular protective clothing may be purchased from the local merchants as the need is evidenced.

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 course will be conducted in accordance with the curriculum outlines but may, through consultation between The Red River Community College
authorities and the Advisory Committees, be subject to revision to meet special educational needs as they arise.

SCHOLASTIC REGULATIONS

A student enrolled in any course must maintain a satisfactory scholastic standing. Periodic progress reports are maintained and will be sent to a Parent or Guardian upon request. A student whose progress is unsatisfactory may be placed on probation or dismissed.

EXAMINATION APPEALS

All subject failures are carefully scrutinized before the final mark is recorded. Appeals therefore will be considered only with approval of the Principal of the Division concerned.

FINAL EXAMINATIONS

In most courses, examinations are conducted at the end of each term. Term marks based on student assignments, progress tests, etc., are incorporated with the results of these examinations to determine the final grade.

SUPPLEMENTAL EXAMINATIONS:

A. Post Secondary Courses — The following regulations apply to courses which have a basic pre-requisite of Grade XII.

1. A full-time student is defined as one enrolled for a term having a minimum of 25 credit hours as outlined in the College calendar.

2. A part-time student is defined as one enrolled for a term having less than 25 credit hours.

3. Full-time students may continue into the following term as full-time students provided they have met all pre-requisites required for the subjects of that term.

4. Students who do not meet the criteria above may continue as part-time students in those subjects for which they have the necessary pre-requisites, provided the program selected is approved by the Admissions Committee and that there is space in the class.

5. Students who have a Grade Point average of 1.5 or better will be permitted to write a supplemental in the subject or subjects failed. These supplementals will be written within the first week of the commencement of the following term.

6. Full-time students with a Grade Point average of less than 1.5 will not have supplemental privileges in the subjects failed. They may repeat failed subjects at a later time or take them at night-school if they are provided.
7. Part-time students who have failures will be permitted supple­mental privileges on the same basis as full-time students. (The criterion will be the Grade Point average based only on the subjects taken).

8. A diploma will be granted when 100 credit hours have been obtained in the subjects of the course as outlined in the College calendar. It is recommended that students clear sup­plementals as early as possible (a change in course subject content may make it more difficult for students to pass the examination at a later date).

9. A student wishing to enroll for a term previously failed must submit an application to the Registrar of the College. The acceptance of such applicants is at the discretion of the Ad­missions Committee.

10. A student who does not attend a scheduled examination will receive a grade of DID NOT WRITE (D.N.W.) and will have supplemental privileges in that subject only if the absence is justified on medical grounds or on other cir­cumstances acceptable to the Principal of the Division in which the student is registered. This regulation will apply regardless of the grade point average received in the examina­tions for which the student did attend.

B. Certificate Courses — The following regulations apply to courses with basic pre-requisites of less than Grade XII:

Students who do not meet the standards required for a Cer­tificate of Attainment may be permitted supplemental privileges in a limited number of subjects, subject to the approval of the Department Head and the Principal. Supplementals must be written within two years from the date of course termination. Time and place for writing supplementals are to be arranged in con­sultation with the Department Head.

CERTIFICATES AND DIPLOMAS

Certificates of Attainment are granted to students in courses of one year or less in duration who meet the following requirements:

1. Satisfactory completion of all subjects required for the course.
2. Recommendation of their Instructor or Department Head and approval of the Principal.

National Diplomas are awarded to students who successfully com­plete the requirements of courses of two years duration.

Duplicate Certificates or Diplomas will be issued on payment of a fee of $1.00.

The above regulations do not apply to courses which represent only part of a training program. For example:

Apprenticeship Courses and some courses offered in the Health Sciences Division.
CONVOCATIONS

Convocation exercises are held periodically at which time certificates and diplomas are awarded to candidates meeting the prescribed requirements.

DURATION OF COURSES

The course duration where shown in months is approximate. Termination dates of each course will be established by the College to meet the required training time.

CREDIT HOURS

Each subject in the post secondary courses has a number of credit hours attached to it. Each term shows a minimum of 25 credit hours regardless of the number of subjects shown or the hours of instruction offered. A student must complete subjects totalling 25 credit hours to be considered successful in a full term of work, and 100 credit hours to earn a diploma. Credit hours are also used as the subject weightings when calculating the grade point averages.

LETTER GRADES AND THE GRADE POINT AVERAGE

The academic progress of students in most of the post secondary college courses is recorded by letter grades. There is no implied relationship between letter grades and percentages. The letter grades used, along with their related grade points, and their descriptive interpretation are as follows:

<table>
<thead>
<tr>
<th>Letter Grades</th>
<th>Grade Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
<td>Exceptional</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
<td>Outstanding</td>
</tr>
<tr>
<td>B+</td>
<td>3.5</td>
<td>Above Average</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>Average</td>
</tr>
<tr>
<td>C+</td>
<td>2.5</td>
<td>Minimum acceptable performance</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
<td>Failure</td>
</tr>
<tr>
<td>P</td>
<td>0.0</td>
<td>Pass</td>
</tr>
</tbody>
</table>

A grade point average is calculated by multiplying the grade points obtained in each subject by the subject credit hours (shown elsewhere in the calendar), totalling the products and then dividing this sum by the total weighting (credit hours) for the term or the subjects taken.
Applied Arts

COURSES

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Advertising Art

ILLUSTRATION, DESIGN & PHOTOGRAPHY

ENTRANCE REQUIREMENTS: (one of)
1. Grade XII.
2. Completion of Pre-College Course.
3. Exceptionally talented students if 17 years of age or over.
4. Anyone not meeting the above requirements may apply as a mature student. A mature student is considered to be one who is at least 20 years of age on or before September 30 in the year of registration. Applicants may be required to write an entrance exam. An Admissions Committee will consider each applicant on an individual basis.

Each applicant will be required to appear for a personal interview by the Admissions Committee. A portfolio of art work is required.

DURATION OF COURSE:

The school years, each of ten months duration, leads to a Diploma in Applied Arts (Dipl. A.A.). Each year is divided into two five-month terms with final examinations at the end of each term.

FEES AND EXPENSES:

The tuition fee is $100. for each term. Other expenses include books, incidentals, board and lodging.

EMPLOYMENT OPPORTUNITIES:

We are living in an age and a world dependent on good communication. Advertising Art is visual communication which plays a vital role in the process of presenting and promoting ideas and products in our dynamic society. Industry and commerce, therefore, requires the services provided by qualified photographers, illustrators, and commercial artists.

For the student who possesses natural aptitudes, talent, and initiative, rewarding and exciting employment and careers may be found after graduation in the following fields: commercial art studios, advertising agencies, television-graphic and film departments, layout artists, retouching artists, illustration, advertising and publicity departments of industry and commerce, newspapers, magazines, freelance artists and photographers, and other related areas.
COURSE OUTLINE

First Year

TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AART-101</td>
<td>Introduction to Advertising</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AART-103</td>
<td>Mechanical Drawing</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AART-104</td>
<td>Fundamentals of Drawing</td>
<td>1</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>AART-105</td>
<td>Fundamentals of Design</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>AART-106</td>
<td>Fundamentals of Photography</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
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<tr>
<td>AART-108</td>
<td>Introduction to Art</td>
<td>2</td>
<td>0</td>
<td>1</td>
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<tr>
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<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>21</strong></td>
<td><strong>25</strong></td>
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TERM 2

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<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AART-201</td>
<td>Introduction to Advertising</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AART-203</td>
<td>Mechanical Drawing</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AART-204</td>
<td>Drawing</td>
<td>0</td>
<td>8</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>AART-205</td>
<td>Fundamentals of Design</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>AART-206</td>
<td>Fundamentals of Photography</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AART-207</td>
<td>Reproduction Methods &amp; Materials</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>AART-208</td>
<td>Introduction to Art</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>8</strong></td>
<td><strong>22</strong></td>
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</table>

Second Year

Photography Option

TERM 3

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AART-301</td>
<td>Advanced Photography</td>
<td>3</td>
<td>14</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>*AART-302</td>
<td>Photographic Theory or</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>*AART-303</td>
<td>Composition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AART-306</td>
<td>History of Photography</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>AART-307</td>
<td>Lighting</td>
<td>0</td>
<td>3</td>
<td>2</td>
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<tr>
<td>ENGL-107</td>
<td>Oral Communications</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td></td>
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<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>24</strong></td>
<td><strong>25</strong></td>
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</tbody>
</table>

*Advertising Art students majoring in Photography require AART-302 Photographic Theory; All others require AART-303 Composition.
### TERM 4

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>AART-401</td>
<td>Advanced Photography</td>
<td>0 8 6</td>
<td></td>
</tr>
<tr>
<td>*AART-402</td>
<td>Photographic Theory or</td>
<td>1 5 3</td>
<td></td>
</tr>
<tr>
<td>*AART-403</td>
<td>Composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AART-404</td>
<td>History of Photography</td>
<td>1 0 2</td>
<td></td>
</tr>
<tr>
<td>AART-411</td>
<td>Professional Practices</td>
<td>1 0 2</td>
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<tr>
<td>AART-412</td>
<td>Photographic Problems</td>
<td>3 11 12</td>
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</table>

*Continuation of Term 3 subjects.

### COURSE OUTLINE

#### Illustration Option

**TERM 3**

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<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AART-304</td>
<td>Drawing</td>
<td>0 8 6</td>
<td></td>
</tr>
<tr>
<td>AART-305</td>
<td>Illustration</td>
<td>2 13 13</td>
<td></td>
</tr>
<tr>
<td>AART-310</td>
<td>Visual Exploration</td>
<td>1 1 2</td>
<td></td>
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<tr>
<td>SOSC-131</td>
<td>Intro. to Social Sciences</td>
<td>2 1 3</td>
<td></td>
</tr>
<tr>
<td>ENGL-107</td>
<td>Oral Communication</td>
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<td></td>
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5 25 25

**TERM 4**

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<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AART-405</td>
<td>Advanced Illustration</td>
<td>3 22 20</td>
<td></td>
</tr>
<tr>
<td>ADMN-103</td>
<td>Marketing</td>
<td>2 1 3</td>
<td></td>
</tr>
<tr>
<td>AART-410</td>
<td>Visual Exploration</td>
<td>1 1 2</td>
<td></td>
</tr>
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</table>

6 24 25

#### Design Option

**TERM 3**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AART-304</td>
<td>Drawing</td>
<td>0 8 6</td>
<td></td>
</tr>
<tr>
<td>AART-308</td>
<td>Communication Design</td>
<td>3 12 13</td>
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<tr>
<td>AART-310</td>
<td>Visual Exploration</td>
<td>1 1 2</td>
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<tr>
<td>SOSC-131</td>
<td>Intro. to Social Sciences</td>
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<tr>
<td>ENGL-107</td>
<td>Oral Communication</td>
<td>0 2 1</td>
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6 24 25

**TERM 4**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AART-408</td>
<td>Commercial Problems</td>
<td>3 22 20</td>
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<td>AART-410</td>
<td>Visual Exploration</td>
<td>1 1 2</td>
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</tr>
<tr>
<td>ADMN-103</td>
<td>Marketing</td>
<td>2 1 3</td>
<td></td>
</tr>
</tbody>
</table>

6 24 25
Barbering

ENTRANCE REQUIREMENTS:
1. Academic — Grade X or B.T.S.D. LEVEL II.
   Anyone who does not meet the above requirement may submit an application. The Admissions Committee will review applications on an individual basis.

2. Health — General good health, substantiated by recent medical, dental and chest X-ray certificates prior to commencement of training.

3. Personal — Well co-ordinated hand movements, emotional stability, a pleasing personality and a progressive minded attitude are essential to a successful career in this field of training.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $120.00.

EMPLOYMENT OPPORTUNITIES:
Modern day fashions have brought about significant changes in the world of barbering and the contemporary barber, of necessity, must be aware of these changes to benefit from them to the fullest. Longer hair trends and modern hair fashions have placed an onus on the barber to learn new cutting techniques and new procedures in order to cope with the demands of the fashion-conscious public. Therefore, the basic barber-styling course has been modified to incorporate the recent changes.

More and more barber shops are functioning as barbering-styling salons and are offering services such as modern hair styling, modern hairpiece fitting as well as modern men's haircoloring. With increased services, the barber-stylist is in greater demand and the financial rewards greater.

The young barber begins with a basic rate of pay which is protected by the Minimum Wage Act, but with experience develops his own clientele which, of course, increases his take-home pay. Rules and regulations of the Barber's Act are under the jurisdiction of the Province of Manitoba, Department of Labour.
SUPPLIES:

Students must supply themselves with at least two barber's white jackets.

Textbooks, barbers' jackets and a complete kit of barbering tools for this course will cost approximately $120.00.

A. Related and Practical Theory Content ........................................ 350 hours
B. Practical Work Content .......................................................... 1050 hours

Total 1400 hours

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARB-101</td>
<td>Health and Sanitation</td>
<td>66</td>
</tr>
<tr>
<td>BARB-102</td>
<td>Barbering Implements, Honing, Stropping</td>
<td>85</td>
</tr>
<tr>
<td>BARB-103</td>
<td>Face Shaving</td>
<td>120</td>
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<tr>
<td>BARB-104</td>
<td>Men's Haircutting</td>
<td>720</td>
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<tr>
<td>BARB-105</td>
<td>Men's Hairstyling</td>
<td>116</td>
</tr>
<tr>
<td>BARB-106</td>
<td>Current Trends in Barbering</td>
<td>50</td>
</tr>
<tr>
<td>BARB-107</td>
<td>Anatomy and Physiology</td>
<td>30</td>
</tr>
<tr>
<td>BARB-108</td>
<td>Disorders of Scalp, Skin and Hair</td>
<td>30</td>
</tr>
<tr>
<td>BARB-109</td>
<td>Shampoos, Tonics, Massages</td>
<td>95</td>
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<tr>
<td>BARB-110</td>
<td>Light Therapy, Cosmetology</td>
<td>20</td>
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<tr>
<td>BARB-111</td>
<td>Shop Management and General Aspects</td>
<td>20</td>
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<tr>
<td>BARB-112</td>
<td>Modern Men's Haircoloring</td>
<td>48</td>
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</table>

1,400
Child Care Services

ENTRANCE REQUIREMENTS: (one of)
1. Grade XII,
2. Complete Pre-College course,
3. Mature student — A mature student is considered to be one who is at least 20 years of age on or before September 30 in the year of registration.

All applicants will be interviewed by an Admissions Committee. Recent medical and chest X-ray certificates will be required from each applicant before commencing training.

DURATION OF COURSE:

The course is conducted as a two-year Diploma course with the option of terminating training at the end of the first year at which time a Certificate of Attainment will be awarded for successful completion of the first year of training. The course will begin in September and end in June and will be composed of two five month terms in each College year.

FEES AND EXPENSES:

The tuition fee is $100.00 per 5 month term. Textbooks and other supplies may total approximately $100.00.

COURSE OBJECTIVE:

The objective of the course is to give the training necessary to enable graduates to provide the care for and to accept the responsibility for the development of pre-school children in Day Care Centres and other child care agencies. The course will not prepare students to qualify for teaching certificates valid in Public Schools.

EMPLOYMENT OPPORTUNITIES:

An increasing number of Day Care and Pre-school Centres are being planned and operated. As these centres are developed, there will be a demand for trained workers.
### COURSE OUTLINE

#### First Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC-106</td>
<td>Child Behavior and Development</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>SOCL-106</td>
<td>Self Understanding and Social Feeling</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CCSC-101</td>
<td>Philosophy of Child Care and Its Implementation</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CCSC-102</td>
<td>Child Care Forum and Field Placement</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>CCSC-104</td>
<td>Creative Activities</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>CCSC-105</td>
<td>Community Resources</td>
<td>2</td>
<td>3</td>
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<tr>
<td>ENGL-112</td>
<td>Children's Literature</td>
<td>1</td>
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</table>

**TERM I**

Total: 13 Lectures, 14 Labs, 25 Credit Hours

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC-206</td>
<td>Child Behavior and Development</td>
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<td>4</td>
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<tr>
<td>SOCL-206</td>
<td>Self Understanding and Social Feeling</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CCSC-201</td>
<td>Philosophy of Child Care and Its Implementation</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CCSC-202</td>
<td>Child Care Forum and Field Placement</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>CCSC-204</td>
<td>Creative Activities</td>
<td>0</td>
<td>2</td>
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<tr>
<td>CCSC-206</td>
<td>Physical Care of the Child</td>
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<tr>
<td>ENGL-212</td>
<td>Children's Literature</td>
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</table>

**TERM II**

Total: 14 Lectures, 13 Labs, 25 Credit Hours
### TERM III

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSC-302</td>
<td>Child Care Forum and Field Management</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>CCSC-306</td>
<td>Family System</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CCSC-301</td>
<td>Curriculum Planning</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CCSC-321</td>
<td>Elements of Music for Children</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>CCSC-341</td>
<td>Movement Education</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>*CCSC-300</td>
<td>Independent Study in Child Care</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>*CCSC-310</td>
<td>Nutrition</td>
<td>1</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td><strong>10</strong></td>
<td><strong>20</strong></td>
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</table>

*Options in lieu of CCSC-300 and CCSC-310 to a minimum of 5 credit hours may be elected by students.

### TERM IV

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>CCSC-402</td>
<td>Child Care Forum and Field Placement</td>
<td>3</td>
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<td>SOSC-421</td>
<td>Exceptional Children</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>CCSC-400</td>
<td>Independent Studies in Child Care</td>
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<td>3</td>
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<tr>
<td>CCSC-401</td>
<td>Curriculum Planning</td>
<td>1</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td><strong>6</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

**Note:** Field Placement — 1 day per week plus two 3-week block placements during the Term.
Commercial Art

ENTRANCE REQUIREMENTS:

A minimum of Grade X or B.T.S.D. Level II.

Anyone who does not meet the above requirements may submit an application. The Admissions Committee will review the applications on an individual basis.

All candidates will be interviewed by an Admissions Committee. A portfolio of art work is required.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $50.00.

EMPLOYMENT OPPORTUNITIES:

Commercial Art is an integral part of advertising and as advertising is essential to modern business the importance of Commercial Art cannot be minimized. Natural aptitude, native ability, and manual dexterity are important pre-requisites for this course.

Screen Printing is a multi-million dollar industry ranging all the way from simple posters, container identification, and billboards to printed circuits used in spacecraft. It is limited only by the ingenuity of the individual. Most screen printing plants are handicapped, not by lack of business, but by lack of trained and skilled personnel. The Commercial Art course places great emphasis on screen printing.

The duration of the course does not permit the complete development of experts in every facet of Commercial Art. The course, however, does stress the basic skills required for screen printing, perspective, figure drawing, colour illustrating, lettering, customer presentations, mock-ups, design and layout of posters, tools of the trade and shop procedure. An attempt is made to develop "commercial speed" in execution of the foregoing.
### COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL-506</td>
<td>Communication</td>
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<tr>
<td>CART-101</td>
<td>Lettering</td>
<td>300</td>
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<tr>
<td>CART-102</td>
<td>Design</td>
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<tr>
<td>CART-103</td>
<td>Screen Printing</td>
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<tr>
<td>CART-104</td>
<td>Studio and Shop Skills</td>
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<tr>
<td>CART-105</td>
<td>Basic Sketching and Illustrating</td>
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<tr>
<td></td>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>CART-106</td>
<td>Bulletin Sign and Window Lettering</td>
<td>160</td>
</tr>
<tr>
<td>CART-107</td>
<td>Mechanical Drawing</td>
<td>120</td>
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<tr>
<td>CART-108</td>
<td>Graphic Arts</td>
<td>20</td>
</tr>
</tbody>
</table>
Creative Communications

ENTRANCE REQUIREMENTS: (one of)
1. Grade XII
2. Completion of Pre-College Course
3. Anyone not meeting the above requirements may apply as a mature student. A mature student is considered to be one who is at least 20 years of age on or before September 30 in the year of registration. Applicants may be required to write an entrance exam. An Admissions Committee will consider each applicant on an individual basis.

Applicants should be able to provide some evidence of writing ability. All applicants will be interviewed by an Admissions Committee.

DURATION OF COURSE:
Two school years each of ten months duration, lead to a Diploma in Applied Arts (Dipl. A.A.). Each year is divided into two five-month terms with final examinations at the end of each term.

FEES AND EXPENSES:
The tuition fee is $100. for each term. Other expenses include books, incidentals, board and lodging.

EMPLOYMENT OPPORTUNITIES:
Essential to good communication in our society are journalism and advertising. Virtually everything published or spoken in the print and broadcast media is written. The Creative Communications course is designed to meet the need of industry for qualified writers.

Students entering this course should have writing ability, a keen desire to write creatively, and an interest in the complete presentation of information in all media (such as radio, television, and photography). The successful graduate may find rewarding employment in any of these fields:

# COURSE OUTLINE

## First Year

### TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject Title</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRCO-101</td>
<td>Creative Writing Workshop</td>
<td>1</td>
<td>3</td>
<td>4</td>
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<tr>
<td>CRCO-102</td>
<td>Reporting Workshop</td>
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<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ENGL-103</td>
<td>English and Composition</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>CRCO-104</td>
<td>Advertising</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>CRCO-105</td>
<td>Principles of Journalism</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ENGL-106</td>
<td>Modern Literature</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>SOSC-131</td>
<td>Intro. to Social Sciences</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ENGL-107</td>
<td>Oral Communications</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>ENGL-108</td>
<td>Study Skills</td>
<td>0</td>
<td>2</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td>11</td>
<td>19</td>
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*CRCO-107 Typewriting (required for those who lack basic typing skill) 0 2

### TERM 2

<table>
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<tr>
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<th>Subject Title</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CRCO-201</td>
<td>Creative Writing Workshop</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>CRCO-202</td>
<td>Reporting Workshop</td>
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<td>3</td>
</tr>
<tr>
<td>CRCO-203</td>
<td>TV-Radio Lab.</td>
<td>0</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>CRCO-204</td>
<td>Advertising Media</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<tr>
<td>CRCO-205</td>
<td>Editing</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ENGL-207</td>
<td>Contemporary Literature</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>SOSC-231</td>
<td>Human Behavior in Organizations</td>
<td>2</td>
<td>1</td>
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<td>SOSC-334</td>
<td>Political Science</td>
<td>2</td>
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<tr>
<td>CRCO-208</td>
<td>Design and Graphics</td>
<td>3</td>
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## Second Year

### TERM 3

<table>
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<th>Subject Title</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CRCO-301</td>
<td>Copywriting Workshop</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>CRCO-302</td>
<td>Journalism Workshop</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>CRCO-303</td>
<td>TV-Radio Lab.</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CRCO-304</td>
<td>Creative Writing</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>CRCO-305</td>
<td>Public Relations</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>CRCO-207</td>
<td>Photography</td>
<td>1</td>
<td>2</td>
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</table>
During Term III students are placed with business firms for practical work experience for a period of two weeks.

**TERM 4**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Description</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRCO-401</td>
<td>Writing Seminar</td>
<td>0 4 2</td>
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<tr>
<td>CRCO-402</td>
<td>Advanced Writing Projects</td>
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<td>4</td>
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<td>CRCO-403</td>
<td>Cultural History</td>
<td>2 1 2</td>
<td></td>
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<tr>
<td>ADMN-103</td>
<td>Marketing</td>
<td>2 2 3</td>
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</tr>
<tr>
<td>CRCO-404</td>
<td>Special Problems in</td>
<td></td>
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<tr>
<td></td>
<td>Advertising</td>
<td>1 2 3</td>
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<tr>
<td>CRCO-405</td>
<td>Interpretive Reporting</td>
<td>1 2 3</td>
<td></td>
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<td>CRCO-407</td>
<td>Freelance Writing</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>CRCO-408</td>
<td>Copywriting and</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Copy Editing</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>CRCO-409</td>
<td>TV-Radio Lab.</td>
<td>0 3 3</td>
<td></td>
</tr>
<tr>
<td>CRCO-410</td>
<td>Public Relations</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>CRCO-411</td>
<td>Mass Media and Society</td>
<td>2 1 3</td>
<td></td>
</tr>
<tr>
<td>CRCO-412</td>
<td>Theatre Arts</td>
<td>1 2 3</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the above, at least 2 credit hours must be elected from other subjects in order to complete the required 25 credit hours for the Term.
ENTRANCE REQUIREMENTS:

PREREQUISITES for all Food Services courses.

1. Grade X or B.T.S.D. Level II.
2. Recent medical, dental and chest X-ray certificates will be re­quired from each applicant before commencing training.
3. An applicant for Chef's Training must have the prerequisite for the Food Services course and one of:
   (a) Successful completion of a Basic Cooking course
   (b) Two years of general cooking in the industry and pass a written achievement test at the Red River Community College.
4. An applicant for the Food Services Supervisors course should be at least 19 years of age and have minimum of two years full-time or equivalent employment in the food services industry.
5. Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSES:

- Commercial Cooking .................................. 8 months
- Chef Training .............................................. 10 months
- Food Service Supervisors ................................ 10 months
- Commercial Baking ...................................... 5 1/2 months
- Meatcutting ................................................. 5 months

Arrangements can be made for a qualified applicant to take specific sections of the Commercial Cooking, Commercial Baking or Meatcutting course when space is available.

- A special feature is provided in the Commercial Cooking course, whereby, every two months a new program starts, thus allowing people to participate at various times during a given year.

FEES AND EXPENSES:

The tuition fee for each course is $7.00 per month or fraction thereof. Other expenses include textbooks and supplies totalling approximately $35.00.

EMPLOYMENT OPPORTUNITIES:

Being part of a huge, ever-expanding "service industry" and being among the nation's biggest employers, this field provides not only a high level of employment, but also a great variety of positions and mobility.
Restaurants — Hotels — Institutions — Specialty Houses — Chain Stores — Catering Companies — Resorts — Clubs — Lodges — and small and larger stores — all are able to provide year-round employment for qualified people.

**COMMERCIAL COOKING**

**COURSE OUTLINE**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COOK-102</td>
<td>Basic Cookery</td>
<td>260</td>
</tr>
<tr>
<td>COOK-201</td>
<td>Garde Manger</td>
<td>260</td>
</tr>
<tr>
<td>COOK-202</td>
<td>Pastry Shop</td>
<td>260</td>
</tr>
<tr>
<td>COOK-203</td>
<td>Restaurant Cooking</td>
<td>260</td>
</tr>
<tr>
<td>ENGL-503</td>
<td>Communication</td>
<td>40</td>
</tr>
<tr>
<td>RESC-510</td>
<td>Science</td>
<td>20</td>
</tr>
<tr>
<td>NUTR-507</td>
<td>Nutrition</td>
<td>20</td>
</tr>
</tbody>
</table>

**COMMERCIAL BAKING**

**COURSE OUTLINE**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAKE-108</td>
<td>Basics of Baking</td>
<td>35</td>
</tr>
<tr>
<td>BAKE-102</td>
<td>Breads, Rolls &amp; Sweet Dough</td>
<td>210</td>
</tr>
<tr>
<td>BAKE-103</td>
<td>Plain &amp; Sweet Pastry</td>
<td>105</td>
</tr>
<tr>
<td>BAKE-104</td>
<td>Danish &amp; Puff Pastry</td>
<td>105</td>
</tr>
<tr>
<td>BAKE-105</td>
<td>Cake Making</td>
<td>175</td>
</tr>
<tr>
<td>BAKE-110</td>
<td>Cookies &amp; Short Breads</td>
<td>70</td>
</tr>
<tr>
<td>BAKE-111</td>
<td>Practical Baking</td>
<td>70</td>
</tr>
<tr>
<td>RESC-510</td>
<td>Science for Cooking &amp; Baking</td>
<td>20</td>
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</tbody>
</table>

790

**CHEF TRAINING**

**COURSE OUTLINE**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEF-301</td>
<td>Kitchen Management</td>
<td>248</td>
</tr>
<tr>
<td>CHEF-302</td>
<td>Garde Manger</td>
<td>248</td>
</tr>
<tr>
<td>CHEF-303</td>
<td>Patisserie</td>
<td>248</td>
</tr>
<tr>
<td>CHEF-304</td>
<td>Practical Work</td>
<td>496</td>
</tr>
</tbody>
</table>

Students will also receive instruction in accounting, nutrition, human relations, etc. 160

1,400
## MEAT CUTTING

### COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MEAT-101</td>
<td>Shop Management</td>
<td>132</td>
</tr>
<tr>
<td>MEAT-102</td>
<td>Butchery of Meats, Fish &amp; Poultry</td>
<td>528</td>
</tr>
<tr>
<td>MATH-501</td>
<td>Mathematics</td>
<td>20</td>
</tr>
<tr>
<td>ENGL-503</td>
<td>Communication</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>700</td>
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</tbody>
</table>

## FOOD SERVICE SUPERVISORS

### COURSE OUTLINE

#### TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUSS-101</td>
<td>Foods</td>
<td>100</td>
</tr>
<tr>
<td>FUSS-102</td>
<td>Kitchen Management and Supervision</td>
<td>160</td>
</tr>
<tr>
<td>FUSS-104</td>
<td>Nutrition</td>
<td>35</td>
</tr>
<tr>
<td>MATH-501</td>
<td>Mathematics</td>
<td>30</td>
</tr>
<tr>
<td>ENGL-505</td>
<td>Communication for Food Supervisors</td>
<td>30</td>
</tr>
<tr>
<td>HOTL-205</td>
<td>Personnel Management</td>
<td>50</td>
</tr>
<tr>
<td>HOTL-308</td>
<td>Physical Facilities, Layout and Equipment</td>
<td>50</td>
</tr>
<tr>
<td>FUSS-105</td>
<td>Sanitation and Safety</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
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#### TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUSS-201</td>
<td>Foods</td>
<td>150</td>
</tr>
<tr>
<td>FUSS-202</td>
<td>Kitchen Management and Catering</td>
<td>300</td>
</tr>
<tr>
<td>FUSS-203</td>
<td>Diet Therapy</td>
<td>60</td>
</tr>
<tr>
<td>ENGL-505</td>
<td>Communication for Food Supervisors</td>
<td>50</td>
</tr>
<tr>
<td>MATH-502</td>
<td>Mathematics</td>
<td>50</td>
</tr>
<tr>
<td>HOTL-205</td>
<td>Personnel Management</td>
<td>50</td>
</tr>
<tr>
<td>HOTL-206</td>
<td>Business Knowledge and Basic Accounting</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>710</td>
</tr>
</tbody>
</table>
Graphic Arts

ENTRANCE REQUIREMENTS:

A minimum of complete Grade XI in the General, University Entrance, or Vocational courses or Basic Training for Skill Development Level I. Preference will be given to applicants with standing in the 200 or 201 level courses in English, Mathematics and Science. Special consideration will be given to men or women employed in the Graphic Arts industry who do not have the preceding prerequisites but who have a potential for further training.

Anyone who does not meet the above requirements may submit an application. The Admissions Committee will review applications on an individual basis.

Applicants should be aware that color blindness may affect employment opportunities.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $50.00.

EMPLOYMENT OPPORTUNITIES:

Financial growth and technical progress in the Graphic Arts industry has been extraordinary. All evidence points to an even greater growth for the industry. The Graphic Arts industry employs 3,950 people, making it the fourth largest employer in Manitoba. There are over 200 Manitoba businesses providing printing services. Over 78,000 men and women are employed in the Graphic Arts industry in Canada.

Graduates may become apprentices and work toward their jour­neyman qualifications for a printing craft. Others may obtain employment in allied service industries such as paper and ink companies, machinery suppliers, or advertising departments. Some may progress to plant, office, sales or administrative positions.
## COURSE OUTLINE

### TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GART-100</td>
<td>English</td>
<td>50</td>
</tr>
<tr>
<td>GART-102</td>
<td>Mathematics for Printing</td>
<td>50</td>
</tr>
<tr>
<td>GART-103</td>
<td>Design and Layout</td>
<td>80</td>
</tr>
<tr>
<td>GART-104</td>
<td>Hand Composition</td>
<td>60</td>
</tr>
<tr>
<td>GART-105</td>
<td>Machine Composition</td>
<td>60</td>
</tr>
<tr>
<td>GART-106</td>
<td>Type Imposition</td>
<td>60</td>
</tr>
<tr>
<td>GART-107</td>
<td>Platen and Cylinder Press</td>
<td>60</td>
</tr>
<tr>
<td>GART-108</td>
<td>Paste Make-up</td>
<td>60</td>
</tr>
<tr>
<td>GART-109</td>
<td>Camera and Darkroom</td>
<td>60</td>
</tr>
<tr>
<td>GART-110</td>
<td>Offset Imposition and Platemaking</td>
<td>60</td>
</tr>
<tr>
<td>GART-111</td>
<td>Offset Press</td>
<td>60</td>
</tr>
<tr>
<td>GART-112</td>
<td>Bindery Operations</td>
<td>20</td>
</tr>
</tbody>
</table>

Total: 680

### TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GART-204</td>
<td>Hand Composition</td>
<td>60</td>
</tr>
<tr>
<td>GART-205</td>
<td>Machine Composition</td>
<td>100</td>
</tr>
<tr>
<td>GART-206</td>
<td>Type Imposition</td>
<td>60</td>
</tr>
<tr>
<td>GART-207</td>
<td>Platen and Cylinder Press</td>
<td>60</td>
</tr>
<tr>
<td>GART-208</td>
<td>Paste Make-up</td>
<td>60</td>
</tr>
<tr>
<td>GART-209</td>
<td>Camera and Darkroom</td>
<td>110</td>
</tr>
<tr>
<td>GART-210</td>
<td>Offset Imposition and Platemaking</td>
<td>70</td>
</tr>
<tr>
<td>GART-211</td>
<td>Offset Press</td>
<td>100</td>
</tr>
<tr>
<td>GART-212</td>
<td>Bindery Operations</td>
<td>60</td>
</tr>
</tbody>
</table>

Total: 680
Hair Dressing and Beauty Culture

ENTRANCE REQUIREMENTS:
1. Academic — Grade X or B.T.S.D. Level II.
   Anyone who does not meet the above requirement may submit an application. Applications will be reviewed by the Admissions Committee on an individual basis.

2. Health — General good health, substantiated by recent medical, dental and chest X-ray certificates prior to commencement of training.

3. Personal — Well co-ordinated hand movements, emotional stability, a pleasing personality and a progressive-minded attitude are essential to a successful career in this field of training.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies including uniforms totalling approximately $100.00.

EMPLOYMENT OPPORTUNITIES:
Hair Stylist, Hair Coloring Technician, Permanent Waving Technician, Scalp and Hair Specialist, Facial Expert, Make-Up Artist, Manicurist, Shop Manager or Supervisor, Shop Owner.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAIR-125</td>
<td>Introduction to Cosmetology</td>
</tr>
<tr>
<td>HAIR-126</td>
<td>Bacteriology, Sterilization and Sanitation</td>
</tr>
<tr>
<td>HAIR-127</td>
<td>Anatomy and Physiology</td>
</tr>
<tr>
<td>HAIR-128</td>
<td>Shampoo and Rinses</td>
</tr>
<tr>
<td>HAIR-129</td>
<td>Hair and Scalp</td>
</tr>
<tr>
<td>HAIR-130</td>
<td>Hairstyling</td>
</tr>
<tr>
<td>HAIR-131</td>
<td>Hair Shaping</td>
</tr>
<tr>
<td>HAIR-132</td>
<td>Cold Waving</td>
</tr>
<tr>
<td>HAIR-133</td>
<td>Manicuring</td>
</tr>
<tr>
<td>HAIR-134</td>
<td>Tinting and Bleaching</td>
</tr>
<tr>
<td>HAIR-135</td>
<td>Skin and Facial Treatment</td>
</tr>
<tr>
<td>HAIR-136</td>
<td>Beauty Salon Management</td>
</tr>
<tr>
<td>HAIR-137</td>
<td>Beauty, Charm and Poise</td>
</tr>
</tbody>
</table>

1,415
Library Technician

ENTRANCE REQUIREMENTS: (one of)

1. Grade XII (University Entrance, General or Commercial course) with demonstrated proficiency in English.

2. Mature student — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance examination. The Admissions Committee will consider each applicant on an individual basis.

3. B.T.S.D. Level I, with demonstrated proficiency in English.

4. Complete standing in the Pre-College course.

All applicants will be interviewed by an Admissions Committee prior to enrolment.

DURATION OF COURSE:

One school year, approximately ten months, divided into two equal terms, with final examinations written at the end of each term. During the second term, practical experience will be gained by working in a library of recognized standing.

FEES AND EXPENSES:

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

EMPLOYMENT OPPORTUNITIES:

The course provides training for middle level library employees who have training in library techniques beyond that of a clerk, but without the theoretical knowledge or subject background of a librarian.

Library work offers a wide range of opportunities for people who have an ability for work requiring exactness in detail, as well as an interest in people and books. Careers may be found in Public, University, School or Special Libraries.

COURSE OUTLINE

TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Lecture</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIBR-207</td>
<td>3</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>LIBR-102</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Introduction to Data Processing
Library Organization and Administration
LIBR-103 Cataloguing and Classification ...... 5 0 5
LIBR-107 Acquisition of Library Materials .. 4 0 5
LIBR-105 Library Techniques & Routines .... 3 0 4
LIBR-106 Typewriting ....................... 4 0 4
Laboratory & Practical Work .............. 10

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21 10 25

TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIBR-201</td>
<td>3 Lect. 2 Lab.</td>
<td>5</td>
</tr>
<tr>
<td>LIBR-202</td>
<td>3 Lect. 2 Lab.</td>
<td>4</td>
</tr>
<tr>
<td>LIBR-203</td>
<td>4 Lect. 0 Lab.</td>
<td>5</td>
</tr>
<tr>
<td>LIBR-101</td>
<td>3 Lect. 0 Lab.</td>
<td>3</td>
</tr>
<tr>
<td>LIBR-206</td>
<td>3 Lect. 0 Lab.</td>
<td>5</td>
</tr>
<tr>
<td>LIBR-208</td>
<td>10 Lab.</td>
<td>3</td>
</tr>
</tbody>
</table>

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16 14 25

OPTION:

Students may elect any option in lieu of History of Libraries and Librarianship LIBR-101 as long as the option is worth at least 3 credit hours, and can be timetabled.

PRACTICAL EXPERIENCE:

Laboratory work includes practical experience in the various routines of the College Learning Resources Centre. In addition, students will spend 4 weeks in other established libraries in the community during the second term.
Photographic Technician

ENTRANCE REQUIREMENTS:

A minimum of complete Grade XI in the General, University Entrance or Vocational Courses or Basic Training for Skill Development Level I. Preference will be given to applicants with standing in the 200 or 201 level courses in English, Mathematics and Science.

Anyone who does not meet the above requirements may submit an application. The Admissions Committee will review all applications on an individual basis and interview all candidates.

Applicants should be aware that color blindness will affect employment opportunities.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $50.00.

EMPLOYMENT OPPORTUNITIES:

An increasing demand in industry for Photographic Technicians provides many opportunities for those who desire a dynamic and challenging career. The commercial, industrial, educational, portraiture, medical, scientific and technical fields are all dependent upon photography in a variety of ways. Specifically these areas include: photo-finishing, retail marketing and advertising and communications photography via the media of television, newspapers and magazines.

Personnel requirements in these fields necessitate a sound working knowledge of the modern technical aspects and processes of photography. The Photographic Technician course is designed to give adequate preparation for employment in the industry and will provide a basis for future advanced study.

COURSE OUTLINE

TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOTO-100</td>
<td>Photographic Theory</td>
<td>120</td>
</tr>
<tr>
<td>FOTO-101</td>
<td>Practical Photography — Monochrome</td>
<td>400</td>
</tr>
<tr>
<td>FOTO-102</td>
<td>Related Sciences</td>
<td>80</td>
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<tr>
<td>ENGL-507</td>
<td>Communication</td>
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<td>Course Title</td>
<td>Credits</td>
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<td>------------</td>
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</tr>
<tr>
<td>FOTO-104</td>
<td>Composition and Design</td>
<td>40</td>
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**TERM 2**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FOTO-200</td>
<td>Photographic Theory</td>
<td>80</td>
</tr>
<tr>
<td>FOTO-201</td>
<td>Practical Photography — Monochrome</td>
<td>220</td>
</tr>
<tr>
<td>FOTO-202</td>
<td>Related Sciences</td>
<td>40</td>
</tr>
<tr>
<td>FOTO-203</td>
<td>English and Related Business Studies</td>
<td>20</td>
</tr>
<tr>
<td>FOTO-204</td>
<td>Graphic Arts</td>
<td>20</td>
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<tr>
<td>FOTO-205</td>
<td>Practical Photography — Colour</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>680</td>
</tr>
</tbody>
</table>
Social Services

ENTRANCE REQUIREMENTS: (one of)
1. Grade XII,
2. B.T.S.D. Level I,
3. Complete standing in Pre-College course,
4. Anyone not meeting the above requirements may apply as a mature student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

OTHER:
1. All applicants will be interviewed by an Admissions Committee prior to enrolment in the course.
2. Applicants must be in good health and medical and chest X-ray certificates may be required prior to enrolment in the course.
3. For employment purposes, it is recommended that applicants have the ability and authority to drive a car.

DURATION OF COURSE: Beginning October 2, 1972.
One College year of approximately 12 months divided into 4 sessions of 3 months each. A total of 60 credit hours qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee for the course is $60.00 per session. Other expenses include textbooks, incidentals, board and lodging.

EMPLOYMENT OPPORTUNITIES:
This course is designed to train people for employment in the expanding field of social service, including both private and public agencies. Employment opportunities are emerging in a variety of areas as the emphasis of social service programs shifts to meet new needs or finds new ways of coping with social changes.

The ultimate aim of the course is the development of knowledge, skills and techniques which are required to bring the agency, worker and client together in a meaningful relationship. The course focuses on developing the ability to deal with the complexity of human behavior and the development of knowledge of the various social service processes.
## COURSE OUTLINE

### SESSION I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOSC-151</td>
<td>Introductory Psychology</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>SOSC-152</td>
<td>Introductory Sociology</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>SSER-155</td>
<td>Economics</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>SOSC-153</td>
<td>Political Science</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>ENGL-157</td>
<td>Communication Skills</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>SSER-156</td>
<td>Orientation to the Social Services</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>30</td>
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### SESSION II

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOSC-251</td>
<td>Human Relations</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>SOSC-252</td>
<td>Regional Sociology</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>SSER-256</td>
<td>Law</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>SSER-258</td>
<td>Public Administration</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>SSER-255</td>
<td>Community Resources</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>SSER-257</td>
<td>Contemporary Social Service Practice</td>
<td>5</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
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<td>30</td>
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</tbody>
</table>

### SESSION III

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Orientation to Field Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Field Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSER-350</td>
<td>Assessment of Field Training</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

### SESSION IV

During Session IV, one or more 12 weeks specialization courses will be offered. Possible areas are: Employment Counselling, Income Maintenance Services, Institutional Social Services, and Addiction Services.

**NOTE:**

1. Candidates may attend Session IV at Assiniboine Community College for the area of specialization, if desired.

2. Depending upon established needs, the colleges may offer additional specialization courses for graduates and other qualified individuals.
Pre-College Course

ENTRANCE REQUIREMENTS: (one of)

1. Students who have discontinued Term I of a two-year program and who feel that future success at the College would be more assured by reviewing Grade XII topics.

2. Students successful in B.T.S.D. Level I and with a demonstrated proficiency in English, Mathematics and Physical Science.

3. Anyone not meeting the above requirements may apply as a mature student. A mature student is considered to be one who is at least 20 years of age prior to the commencement of the course. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

COURSE INFORMATION:

The course will be of five months duration starting in February and ending in June. The successful completion of this course will allow a candidate academic admission into any course in the Technology, Business or Applied Arts Divisions at the Red River Community College. The subject material offered will prepare a student for final examinations in the General Course Mathematics 301, English 301, Social Studies 301, or Physical Science 301. Department of Education standing will be awarded to all students who are successful in the examinations.

FEES AND EXPENSES:

The tuition fee for the Pre-College course is $100.00 for the 5 month term. Other expenses include textbooks, incidentals, board and lodging.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Pre-Technology</th>
<th>Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lect.</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>Physical Science</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>2</td>
</tr>
</tbody>
</table>

Pre-Applied Arts and Business

As above but will substitute Social Studies (5-7 hours) for Physical Science.
# Business Division

## COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration</td>
<td>91</td>
</tr>
<tr>
<td>Clerical, Bookkeeping and Office Machines</td>
<td>95</td>
</tr>
<tr>
<td>Clerk Typist</td>
<td>97</td>
</tr>
<tr>
<td>Commercial and Industrial Sales</td>
<td>98</td>
</tr>
<tr>
<td>Computer Analyst/Programmer</td>
<td>100</td>
</tr>
<tr>
<td>Hotel, Motel and Restaurant Management</td>
<td>103</td>
</tr>
<tr>
<td>Business Accountancy</td>
<td>106</td>
</tr>
<tr>
<td>Medical Records Technician</td>
<td>108</td>
</tr>
<tr>
<td>Secretarial Science</td>
<td>110</td>
</tr>
<tr>
<td>Stenography</td>
<td>113</td>
</tr>
</tbody>
</table>
Business Administration

ENTRANCE REQUIREMENTS:

1. Complete Grade XII standing (University Entrance, General, or Vocational Commercial Course). Preference will be given to applicants with standing in English and Mathematics, or

2. Complete standing in the Pre-Applied Arts, Pre-Business or the Pre-Technology Course, or

3. Mature student — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:

Two school years, each of ten months duration, leads to a Diploma in Applied Arts (Dipl. A.A.) Each year is divided into five-month terms with final examinations at the end of each term.

FEES AND EXPENSES:

The tuition fee is $100 for each term. Other expenses include books, incidentals, board and lodging.

EMPLOYMENT OPPORTUNITIES:

During the past two decades, statistics show that there has been a very significant shift of employment to office occupations. Paralleling this shift 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 administration and management.

There are at least four broad categories of management discernable, particularly in the large companies. Personnel management is concerned with the selection, co-ordination, and direction of employees. Technical production management is responsible for the efficient production of goods and services. Financial management involves raising, utilizing, and controlling the monetary capital of firms. Commercial management has the job of buying the materials for processing and 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

#### TERM I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-102</td>
<td>Oral Communications</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ENGL-108</td>
<td>Study Skills</td>
<td></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SOSC-131</td>
<td>Introduction to Social Sciences</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ADMN-101</td>
<td>Accounting</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-102</td>
<td>Economic Principles</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-103</td>
<td>Marketing</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>ADMN-106</td>
<td>Business Law</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ADMN-109</td>
<td>Introduction to Business</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>ADMN-110</td>
<td>Financial Mathematics</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-116</td>
<td>Special Mathematics Tutorial</td>
<td></td>
<td>3</td>
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</tr>
</tbody>
</table>

| Total      |                                              | 17    | 13   | 25           |

#### TERM II

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-213</td>
<td>Basic Business Communications</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SOSC-231</td>
<td>Human Behaviour in Organizations</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ADMN-201</td>
<td>Accounting</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-202</td>
<td>Economic Principles</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-203</td>
<td>Marketing</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-205</td>
<td>Statistics</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-217</td>
<td>Introduction to Computers</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total      |                                              | 15    | 14   | 25           |

### Second Year

#### TERM III

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-310</td>
<td>Report Writing</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>ADMN-302</td>
<td>International Economics and Trade</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-305</td>
<td>Statistical Analyses</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ADMN-312</td>
<td>Business Finance</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-313</td>
<td>Personnel</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

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### TERM III

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN-314</td>
<td>Selling and Advertising</td>
<td>2 3 3</td>
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</tbody>
</table>

Elect two of the following options:

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALE-104</td>
<td>Consumer Behaviour</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-304</td>
<td>Labor Economics and Industrial Relations</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-318</td>
<td>Intermediate Accounting—A</td>
<td>2 3 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-322</td>
<td>Computer Applications in Business</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>SOSC-334</td>
<td>Political Science</td>
<td>2 2 3</td>
<td></td>
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</tbody>
</table>

Total: 15 15 25

### TERM IV

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN-402</td>
<td>Systems</td>
<td>0 2 1</td>
<td></td>
</tr>
<tr>
<td>ADMN-415</td>
<td>Business Management</td>
<td>2 2 4</td>
<td></td>
</tr>
<tr>
<td>ADMN-419</td>
<td>Business Seminar</td>
<td>2 2 5</td>
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</tbody>
</table>

Elect five of the following options:

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN-403</td>
<td>Cost Accounting</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-407</td>
<td>Production and Work Study</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-409</td>
<td>Retail Accounting and Budgeting</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-410</td>
<td>Merchandising</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-411</td>
<td>Public Finance</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-412</td>
<td>Finance and Financial Intermediaries</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-418</td>
<td>Intermediate Accounting—B</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-420</td>
<td>Risk and Insurance</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-421</td>
<td>Marketing Research</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-422</td>
<td>Computer Programming</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ADMN-430*</td>
<td>Other Elective</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>SOSC-431</td>
<td>Contemporary Issues in Canadian Society</td>
<td>2 2 3</td>
<td></td>
</tr>
</tbody>
</table>

Total: 4 6 10

1. Accounting Pattern shall include both:
   - ADMN-403 Cost Accounting
   - ADMN-418 Intermediate Accounting—B
2. Marketing Pattern shall include:
   ADMN-410  Merchandising
   plus one of
   ADMN-409  Retail Accounting, or
   ADMN-421  Marketing Research

3. Administration Pattern elects any five options

*Note: Students may elect another subject of their own choice with
equivalent or more credit hours offered within the College
provided suitable scheduling can be arranged.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>
Clerical, Bookkeeping and Office Machines

ENTRANCE REQUIREMENTS:

A minimum of complete Grade X or B.T.S.D. Level II, or

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $80.00.

EMPLOYMENT OPPORTUNITIES:

Due to the emphasis on training in bookkeeping and on calculating and accounting machines, the graduate frequently obtains employment with a large business firm where, in the accounting department, he/she may perform the specialized duties of an accounts receivable, accounts payable, payroll, invoice, or data processing clerk or operate bookkeeping or accounting equipment. If employed by a small business firm, the graduate may be responsible for all of the foregoing duties as well as general office work.

COURSE OUTLINE

TERM I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lect.</td>
<td>Lab.</td>
</tr>
<tr>
<td>CBOM-140</td>
<td>Accounting</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>CBOM-142</td>
<td>Business Machines</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>STNO-225</td>
<td>Office Procedures</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CBOM-144</td>
<td>Business Mathematics</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>STNO-122</td>
<td>Basic Typewriting</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>CBOM-146</td>
<td>Business Communications</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>*Physical Education (optional)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

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## TERM II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOM-242</td>
<td>Business Machines</td>
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<tr>
<td>STNO-225</td>
<td>Office Procedures</td>
<td>1</td>
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<tr>
<td>CBOM-243</td>
<td>Data Processing</td>
<td>2</td>
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<tr>
<td>CBOM-244</td>
<td>Business Mathematics</td>
<td>2</td>
</tr>
<tr>
<td>CBOM-246</td>
<td>Business Communications</td>
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</tr>
<tr>
<td>STNO-226</td>
<td>Machine Transcription</td>
<td>0</td>
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<tr>
<td></td>
<td>*Physical Education (optional)</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Elect 3 of the following Options</td>
<td>6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBOM-240</td>
<td>Accounting I</td>
<td>2</td>
</tr>
<tr>
<td>CBOM-241</td>
<td>Accounting II</td>
<td>2</td>
</tr>
<tr>
<td>STNO-222</td>
<td>Intermediate Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>STNO-224</td>
<td>Advanced Typewriting</td>
<td>2</td>
</tr>
<tr>
<td>CBOM-247</td>
<td>Consumer Education</td>
<td>2</td>
</tr>
</tbody>
</table>

| Total         | 14                             | 21      | 25      |
Clerk Typist

ENTRANCE REQUIREMENTS:
A Minimum of Grade X, or B.T.S.D. Level II, or
Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 6 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $80.00.

EMPLOYMENT OPPORTUNITIES:
Graduates are employed as Typists, Filing Clerks, Receptionists, etc. In a small office, a clerk typist performs a number of general office duties.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLRK-100</td>
<td>Typewriting</td>
<td>5 10</td>
<td>10</td>
</tr>
<tr>
<td>CLRK-101</td>
<td>Business Communications</td>
<td>2 3</td>
<td>4</td>
</tr>
<tr>
<td>CLRK-102</td>
<td>Business Mathematics</td>
<td>3 2</td>
<td>4</td>
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<tr>
<td>CLRK-104</td>
<td>Recordkeeping</td>
<td>0 1</td>
<td>1</td>
</tr>
<tr>
<td>STNO-225</td>
<td>Office Procedures</td>
<td>2 2</td>
<td>3</td>
</tr>
<tr>
<td>CLRK-105</td>
<td>Business Machines</td>
<td>0 4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Physical Education (optional)</td>
<td>0 1</td>
<td></td>
</tr>
</tbody>
</table>

Total: 12 23 25
Commercial and Industrial Sales

ENTRANCE REQUIREMENTS:
1. Complete Grade XII or B.T.S.D. Level I, or
2. Complete standing in the Pre-Applied Arts, Pre-Business or the Pre-Technology course, or
3. Mature Student — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:
The complete course is one school year of ten months which is divided into two five-month terms. Each term represents a comprehensive sales training program in itself but at different levels of achievement. Term I provides the fundamental training required for a career in basic sales. Term II develops the basic concepts further by applying them at an advanced level of skill-building. One week of “in-business” experience is included in each term. Students who successfully complete Term I and withdraw during Term II may be issued a Certificate of Attainment in “Basic Salesmanship.” Successful completion of the two terms qualifies the graduate for a Certificate of Attainment in “Commercial and Industrial Sales.”

FEES AND EXPENSES:
The tuition fee is $100.00 for each term. Other expenses include books, board and lodging and incidentals.

EMPLOYMENT OPPORTUNITIES:
Persons who wish to make progress in their chosen careers must have important personal qualities as well as certain abilities. They must have the ability to think, to assess situations, to make decisions, to apply principles, to communicate — orally and graphically, and to work with and supervise people. Employers now recognize that many of these abilities can be developed and cultivated in classroom and laboratory settings, as are provided at the Red River Community College.

There are unlimited employment possibilities and opportunities for advancement for persons possessing a favourable combination of personal qualities and abilities acquired through training for selling retail consumer goods and services or goods, services and supplies to institutions and industrial firms.
## COURSE OUTLINE

### TERM I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-114</td>
<td>Sales Communications</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SOSC-121</td>
<td>Human Behavior for Salesmen</td>
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<td>2</td>
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<tr>
<td>SALE-101</td>
<td>Basic Salesmanship</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>SALE-102</td>
<td>“In-Business” Training</td>
<td>2</td>
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<tr>
<td>SALE-103</td>
<td>Basic Marketing</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>SALE-104</td>
<td>Consumer Behaviour</td>
<td>2</td>
<td>2</td>
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<tr>
<td>SALE-105</td>
<td>Accounting</td>
<td>1</td>
<td>2</td>
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<tr>
<td>SALE-106</td>
<td>Business Math and Machines</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SALE-107</td>
<td>Structure and Organization of Business</td>
<td>2</td>
<td>3</td>
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<tr>
<td></td>
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### TERM II

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-214</td>
<td>Advanced Sales Communications</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SOSC-221</td>
<td>Behavioral Science for Salesmen</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SALE-201</td>
<td>Advanced Salesmanship</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>SALE-202</td>
<td>Advanced “In-Business” Training</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>SALE-203</td>
<td>Marketing Management</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>SALE-206</td>
<td>Advertising and Other Promotions</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SALE-207</td>
<td>Structure and Organization of Business</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SALE-208</td>
<td>Merchandising</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
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</table>
Computer Analyst/Programmer

ENTRANCE REQUIREMENTS:
1. Complete Grade XII standing (University Entrance, General or Vocational Commercial Course) with demonstrated proficiency in English and Mathematics or
2. Complete standing in Pre-Business Course or the Pre-Technology Course; or
3. Mature student — a mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.
4. All applicants are required to write an aptitude test before admission is considered.
5. Enrolment in this course is limited. Applicants are advised to apply early for commencement in February or September of each year.

DURATION OF COURSE:
Two school years, each of ten months duration, leads to a Diploma in Applied Arts (Dipl. A.A.). Each of the ten month periods is divided into two equal terms with final term examinations written at the end of each term.

FEES AND EXPENSES:
The registration fee is $100 for each term. Other expenses will include books, incidentals, board and lodging.

AIMS AND OBJECTIVES:
To provide training in problem recognition, analysis and solution as applied to scientific and business application of electronic data processing.

THE NEED FOR COMPUTER ANALYSTS AND PROGRAMMERS
The "Information Explosion" of the past decade is hardly news to the individual recently involved with some aspect of the educational system. It has proved no less a challenge, however, to businesses competing in the current highly competitive market place. Computer systems have evolved as perhaps the best answer to the problem of handling the masses of information now prevalent in the business world. Had computers not been applied to the handling of banking documents, it has been said that manual methods would not now
be able to cope with the mountains of paper involved and we might very well have lost the personal cheque as a convenient form of money transfer.

Computer applications in such diversified areas as business accounting, credit authorization, market and sales forecasting and a host of communications and scientific uses do not just happen. Individuals must recognize a problem and foresee a computer solution. The problem must then be thoroughly analyzed and explored taking into account every possible condition that can arise. Next the solution must be formulated with an action to be taken for each of the problem conditions. As a last step, the solution must be translated into a set of instructions for a computer to follow—the program. The job of problem recognition, analysis and solution and of computer instruction is the exciting occupation of the analyst/programmer. The position is particularly challenging because it requires fresh and creative thought in problem solving while enforcing the rigid constraint of “explaining” the solution to the computer. Students with a strong aptitude for logical reasoning, basic mathematical ability and a penchant for analytical thought would be well advised to consider this course of study. There can be no doubt that analyst/programmers enjoy amongst the most exciting prospects of any area in the field of technology.

### COURSE OUTLINE

#### First Year

**TERM I**

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL-110</td>
<td>Business Communications</td>
<td>2 Lec., 2 Lab.</td>
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<tr>
<td>ADMN-101</td>
<td>Accounting</td>
<td>3 Lec., 2 Lab.</td>
<td>4</td>
</tr>
<tr>
<td>ADMN-109</td>
<td>Business Organization</td>
<td>2 Lec., 1 Lab.</td>
<td>3</td>
</tr>
<tr>
<td>PROG-101</td>
<td>Data Processing Programming I</td>
<td>3 Lec., 9 Lab.</td>
<td>10</td>
</tr>
<tr>
<td>PROG-102</td>
<td>Data Processing Mathematics I</td>
<td>3 Lec., 3 Lab.</td>
<td>5</td>
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**TERM II**

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<th>Course Title</th>
<th>Hours Per Week</th>
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<tbody>
<tr>
<td>ENGL-208</td>
<td>Oral Communications</td>
<td>0 Lec., 2 Lab.</td>
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<tr>
<td>ENGL-209</td>
<td>Study Skills</td>
<td>0 Lec., 2 Lab.</td>
<td>2</td>
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<tr>
<td>ADMN-111</td>
<td>Economic Principles</td>
<td>2 Lec., 2 Lab.</td>
<td>3</td>
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<td>ADMN-208</td>
<td>Accounting</td>
<td>2 Lec., 2 Lab.</td>
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<tr>
<td>PROG-201</td>
<td>Data Processing Programming II</td>
<td>3 Lec., 9 Lab.</td>
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<td>Data Processing Mathematics II</td>
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101
## Second Year

### TERM III

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<tr>
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<th>Course Title</th>
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<tr>
<td>SOSC-121</td>
<td>Introduction to Social Sciences</td>
<td>2</td>
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<tr>
<td>ADMN-221</td>
<td>Economic Principles</td>
<td>2</td>
</tr>
<tr>
<td>ADMN-403</td>
<td>Cost Accounting</td>
<td>2</td>
</tr>
<tr>
<td>PROG-301</td>
<td>Data Processing and Programming III</td>
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<tr>
<td>PROG-302</td>
<td>Data Processing and Mathematics III</td>
<td>3</td>
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<tr>
<td>PROG-303</td>
<td>Systems Analysis and Design</td>
<td>3</td>
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<td>PROG-304</td>
<td>Operating Systems</td>
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### TERM IV

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<th>Course Title</th>
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<tbody>
<tr>
<td>ADMN-407</td>
<td>Production and Work Study</td>
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<tr>
<td>*ADMN-415</td>
<td>Business Management</td>
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<tr>
<td>PROG-402</td>
<td>Data Processing and Mathematics IV</td>
<td>3</td>
</tr>
<tr>
<td>PROG-403</td>
<td>Modern Concepts in Data Processing</td>
<td>3</td>
</tr>
<tr>
<td>PROG-404</td>
<td>D.P. Organization and Computer Topics</td>
<td>3</td>
</tr>
<tr>
<td>PROG-405</td>
<td>Project and Technical Report</td>
<td>0</td>
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<table>
<thead>
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</thead>
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<td>Credits</td>
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<td>17</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

*NOTE: Students may elect another subject of their own choice with equivalent or more credit hours offered within the College provided suitable scheduling can be arranged.*
Hotel, Motel and Restaurant Management

ENTRANCE REQUIREMENTS:

1. Grade XII (University Entrance, General or Commercial Courses), or

2. Complete standing in the Pre-Applied Arts, Pre-Business or the Pre-Technology Course, or

3. Mature student — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

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

DURATION OF COURSE:

Two school years each of ten months duration, leads to a Diploma in Applied Arts (Dipl. A.A.). Each year is divided into two five-month terms with final examinations at the end of each term.

FEES AND EXPENSES:

The tuition fee is $100. for each term. Other expenses include books, incidentals, board and lodging.

EMPLOYMENT OPPORTUNITIES:

The hospitality industry throughout Canada is growing very rapidly. Since more people travel today than ever before and because of the increasing amount of leisure time most of us enjoy, more and more accommodation is being built. The hotels, motels, resorts, and restaurants which comprise the industry are continually being modernized, renovated, and expanded in order to provide the finest facilities in comfort, service, and safety.

All this means increased job opportunities for thoroughly trained well qualified personnel. There is a wide range of middle management positions in the industry such as the supervision of the front office, sales, purchasing, accounting and auditing, food and beverages, catering, banquets, and restaurants. Well trained men and women may expect to start well up the scale in these departments and through initiative, additional specialized training, and on-the-job-experience aspire to managerial positions. One pre-requisite for every job in the hospitality field is to have a genuine liking for strangers and people and to be able to excite this feeling in them.
## COURSE OUTLINE

### First Year

#### TERM I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>ENGL-110</td>
<td>Business Communications</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>SOSC-121</td>
<td>Introduction to Social Sciences</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>ADMN-111</td>
<td>Economic Principles</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>HOTL-101</td>
<td>Foods and Beverages</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>HOTL-102</td>
<td>Sanitation, Safety, Housekeeping</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>HOTL-103</td>
<td>Typewriting and Business Machines</td>
<td>2</td>
<td>2</td>
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<tr>
<td>HOTL-104</td>
<td>Accounting &amp; Introduction to Business</td>
<td>2</td>
<td>4</td>
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<tr>
<td>HOTL-105</td>
<td>Mathematics</td>
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**Total:** 13 17 25

#### TERM II

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL-208</td>
<td>Oral Communications</td>
<td>0</td>
<td>2</td>
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<td>ENGL-209</td>
<td>Study Skills</td>
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<td>2</td>
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<tr>
<td>SOSC-231</td>
<td>Human Behaviour in Organizations</td>
<td>2</td>
<td>2</td>
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<tr>
<td>HOTL-201</td>
<td>Foods and Beverage Service</td>
<td>2</td>
<td>3</td>
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<tr>
<td>HOTL-202</td>
<td>Building and Equipment Maintenance</td>
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<td>2</td>
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<tr>
<td>HOTL-203</td>
<td>Front Office Procedures</td>
<td>2</td>
<td>4</td>
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<tr>
<td>HOTL-204</td>
<td>Departmental Cost Controls</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>HOTL-206</td>
<td>Special Catering and Waitress Services</td>
<td>2</td>
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**Total:** 12 18 25

### Second Year

#### TERM III

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HOTL-301</td>
<td>Food Service Operations</td>
<td>2</td>
<td>2</td>
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<tr>
<td>HOTL-304</td>
<td>Management Accounting</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>HOTL-305</td>
<td>Advertising and Marketing Research</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>HOTL-306</td>
<td>Introduction to Computers</td>
<td>2</td>
<td>3</td>
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<tr>
<td>HOTL-308</td>
<td>Physical Facilities Layout Equipment</td>
<td>2</td>
<td>4</td>
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<tr>
<td>HOTL-310</td>
<td>Foods and Beverage Service</td>
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**Total:** 2 4 4
TERM IV

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>HOTL-311</td>
<td>Personnel</td>
<td>2</td>
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<tr>
<td>HOTL-407</td>
<td>Internal Merchandising and Design</td>
<td>2</td>
</tr>
<tr>
<td>HOTL-408</td>
<td>Seminar and Field Work</td>
<td>2</td>
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<tr>
<td>HOTL-409</td>
<td>Beverage Management</td>
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<tr>
<td>HOTL-410</td>
<td>Law and Public Relations</td>
<td>2</td>
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<tr>
<td>HOTL-411</td>
<td>Financial Management</td>
<td>2</td>
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</tbody>
</table>

\[ 13 \quad 17 \quad 25 \]

Elect two of the following options:

(HOTL-401 and HOTL-403 may not be taken in combination)

<table>
<thead>
<tr>
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<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>HOTL-401</td>
<td>Advanced Foods and Kitchen Management</td>
<td>2</td>
</tr>
<tr>
<td>HOTL-402</td>
<td>Specialty Group and Resource Management</td>
<td>2</td>
</tr>
<tr>
<td>HOTL-403</td>
<td>In-Service Training</td>
<td>2</td>
</tr>
<tr>
<td>HOTL-404</td>
<td>Human Relations, Hospitality Industry</td>
<td>2</td>
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<tr>
<td>*HOTL-405</td>
<td>OTHER ELECTIVE</td>
<td>2</td>
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</tbody>
</table>

\[ 9 \quad 11 \quad 17 \]

*NOTE: Students may elect another subject of their own choice with equivalent or more credit hours offered within the College provided suitable scheduling can be arranged.
Business Accountancy

ENTRANCE REQUIREMENTS:

A minimum of complete Grade XI in the General, University Entrance or Vocational courses or B.T.S.D. Level I. Preference will be given to applicants with standing in the 200 or 201 level course in English and Mathematics, or

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $90.00.

EMPLOYMENT OPPORTUNITIES:

Management today cannot find time to develop and train all employees — the well-trained accountant will find many opportunities open to him. There is a need for the type of personnel that has been thoroughly trained to fill key positions and to accept responsibilities. The Business Accountancy course provides the student with a thorough working knowledge of double entry bookkeeping and accounting. He is capable of maintaining a complete set of books in most business enterprises.

COURSE OUTLINE

TERM I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN-106</td>
<td>Business Law</td>
<td>2</td>
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<tr>
<td>ACNT-160</td>
<td>Accounting</td>
<td>5</td>
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<tr>
<td>ACNT-162</td>
<td>Business Communications</td>
<td>3</td>
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<tr>
<td>ACNT-164</td>
<td>Business Mathematics</td>
<td>2</td>
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<tr>
<td>ACNT-167</td>
<td>Business Machines</td>
<td>0</td>
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<tr>
<td>ACNT-168</td>
<td>Basic Typewriting</td>
<td>3</td>
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<td>Physical Education (optional)</td>
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Total: 15 hours

Credit Hours: 25
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<th>Term II</th>
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<td>ACNT-260</td>
<td>Accounting</td>
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<td>ACNT-261</td>
<td>Cost Accounting</td>
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<td>ACNT-262</td>
<td>Business Communications</td>
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<td>ACNT-264</td>
<td>Business Mathematics</td>
<td>3</td>
<td>2</td>
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<tr>
<td>ACNT-265</td>
<td>Principles of Organization &amp; Management</td>
<td>2</td>
<td>2</td>
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<td>ACNT-266</td>
<td>Introduction to Computers</td>
<td>3</td>
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<td>Physical Education (optional)</td>
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<td>18</td>
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</table>
Medical Records Technician

ENTRANCE REQUIREMENTS:
1. A minimum of Grade XI or B.T.S.D. Level I, or
2. Applicants who qualify as Clerk Typists may be accepted directly into Term II of the course, or
3. Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month or fraction thereof. Other expenses include textbooks and supplies totalling approximately $100.00.

EMPLOYMENT OPPORTUNITIES:
Graduates as Clerk Typist from Term I of the course are employed by business firms as Typists, Office Clerks and Receptionists. Graduates as Medical Records Technicians further qualifies the participants for employment in Medical and Dental offices, Medical Clinics, Hospitals and Public Health Departments and Agencies to fill positions in medical recordkeeping and processing.

COURSE OUTLINE

TERM I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course</th>
<th>Hours Per Week</th>
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<tr>
<td>CLRK-100</td>
<td>Typewriting</td>
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<td>10</td>
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<td>CLRK-101</td>
<td>Business Communications</td>
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<td>3</td>
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<td>CLRK-102</td>
<td>Business Mathematics</td>
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<td>CLRK-104</td>
<td>Recordkeeping</td>
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<td>STNO-225</td>
<td>Office Procedures</td>
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<td>CLRK-105</td>
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13 22 25
## TERM II

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<thead>
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<th>Title</th>
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<tr>
<td>MREC-101</td>
<td>Related Law</td>
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<td>MREC-102</td>
<td>Medical Records Services</td>
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<tr>
<td>MREC-103</td>
<td>Medical Terminology &amp; Office Practice</td>
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<tr>
<td>MREC-104</td>
<td>Medical Coding Practices</td>
<td>2</td>
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<td>MREC-105</td>
<td>Introduction to Data Processing</td>
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<td>MREC-106</td>
<td>Seminars</td>
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<tr>
<td>MEDR-109</td>
<td>Anatomy and Physiology</td>
<td>2</td>
</tr>
<tr>
<td>SOSC-121</td>
<td>Introduction to Social Sciences</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total:** 11 19 25
Secretarial Science

ENTRANCE REQUIREMENTS:
1. Complete Grade XII standing (University Entrance, General, Vocational Commercial, or
2. Complete standing in the Pre-Applied Arts, Pre-Business or the Pre-Technology Course, or
3. Mature student — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:
Two school years, each of ten months duration, leads to a Diploma in Applied Arts, (Dipl. A.A.). Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term.

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 OPPORTUNITIES:
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 exacting executives. The course is designed for both men and women. The thorough training received by the graduates of Secretarial Science makes them valuable assistants to highly-placed executives.

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 I

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-107</td>
<td>Oral Communications</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SOSC-131</td>
<td>Introduction to Social Sciences</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ADMN-101</td>
<td>Accounting</td>
<td>3</td>
<td>2</td>
<td>4</td>
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<tr>
<td>SECR-101</td>
<td>Secretarial Science</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SECR-102</td>
<td>Typewriting</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SECR-103</td>
<td>Basic Shorthand</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>SECR-104</td>
<td>Introduction to Business</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SECR-105</td>
<td>Statistics</td>
<td>2</td>
<td>1</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>16</td>
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### TERM II

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<thead>
<tr>
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<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL-209</td>
<td>Study Skills</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<tr>
<td>ENGL-211</td>
<td>Written English</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SOSC-231</td>
<td>Human Behaviour in Organizations</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ADMN-111</td>
<td>Economic Principles</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<tr>
<td>ADMN-201</td>
<td>Accounting</td>
<td>3</td>
<td>2</td>
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<tr>
<td>SECR-201</td>
<td>Secretarial Science</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SECR-202</td>
<td>Intermediate Typewriting</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SECR-203</td>
<td>Basic Shorthand and Transcription</td>
<td>2</td>
<td>4</td>
<td>5</td>
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<tr>
<td></td>
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<td>14</td>
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## Second Year

### TERM III

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL-310</td>
<td>Report Writing</td>
<td>1</td>
<td>2</td>
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<tr>
<td>SOSC-334</td>
<td>Political Science</td>
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<tr>
<td>ADMN-202</td>
<td>Economics</td>
<td>2</td>
<td>2</td>
<td>4</td>
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<tr>
<td>SECR-301</td>
<td>Business Law</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<tr>
<td>SECR-302</td>
<td>Advanced Typewriting</td>
<td>1</td>
<td>4</td>
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<tr>
<td>SECR-303</td>
<td>Advanced Shorthand and Transcription</td>
<td>2</td>
<td>4</td>
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<tr>
<td>Course</td>
<td>Title</td>
<td>Credit</td>
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<tr>
<td>SECR-307</td>
<td>Personal Finance</td>
<td>3</td>
<td>1</td>
<td>3</td>
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<tr>
<td>SECR-309</td>
<td>Secretarial Science</td>
<td>1</td>
<td>2</td>
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**TERM IV**

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<tr>
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<th>Title</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>ENGL-413</td>
<td>Business Communications</td>
<td>2</td>
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</tr>
<tr>
<td>*SOSC-431</td>
<td>Contemporary Issues in Canadian Society</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>*ADMN-217</td>
<td>Introduction to Computers</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>SECR-401</td>
<td>Business Law</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SECR-402</td>
<td>Advanced Typewriting</td>
<td>1</td>
<td>5</td>
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<tr>
<td>SECR-403</td>
<td>Advanced Shorthand and Transcription</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>SECR-409</td>
<td>Secretarial Science</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>SECR-417</td>
<td>Business Mathematics</td>
<td>1</td>
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<td></td>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

*NOTE: Students may elect another subject of their own choice with equivalent or more credit hours offered within the College provided suitable scheduling can be arranged.*
Stenography Course

ENTRANCE REQUIREMENTS:
A complete Grade XI or B.T.S.D. Level I. Grade XII is preferred. Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses include textbooks and supplies totalling approximately $80.00.

EMPLOYMENT OPPORTUNITIES:
A student who has acquired a proficiency in the skills of typing and shorthand will find employment as a stenographer in a small office or in a steno pool in a larger office. The ambitious student who aspires to being a private or executive secretary will find that promotion to these positions is open to the stenographer who has gained work experience.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STNO-120</td>
<td>Shorthand Theory</td>
<td>5</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>STNO-122</td>
<td>Basic Typewriting</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>STNO-123</td>
<td>Business Communications</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>STNO-126</td>
<td>Basic Bookkeeping</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>STNO-127</td>
<td>Business Mathematics</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<td></td>
<td>Physical Education (optional)</td>
<td>0</td>
<td>1</td>
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<td>18</td>
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TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STNO-220</td>
<td>Shorthand Transcription</td>
<td>5</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>STNO-222</td>
<td>Intermediate Typewriting</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>STNO-223</td>
<td>Business Communications</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>STNO-224</td>
<td>Advanced Typewriting</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>STNO-225</td>
<td>Office Procedures</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>STNO-226</td>
<td>Machine Transcription</td>
<td>0</td>
<td>2</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>13</td>
<td>22</td>
<td>25</td>
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</table>
Extension, Community and Student Services Division

Basic Training for Skills Development, Level IV ................. 120
Basic Training for Skills Development, Level III .................. 120
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Basic Training for Skills Development

Basic Training For Skills Development courses are available in Manitoba to mature adults who wish to acquire trades training but lack the necessary academic qualifications. The courses are primarily designed to upgrade and prepare students for training at the Manitoba Community Colleges.

LOCATION

Basic Training For Skills Development courses are offered at the Fort Osborne Centre and Red River Community College, Winnipeg; The Assiniboine Community College, Brandon; the Keewatin Community College, The Pas; and various rural centres.

ENTRANCE QUALIFICATIONS

Courses are open to students who are sixteen years of age or more and who have been out of school at least one year. In addition, each student is required to write a Level Placement Test before enrolling in a course to ensure that he will start at the level for which he is qualified.

SUBSISTENCE ALLOWANCES

In certain cases students are eligible to receive subsistence allowances while attending Basic Training For Skills Development courses. Persons interested in obtaining information on subsistence allowances should contact their local Canada Manpower Centre. Students who do not qualify for support from Canada Manpower may be eligible to receive assistance from the Department of Health and Social Development through their Student Aid program.

BASIC TRAINING FOR SKILLS DEVELOPMENT COURSES

Four different levels of instruction are offered in the Basic Training for Skills Development Program. It is not intended that these levels shall correspond specifically with grade levels in the public school system. However, some approximate comparisons are useful and they are indicated with the description of each level.

CONTINUOUS PROGRESS:

Two approaches to training are employed in BTSD courses between Level IV and Level II. Through Placement Testing, students are referred either to a Continuous Progress or to a Group Instruction class. Group Instruction classes, which resemble the traditional classroom situation in many ways, begin and end on specified dates. The Continuous Progress approach, on the other hand, admits students to training at any stage of a Level II, III, or IV course and allows them to graduate whenever they complete Level II. The duration of the course depends on the level at which the student enrols.
LEVEL IV

DURATION:
8 weeks

PURPOSE:
To prepare students for Level III

APPROXIMATE GRADE EQUIVALENT:
Grades 4 and 5

COURSE CONTENT:
Mathematics — 80 periods
Communication — 160 periods

COURSE DETAILS:
Mathematics — Numbers, basic operations, problem solving.
Communication — Reading and vocabulary development, spelling, basic grammar, sentence writing.

LEVEL III

DURATION:
16 weeks

PURPOSE:
To prepare students for Level II

APPROXIMATE GRADE EQUIVALENT:
Grades 6 to 8

COURSE CONTENT:
Mathematics — 200 periods
Communication — 200 periods
Physical Science — 80 periods

COURSE DETAILS:
Mathematics — Whole numbers (review), fractions, decimals, percentage, basic graphs, budgeting and spending.
Communication — Development of reading speed and comprehension, vocabulary and spelling development, grammar, mechanics, sentence structure, sentence writing.
Physical Science — Scientific analysis, measurement, fire, water, electricity, magnetism, machines.
LEVEL II

DURATION:
16 weeks

PURPOSE:
To prepare students for Level I and for courses at Manitoba Community Colleges requiring a Grade 10 standing.

APPROXIMATE GRADE EQUIVALENT:
Grades 9 and 10

COURSE CONTENT:
- Mathematics — 160 periods
- Communication — 160 periods
- Physical Science — 160 periods

COURSE DETAILS:
Mathematics — Further development of problem solving skills using whole numbers, fractions, decimals, and percent; ratio and proportion; positive and negative numbers; square root; introductory algebra and geometry.

Communication — Reading speed and comprehension development; spelling and vocabulary development; grammar, usage and mechanics; paragraph construction, outlining, expository paragraph writing.

Physical Science — Basic scientific concepts; measurements of forces, temperature, heat, pressure, density, work, electricity; systems of measurement; problem solving.

LEVEL I

The Level I course is divided into two sections: Level IA (Science — based) and Level IB (Arts — based). Students should confirm the entrance requirements of the Community College course of their choice before enrolling in Level I in order to ensure that they have chosen the proper section.

DURATION:
Both sections of the Level I course are 20 weeks in length.

PURPOSE:
To prepare students for Manitoba Community College courses which require a grade XI standing for entrance.

APPROXIMATE GRADE EQUIVALENT:
Grade XI
LEVEL IA

COURSE CONTENT:

- Mathematics — 220 periods
- Communication — 160 periods
- Physical Science — 220 periods

COURSE DETAILS:

- Mathematics — Exponents and scientific notation; fundamental operations of directed numbers; fundamental operations of algebra; equations in one unknown; special products and factoring; algebraic fractions, equations; graphical methods; simultaneous equations.

- Communication — Writing development: review of grammar, usage, sentence construction usage; writing of paragraphs, letters, research papers; Reading development: speed and comprehension; Vocabulary and spelling development.

- Physical Science — Matter and energy; force; measurement; work, power, energy and machines; atomic structure; kinetic theory; thermal expansion; change of state; electrostatics; direct current circuits; heating effects; magnetic effects.

LEVEL IB

COURSE CONTENT:

- Business Mathematics — 200 periods
- Communication — 200 periods
- Canadian Economy — 200 periods

COURSE DETAILS:

- Business Mathematics — Personal finance; loans and investments; taxation; business problems; business organization.

- Communication — Review of grammar, usage, mechanics, and sentence structure; the writing of letters, paragraphs, summaries, and research papers; Reading, speed and comprehension development; study skills.

- Canadian Economy — Levels of government; distribution of powers; the judiciary; case studies in common law; national income; supply and demand; types of industries; business and labor organization; monetary and banking systems; alternate economic systems.
OCCUPATIONAL ENGLISH

The Occupational English course offers instruction in English as a second language to those who are unemployed by reason of a lack of proficiency in English. Its major purpose is to provide students with the means of communication.

The course is divided into two levels: Basic and Advanced.

THE BASIC COURSE

DURATION:
8 weeks

COURSE CONTENT:
The alphabet; basic vocabulary related to practical situations (approximately 1500 words); basic grammar and mechanics; elementary reading and writing.

THE ADVANCED COURSE

DURATION:
8 weeks

COURSE CONTENT:
Vocabulary development: (review of basic course plus approximately 1500 additional words; grammar and mechanics; writing of sentences mastered in conversation; reading of newspapers, magazines, etc.
Agricultural Courses

The Agricultural Courses currently available are now in their fifth year of operation. These courses are being offered at various locations throughout the province of Manitoba. The courses are provided by the Red River and Assiniboine Community Colleges, in cooperation with the Manitoba Department of Agriculture and Canada Man-power.

FARM MANAGEMENT COURSE

The Farm Management course is a 75 day course, running from mid-November until March. The course is designed to instruct farm operators in the technology, techniques and science of the operation of his farm business. Areas covered in the course include Farm Business Management, Land Management, Livestock Management, Farm Engineering, and Mathematics and Communications with emphasis being placed on the best MANAGEMENT of the individual's available resources.

The course is available to those operators who have a functional Grade VII or Level III education, are 21-45 years of age, with the potential to develop a viable operation and are committed (own, manage or a partner) to a farm operation. Flexibility will be allowed in all of the requirements for course entrance.

SPECIAL AGRICULTURAL COURSES

The Special Agricultural Courses are 20 days duration and are designed to improve the knowledge, skills, attitudes and management techniques of "commercial" farmers who have viable production enterprises. The ultimate aims of these courses is to maximize economic returns and improve the level of living through sound MANAGEMENT.

Entrance requirements vary for each course with some flexibility permitted.

BEEF PRODUCTION MANAGEMENT

Areas covered in this course include Feeding and Nutrition, Breeding, Herd Health, Marketing, Industry Analysis, Equipment and Buildings and MANAGEMENT.

This course is designed for farmers 21-50 years of age with a functional Grade VII or equivalent, who have a breeding herd of 25 or more cows and currently operate a beef enterprise.

HOG PRODUCTION MANAGEMENT

Areas covered in this course include Feeding and Nutrition, Breeding, Herd Health, Marketing, Industry Analysis, Economics of Production and MANAGEMENT.
This course is designed for farmers 21-50 years of age with a functional Grade VII or equivalent, who have a breeding herd of 30 or more sows or finish 550 or more feeders and currently manage a hog enterprise.

DAIRY PRODUCTION MANAGEMENT

This course includes Feeding, Nutrition, Breeding, Herd Health, Marketing and Policy, Industry Analysis and Economics, Buildings and Equipment and MANAGEMENT as they apply to Dairying.

The course is open to those farmers 21-50 years of age with functional Grade VII education or equivalent who are producing fluid or manufacturing milk and currently manage a dairy enterprise.

FARM BUSINESS PLANNING

This course includes analysis and study of Agricultural Industry and Policy, Goals, Management Principles, Business Performance, Marketing, Financing, Decision Making, Budgeting, Planning, Risk and Uncertainty, Accounting and overall Business MANAGEMENT. Time is to be allocated to both theory and practical exercises.

This course is open to those farmers who have exhibited good farm business management abilities, or are keeping good farm records, or have completed either a farm management course or a farm business group course and are 21-50 years of age.
Heavy Equipment Operator

ENTRANCE REQUIREMENTS:

Age: 18 to 45 (21 to 45 preferred)
Good Physical Condition — Strength — Stamina
Mechanical Aptitude

Some work history in related areas as farming, construction, mechanics etc.

Ability to read and write.

DURATION OF COURSE:

Six weeks (210 hours). This is a continuous intake course with a new group of trainees every three weeks throughout the year. For further information on starting dates check with a Canada Manpower Centre.

EMPLOYMENT OPPORTUNITIES:

There is a shortage of trained and fully competent Heavy Duty Equipment Operators in the Heavy Construction Industry.

Working conditions are good and wages relatively high. Some work is seasonal in nature but there is a growing tendency toward year round employment.

COURSE OUTLINE

This course is divided into 60 hours of theory and 150 hours of practical application.

During the theory portion the candidates receive instruction on the following:

Safety Precautions; Preventative Maintenance; Staking and Grading Techniques; Theory of Earthmoving; Pushing; Bulldozing; Ripping; Loading, Clearing; Grading; Fuel and Lubricants; Repairs.

In the practical phase of the course the candidates apply their theory in a practical work situation operating bulldozers, rippers, scrapers, graders and front end loaders.
Evening Program

Over 200 courses are offered in the Evening Program. These courses encompass the following areas:

1. BUSINESS
   a. Business Administration
   b. Commercial and Industrial Sales
   c. Computer Programming and Analysis
   d. Special Courses
   e. Commercial
   f. Management Development Extension Services

2. APPLIED ARTS
   a. Social Welfare
   b. Graphic Arts
   c. Advanced Barbering and Hairstyling
   d. Operators Hairstyling

3. FOOD SERVICES

4. HEALTH SCIENCES

5. INDUSTRIAL AND TECHNOLOGY
   a. Technology Diploma Program
   b. Drafting
   c. Chemistry
   d. Industrial Supervision
   e. Industrial Electrical Maintenance
   f. Industrial
   g. Radio and Television Electronics
   h. Structural Design
   i. Building Construction Technician Course
   j. Trade Improvement

6. TEACHER EDUCATION
   These courses are designed for the following purposes:
   1. Credit courses for the Day Program.
   2. Upgrading to the Journeyman level and beyond.
   3. Upgrading to meet the pre-requisite of credit courses.
   4. General interest courses.
   5. Courses which will help the Community keep abreast of technological changes.

Courses are available three times during the academic year.
REGISTRATION DATES — 1972-1973

FALL SESSION — 1972
— During regular office hours 9:00 a.m. — 4:00 p.m. Monday through Friday, up to and including September 13, 1972.
— A SPECIAL EVENING REGISTRATION will be held Monday, September 11th, 1972, from 7:00 p.m. to 9:00 p.m.
— Fall Session classes will start September 18, 19 and 23, 1972.

WINTER SESSION — 1973
— During regular office hours 9:00 a.m. — 4:00 p.m. Monday through Friday, up to and including January 10, 1973.
— A SPECIAL EVENING REGISTRATION will be held Monday, January 8th, 1973, from 7:00 p.m. to 9:00 p.m.
— Winter Session classes will start January 15, 16 and 20, 1973.

SPRING SESSION — 1973
— During regular office hours 9:00 a.m. — 4:00 p.m. Monday through Friday, up to and including Wednesday, April 4, 1973.
— A SPECIAL EVENING REGISTRATION will be held Monday, April 2, 1973 from 7:00 p.m. to 9:00 p.m.
— Spring Session classes start April 9, 10 and 14, 1973.
— For detailed information, request Evening School Calendar by phoning 786-6361, 786-6333 or 786-6334 or write Red River Community College.

Management Development &
Training-In-Industry Programs

The Management Development and Training in Industry program provides assistance to employers, organizations, etc., who are interested in educating and training their employees and members for better employment opportunities. This is a flexible program which has been designed to respond to specific training requests. The training offered by this program can be presented either at the Community College or at a location requested by the group on any day of the week, either day or evening.

In addition to the presentation of training programs, the Community College will provide employers and groups with training materials for the presentation of training programs to their employees or members providing the employer or group has a person competent to act as a course leader and that the program is presented under the auspices of the Management Development Training in Industry Program. The material may be prepared specifically for the employer or group.
This comprehensive program is an integral part of the College. It has, therefore, the resources to provide training in supervisory management, business management, skills development and academic upgrading courses.

Assistance in the past has been provided to various professional organizations, industries, (including the fashion industry), aero-space industry, retail stores, hospitality industry, service industries, various types of manufacturing concerns and the Federal and Provincial Governments.

COUNSELLING SERVICES

Counselling staff at The Red River Community College are available to meet the increasing variety of college student needs. Professional services are provided to assist students to improve self-understanding, capacity for self-management and skills in formulating realistic goals. The counselling office provides a confidential setting in which the student may discuss with a trained counsellor any problems that are considered important to the student.

STUDENT SERVICES

The Principal of the Extension, Community, and Student Services Division represents the College administration in matters of interest common to the administration and to the students as represented by the Student Association.

The function is largely one of liaison; of bringing together members of the administration and faculty with members of the student organization to facilitate exchanges of views and information and generally to add to a co-operative educational climate at the College.

COMMUNITY SERVICES

Red River Community College serves the community primarily by the courses listed in this calendar, most of which are offered at the campus at Notre Dame and King Edward. However, an increasingly important role is that of providing a variety of services which are not readily categorized.

The facilities of the College are made available to many groups for meetings, conferences, seminars, etc. Materials developed by curriculum committees have been made available freely to groups in the community which can use them to advantage. Special courses are organized and operated on short notice in response to requests from various agencies. Experimental programs are being conducted in the field of adult basic education.

The College intends to extend its service to the community in areas where the College’s resources can be employed most effectively.
# Health Sciences Division

## COURSES

<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma Nursing Education</td>
<td>135</td>
</tr>
<tr>
<td>Medical Laboratory Technology</td>
<td>138</td>
</tr>
<tr>
<td>Medical Radiological Technology</td>
<td>141</td>
</tr>
<tr>
<td>Medical Laboratory and Radiological Technologies</td>
<td>144</td>
</tr>
<tr>
<td>Practical Nursing</td>
<td>146</td>
</tr>
</tbody>
</table>
Diploma Nursing Education

ENTRANCE REQUIREMENTS:
1. A complete Manitoba Grade XII or Equivalent with at least one of Chemistry, Physics, Biology or Physical Science at the 300 or 301 level, or
2. Anyone not meeting the above requirements may apply as a mature student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance examination and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.
3. Applicants must have good health verified by a medical statement. Emotional stability is essential. Instructions as to the required immunizations will be offered to each student once the Admissions Committee has approved the application.
4. In addition to the above admission requirements, interviews and entrance examinations may be required.

COURSE INFORMATION:
The course, two school years in length, each of ten months duration, leads to a College Diploma in Nursing Education and eligibility to write nurse registration examination (R.N.’s) in Manitoba. Each school year is divided into two five-month terms with final examinations at the end of each term. Classes commence in September of each year.

The students gain experience by working directly with patients in a variety of settings within the hospital and health community. The College instructors are responsible for, and directly supervise, all nursing experiences planned for the students. Transportation to and from the centres in which the experiences are planned is the responsibility of the individual student.

FEES AND EXPENSES:
The tuition fee is $100.00 for each term. Other expenses include student fees, textbooks, supplies, uniforms and accessories costing approximately in each term — 1 — $160.00; 2 — $75.00; 3— $45.00; 4— $55.00.

FINANCIAL ASSISTANCE:
Enquiries regarding possible bursary or loan assistance may be made at Red River Community College or through the Student Aid Office — 1181 Portage Avenue, Winnipeg, Manitoba, R3G 0V8, Phone No. 775-0261.
EMPLOYMENT OPPORTUNITIES:

The Diploma Nursing course prepares men and women for general staff nursing with patients in hospitals and other community health agencies. They will work with and assist other health personnel such as physicians, technologists, physiotherapists, dietitians, pharmacists, social workers and others. Successful graduates of the course, with further training and experience, may find employment in specialty areas and supervisory positions.

COURSE OUTLINE

First Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>TERM 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL-104</td>
<td>English</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DNUR-101</td>
<td>Anatomy &amp; Physiology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CHEM-115</td>
<td>Microbiology</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PSYC-111</td>
<td>Psychology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DNUR-102</td>
<td>Nursing Fundamentals</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>DNUR-103</td>
<td>Nursing Techniques</td>
<td>3</td>
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</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>17</td>
<td>25</td>
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</tbody>
</table>

|             | **TERM 2**                      |                |              |
| SOCL-103    | Sociology                       | 3              | 3            |
| DNUR-201    | Anatomy & Physiology            | 3              | 3            |
| PSYC-212    | Developmental Psychology        | 3              | 3            |
| DNUR-202    | The Growing Family              | 3              | 7            |
| DNUR-203    | Introduction to Nursing in Illness | 3              | 7            |
| DNUR-204    | Basic Sciences                  | 2              | 2            |
|             | **Total**                      | 17             | 25           |

Second Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>TERM 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCL-304</td>
<td>Social and Health Problems</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DNUR-301</td>
<td>Nursing of Adults in Illness</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>DNUR-302</td>
<td>Medical &amp; Surgical Nursing</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Experience</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>DNUR-303</td>
<td>Nursing of Children</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>DNUR-304</td>
<td>Psychiatric Nursing</td>
<td>2</td>
<td>4</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Term 1</td>
<td>Term 2</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------</td>
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<td>--------</td>
</tr>
<tr>
<td>DNUR-401</td>
<td>Nursing of Adults in Illness</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>DNUR-402</td>
<td>Medical &amp; Surgical Nursing Experience</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>DNUR-403</td>
<td>Nursing of Children</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>DNUR-404</td>
<td>Psychiatric Nursing</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>DNUR-405</td>
<td>Nursing &amp; its Social Setting</td>
<td>3</td>
<td>0</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>12</strong></td>
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</table>
Medical Laboratory Technology

A training course for Medical Laboratory Technologists has been developed by many of the larger hospitals and the Provincial Laboratories of Manitoba in conjunction with the Red River Community College.

ENTRANCE REQUIREMENTS:

A Grade XII standing with English 300 or 301, Mathematics 300 or 301, Chemistry 300 or Physical Science 301, and one of Biology 300, Biology 301, or Physics 300, plus any other electives to give a complete Manitoba Grade XII standing.

APPLICATIONS FOR ADMISSION:

All applicants must apply initially to the Red River Community College. Applications will be examined by an Admissions Committee and if approved for admission to the course the applicant will be required to apply to and be accepted by a training centre of his choice from those listed below:

TRAINING CENTRES:

Brandon General Hospital,
150 McTavish Ave., E.,
Brandon, Manitoba.
R7A 2B3

Deer Lodge Hospital (D.V.A.)
Portage & Woodlawn,
Winnipeg, Manitoba.
R3J 0L3

Department of Health and Social Development,
599 Empress Street,
Winnipeg, Manitoba.
R3G 3H2

Grace General Hospital,
300 Booth Drive,
Winnipeg, Manitoba.
R3J 3M7

Misericordia General Hospital,
99 Cornish Avenue,
Winnipeg, Manitoba.
R3C 1A2

St. Boniface General Hospital,
409 Tache Avenue,
St. Boniface, Manitoba.
R2H 2A6

Winnipeg General Hospital,
700 William Avenue,
Winnipeg, Manitoba.
R3E 0Z3

The number of student places is limited and is determined by the requirements of each training centre. Therefore, if one hospital has its training program filled a potential applicant may approach another hospital until the number required in the total program is reached.

Applicants are cautioned that normally more students apply than can be accommodated.

Students begin their courses at Red River Community College in September each year.
DURATION AND TYPE OF COURSE:

Students will attend the Red River Community College for a nine month period beginning in September. After successfully completing this period a minimum of one year of training is taken at the hospital where the student has been accepted.

At the end of this period and with the hospital's recommendation the student writes the examination leading to a Diploma as a Registered Medical Laboratory Technologist.

TUITION FEE:

The tuition fee is $180.00 for nine months at the Red River Community College. Other expenses include student activity fees, books, incidentals, board and lodging.

EXPENSES:

A student allowance is paid by the hospital for the time spent in the hospital. No pay is given during the time spent away from the hospital at the College.

EMPLOYMENT OPPORTUNITIES:

Satisfactory completion of training qualifies the student to write registration examinations with the Canadian Society of Laboratory Technologists. Successful candidates will be awarded a certificate (R.T.) which is recognized anywhere in Canada.

Further training and experience can lead to advanced certification with the C.S.L.T. There is a steady demand for registered Medical Laboratory Technologists in hospital laboratories, medical clinics, research agencies and some commercial companies.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Term 1</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDL-101</td>
<td>Anatomy and Physiology</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>MEDL-102</td>
<td>Clinical Microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Immunology</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>MEDL-103</td>
<td>Clinical Chemistry</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>MEDL-104</td>
<td>Haematology</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>MEDL-105</td>
<td>Histology</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>MEDL-106</td>
<td>Blood Bank Serology</td>
<td>0</td>
<td>2</td>
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</table>

Total: 11  20  25
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Workload</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td>MEDL-201</td>
<td>Anatomy and Physiology</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>MEDL-202</td>
<td>Clinical Microbiology and Immunology</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>MEDL-203</td>
<td>Clinical Chemistry</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>MEDL-204</td>
<td>Haematology</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>MEDL-205</td>
<td>Histology</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MEDL-206</td>
<td>Blood Bank Serology</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 11  Workload: 20  Total: 25
Medical Radiological Technology
(X-Ray, Nuclear Medicine and Therapy Technicians)

ENTRANCE REQUIREMENTS:
A complete Manitoba Grade XII standing with demonstrated proficiency in English, Mathematics, Physics, or Physical Science.
The applicant must be in good health, ambitious, of pleasing personality, and be interested in and sympathetic with persons who are ill or disabled.
Mature students (over 21 years) who have not obtained the educational standing indicated above should first write to the Student Registrar, C.S.R.T. (Manitoba Division) for particulars regarding admission procedure. For information please enquire at the College.

APPLICATIONS FOR ADMISSION:
All applicants must apply initially to the Red River Community College. Applications will be examined by an Admissions Committee and if approved for admission to the course the applicant will be required to apply to and be accepted by a training centre of his choice from those listed below.

DIAGNOSTIC TECHNIQUES:
Brandon General Hospital, 150 McTavish Avenue E., Brandon, Manitoba. R7A 2B3
Children's Hospital of Winnipeg, 685 Bannatyne Avenue, Winnipeg, Manitoba. R3E 0W1
Dept. of Health and Social Dev., 599 Empress Street, Winnipeg, Manitoba. R3G 3H2
Grace General Hospital, 300 Booth Drive, Winnipeg, Manitoba. R3J 3M7
Misericordia General Hospital, 99 Cornish Avenue, Winnipeg, Manitoba. R3C 1A2
St. Boniface General Hospital, 409 Tache Avenue, St. Boniface, Manitoba. R2H 2A6
Winnipeg General Hospital, 700 William Avenue, Winnipeg, Manitoba. R3E 0Z3
Victoria General Hospital, 2340 Pembina Hwy., Fort Garry, R3T 2E8
NUCLEAR MEDICINE AND THERAPEUTIC TECHNIQUES:

Manitoba Cancer Treatment & Research Foundation,
700 Bannatyne Avenue,
Winnipeg, Manitoba.
R3E 0V9

Radiotherapy Department,
St. Boniface General Hospital,
409 Tache Avenue,
St. Boniface, Manitoba.
R2H 2A6

The number of student places is limited and is determined by the requirements of each training centre. Therefore, if one hospital has its training program filled a potential applicant may approach another hospital until the number required in the total program is reached.

Applicants are cautioned that normally more students apply than can be accommodated.

There will be two dates of entry into the program, July 1 and December 1 each year, at which time students will begin their orientation period in the training centres.

DURATION AND TYPE OF COURSE:

Students will attend the Red River Community College for a five month period beginning in either September or February of each year. After successful completion of this program at the College the students in training will then return to their hospital centres for the remainder of their training period.

At the end of this two year period and with hospitals recommendation the student writes the examination leading to a Diploma as Registered Radiological Technician (R.T.R.). Certification as a Registered Radiotherapy Technician (R.T.T.) or as a Registered Nuclear Medicine Technician (R.T.N.M.) may be realized after successfully completing the required program in one of the centres listed above.

TUITION FEE:

The tuition fee is $100.00 for the 5 month term at the Red River Community College. Other expenses include student activity fees, books, incidentals, board and lodging.

EXPENSES:

A student allowance is paid by the hospital for the time spent in the hospital. No pay is given during the time spent away from the hospital at the College.
EMPLOYMENT OPPORTUNITIES:

The employment possibilities are in radiographic, therapeutic and nuclear medicine departments in large general hospitals in most cities in Canada, U.S.A., Great Britain and Australia.

Some technicians are employed as technical advisors and representatives for X-Ray equipment and supply manufacturers. Others are engaged in aspects of teaching or research.

The R.T. Diploma is recognized across Canada and in the U.S.A., Great Britain, Australia and Holland and Switzerland.

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 No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDR-109</td>
<td>Anatomy &amp; Physiology</td>
<td>5</td>
<td>6</td>
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<tr>
<td>MEDR-110</td>
<td>Physics of Electricity &amp; Magnetism</td>
<td>3</td>
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<tr>
<td>MEDR-111</td>
<td>Radiobiology &amp; Protection</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>MEDR-112</td>
<td>Apparatus &amp; Accessory</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>MEDR-113</td>
<td>Image Recording in Radiography</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>MEDR-114</td>
<td>Radiographic Positioning</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

Total: 20 10 25
Medical Laboratory and Radiological Technologies

The Manitoba Department of Health and Social Development has programs for assisting students in obtaining full training in either Medical Laboratory or Radiological Technology leading to the R.T. in either the Canadian Society of Laboratory Technologists or the Canadian Society of Radiological Technicians. (See accounts of separate courses elsewhere in this calendar). In addition, students taking full training in one technology are required to take an Assistant’s course in the other Technology. Total training time for both courses is 30 months.

ENTRANCE REQUIREMENTS:

Entrance requirements are those of the technology in which full training is taken and these are listed elsewhere in this calendar.

See page 138 for entrance requirements for Medical Laboratory Technology.

See page 141 for entrance requirements for Medical Radiological Technology.

LENGTH OF COURSE

Radiological RT and Laboratory Assistant Course

Thirty months training made up of 24 months in Medical Radiological (X-ray) Technology (2 months orientation; 5 months at the Red River Community College; 14 months X-ray apprenticeship in Laboratory and X-ray units in rural Manitoba and 3 months X-ray affiliation in Winnipeg or Brandon X-ray departments) plus a six-month Laboratory Assistant course.

Laboratory RT and X-ray Assistant Course

Thirty months training made up of 24 months in Medical Laboratory Technology (9 months at Red River Community College; 12 months laboratory internship in a hospital laboratory and 3 months apprenticeship in Laboratory and X-ray Units in rural Manitoba) plus a six-month X-ray Assistant course.

FINANCIAL ASSISTANCE

No financial assistance will be provided during the first six months of training. However, after successfully completing the first six months of the course, the student will receive a bursary which will provide for:
1. payment of a monthly stipend of $100.00 per month during the next 12 months of training.
2. payment of a monthly stipend of $120.00 per month during the last 12 months of training.
3. reimbursement for textbooks up to a maximum of $40.00.
4. reimbursement of all tuition fees paid by the student at the time of registration.

Graduates are required to accept employment with the Manitoba Government in rural Manitoba for a period of 24 months immediately following completion of the course. In the event that the Department of Health and Social Development does not have a position available, graduates must work in the Province during the same period in a position approved by the Department.

ACCOMMODATION:

Students are responsible for their own room and board throughout the training period. The Red River Community College keeps a registry of known accommodations suitable to students. Similarly, the Department of Health and Social Development knows of accommodation usually available in rural areas.

EMPLOYMENT OPPORTUNITIES:

There are opportunities in provincial laboratory and X-ray units and in hospitals throughout rural Manitoba. Canadian certification in these two fields is widely recognized in all provinces and other countries including most U.S.A. States, and British Commonwealth.

SALARY:

The present salary range for trained technologists in provincial institutions $483.00 — $911.00 per month.

FOR ADDITIONAL INFORMATION CONTACT:

Manitoba Department of Health and Social Development,
599 Empress St.,
Winnipeg, Man.
R3G 3H2
Practical Nursing

ENTRANCE REQUIREMENTS:

1. Complete Manitoba Grade X, or equivalent standing with Science and/or Biology as a required subject, or

2. Basic Training for Skill Development Level II, or

3. Anyone who does not meet the above pre-requisites may submit an application. The Admissions Committee will review the application on an individual basis.

Applicants must be between 17 and 55 years of age and have good health verified by a medical statement. Emotional stability is essential. Instructions as to the required immunizations will be offered to each student once the Admission Committee has approved the application.

In addition to the above admission requirements, interviews and entrance examinations may be required.

APPLICATIONS FOR ADMISSION

Entrance dates are February and September each year. Applicants should apply at least six months prior to the opening date of the program to the Registrar, Red River Community College, 2055 Notre Dame Avenue, Winnipeg, Manitoba. R3H 0J9.

DURATION AND TYPE OF COURSE

One year — 5 months spent at Red River Community College, and 6 months spent at a Manitoba affiliated hospital.

Upon completion of the one year program, students are required to write a licensing examination. If successful, a license is awarded, and the graduate assumes the title “Licensed Practical Nurse.”

TUITION FEE

The tuition fee is $35.00 for the 5 month term at the College. Other expenses include student fees ($7.50), books, (approximately $45.00) uniforms (approximately $40.00), transportation, incidentals and private living accommodation.

EXPENSES

A student allowance is paid by the hospital for the time spent in the hospital. No pay is given during the time spent at the College.

Students may be sponsored by Canada Manpower, or may apply for a Department of Education Bursary.
## COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS-101</td>
<td>Basic Nursing</td>
<td>2</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>NURS-102</td>
<td>Anatomy and Physiology</td>
<td>4</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>NURS-103</td>
<td>Medical and Surgical Nursing</td>
<td>7</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>NURS-104</td>
<td>Personal and Vocational Relationship</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>NURS-105</td>
<td>Mother, Newborn and Child</td>
<td>5</td>
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</tbody>
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<tbody>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>

During the 6 months clinical period at the hospital, students receive supervised experience in the following areas of nursing: Medical, Surgical, Maternity, Nursery, Pediatrics, Functional Restitution of the Aged and/or the Long Term Patients. Many of the affiliating hospitals are in rural Manitoba.
# Industrial and Technology Division

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Auto Body Repair

ENTRANCE REQUIREMENTS:
Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $45.00.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
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<td>SHOP-505</td>
<td>Machine Shop</td>
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<tr>
<td>ABOD-101</td>
<td>Oxy-Acetylene Welding and Cutting</td>
<td>205</td>
<td>8</td>
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<tr>
<td>ABOD-102</td>
<td>Hand Tools, Power Grinders, Vibrators</td>
<td>30</td>
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<tr>
<td>ABOD-103</td>
<td>Basic Metal Working &amp; Soldering</td>
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<tr>
<td>ABOD-104</td>
<td>Hydraulic Power Equipment and Alignment of Auto Bodies</td>
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660 25
Students must complete Term I successfully to be eligible for Term II.

TERM 2

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<td>ABOD-201</td>
<td>Hardware, Trim and Glass</td>
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<td>ABOD-202</td>
<td>Alignment of Frames and Body Components</td>
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<td>ABOD-203</td>
<td>Repairing Damaged Vehicles</td>
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<tr>
<td>ABOD-204</td>
<td>Spray Painting Equipment</td>
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<tr>
<td>ABOD-205</td>
<td>Paint Products and Their Application</td>
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<td>ABOD-206</td>
<td>Refinishing Vehicles</td>
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<tr>
<td>ABOD-207</td>
<td>Collision Damage Estimating</td>
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</table>

Total: 660 units

EMPLOYMENT OPPORTUNITIES:

Students who successfully complete this course may find employment in a number of interesting fields such as:

1. An auto body mechanic or painter working for an established shop.
2. An insurance adjuster trainee.
3. A representative for auto body repair equipment and supplies in the sales field.

As well as finding employment in the above mentioned fields, there are opportunities for a student to work his way up to a supervisory position, such as shop foreman of an established automobile dealer or the owner and manager of his own auto body shop.
Automotive Mechanical Repair

ENTRANCE REQUIREMENTS:
Grade X or Basic Training for Skill Development Level II.
Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis:

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $60.00.

COURSE OUTLINE

TERM 1

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<td>Shop Practice</td>
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<td>AUTO-102</td>
<td>Engine I - Internal Combustion</td>
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<tr>
<td>AUTO-103</td>
<td>Electrical Systems</td>
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<tr>
<td>AUTO-104</td>
<td>Fuel Systems &amp; Emission Controls</td>
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<td>AUTO-105</td>
<td>Tune-Up &amp; Test Equipment</td>
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<td>AUTO-106</td>
<td>Transmission &amp; Overdrive</td>
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<tr>
<td>AUTO-107</td>
<td>Rear Axles &amp; Drivelines</td>
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<td>AUTO-108</td>
<td>Hydraulic Brakes</td>
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<td>AUTO-109</td>
<td>Steering &amp; Suspension</td>
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<td>AUTO-110</td>
<td>Automatic Transmission</td>
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</table>

660 25

The above subjects will be covered during the first 20 weeks of the course. A mid-term exam will be written and the student's practical aptitude will be assessed. Those students who are successful in attaining the required marks and aptitudes will progress to Term II. Term I comprises theory lectures and practical experiences on shop models and equipment.
The above subjects will be covered during the second 20 weeks. These operations will be in the live garage shop where a student will be given the opportunity of diagnosing problems on the automobile, removal of units for replacement, disassemble, inspect and remanufacture, re-install and make final adjustments. Many varied types of machines and equipment will be utilized in the above mentioned operations. Students will be required to pass a comprehensive examination at the end of the course.

**EMPLOYMENT OPPORTUNITIES:**

Students who successfully complete this course may find employment in several interesting and diverse fields, such as: AUTOMOTIVE SERVICE: Journeyman mechanic, shop foreman, service manager, parts manager, machine operator, special areas. SERVICE FIELDS: service station operator, auto parts outlets, maintenance supervisor.
Diesel Mechanics—Transport

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $85.00.

COURSE OUTLINE

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<tr>
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<td>Mathematics</td>
<td>80</td>
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<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
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<td>DESL-102</td>
<td>Running Gear II</td>
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<td>DESL-103</td>
<td>Engine Overhaul I</td>
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<td>DESL-104</td>
<td>Engine Overhaul II</td>
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<td>DESL-105</td>
<td>Engine Tune-Up</td>
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<td>DESL-106</td>
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</tbody>
</table>

| 1320        | 50            |

EMPLOYMENT OPPORTUNITIES:

Students who successfully complete this course may find employment as mechanics in several interesting and diverse fields, such as:

1. The transportation industry which includes public, highway, railway and marine transport.

2. Heavy construction industry working on projects such as hydroelectric, highway, and pipelines the world over.

3. Agriculture — working for dealers and equipment manufacturers.

4. Power Generation — working wherever power supply is obtained from stationary diesel units.

4. Equipment suppliers and manufacturers.

As well as finding employment as mechanics, opportunities also exist in a host of related support jobs such as sales, equipment, representatives, parts merchandising and supervisory jobs.
Chemical Technology Department

ENTRANCE REQUIREMENTS:
1. English 301 or 300, Mathematics 301 or 300, Physical Science 301 or (Physics 300 and Chemistry 300), plus any other electives to give a complete Manitoba Grade XII standing. Candidates who have a complete Grade XII but who do not have the required subjects indicated above are invited to apply to the Registrar to have their credentials reviewed by the Admissions Committee, or
2. Successful completion of the Pre-Technology course.
3. Anyone not meeting the above requirements may apply as a Mature Student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:
TWO SCHOOL YEARS, each of ten months duration, leads to a Diploma in Technology (Dip. T). Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term.

COURSE INFORMATION:
The Chemical and Biochemical Technology programs are common in First Year, therefore students who wish to transfer to the complementary technology may do so at the beginning of Term III.

FEES AND EXPENSES:
The tuition fee for the course in Chemical Technology is $100.00 for each of the four terms. Other expenses include textbooks, incidentals, board and lodging.
# Chemical Technology

## COURSE OUTLINE

### First Year

<table>
<thead>
<tr>
<th>Subject No.</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
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<tr>
<td>ERON-104</td>
<td>Electricity &amp; Magnetism</td>
<td>2</td>
<td>3</td>
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<tr>
<td>CHEM-101</td>
<td>General Chemistry</td>
<td>3</td>
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<tr>
<td>CHEM-102</td>
<td>Descriptive Inorganic Chemistry</td>
<td>3</td>
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<tr>
<td>CHEM-103</td>
<td>Inorganic Qualitative Analysis</td>
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<tr>
<td>CHEM-107</td>
<td>Mechanics and Heat</td>
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**TERM 1**

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<td>Electronics</td>
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<td>CHEM-203</td>
<td>Inorganic Quantitative Analysis</td>
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<td>CHEM-204</td>
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<td>CHEM-207</td>
<td>Optics and Nuclear Chemistry</td>
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**TERM 2**

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<td>Physical Chemistry</td>
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<td>Laboratory Techniques</td>
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<td>CHEM-309</td>
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**SECOND YEAR**

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<td>Physical Chemistry</td>
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<td>CHEM-309</td>
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**TERM 3**
TERM 4

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<td>CHEM-410</td>
<td>Chemical Projects</td>
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<td>Water Treatment</td>
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EMPLOYMENT OPPORTUNITIES:

The technologist performs a special and indispensable role as a member of the scientific team in chemical research, product development, application, or production.

Since the Canadian chemical industry has experienced phenomenal growth in the last decade, there are many opportunities for students who possess the personal initiative and responsibility for the attainment of a diploma.

The Chemical Technologist may become employed as: research assistant, chemical analyst, plant control chemist, laboratory experimentation specialist, salesman and serviceman for chemical products and equipment, teachers' aide, etc.

The chemical graduate finds employment in a wide variety of fields, such as foods, glass, rubber, building products, dyes, oils, lubricants, heavy chemicals, fuels, fertilizers, paper, paints, plastics, metals, mining and government agencies.

This course is designed for women as well as men. There are many jobs for which the industry prefers women. Jobs that require a good color sense, patience and precision. Working conditions in most of the employing firms are the kind that would be attractive to women. The laboratories are safe, quiet and clean. The work is interesting and challenging. This field provides a wonderful opportunity to the girl with better than average intelligence who does not plan or cannot afford higher education but is not satisfied with the usual job opportunities found in the clerical fields.
Biochemical Technology

ENTRANCE REQUIREMENTS:
As outlined for Chemical Technology Course (Page 158).

COURSE OUTLINE

FIRST YEAR
As outlined for Chemical Technology Course (Page 158).

SECOND YEAR

TERM 3

<table>
<thead>
<tr>
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<th>Subject</th>
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<td>BCHM-305</td>
<td>Instrumental Biochemical Analysis</td>
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<td>BCHM-306</td>
<td>Biophysical Chemistry</td>
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<td>BCHM-307</td>
<td>Laboratory Techniques</td>
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<td>BCHM-314</td>
<td>Biochemistry</td>
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<tr>
<td>BCHM-315</td>
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<thead>
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<th>Lab.</th>
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TERM 4

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<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tr>
<td>CHEM-411</td>
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EMPLOYMENT OPPORTUNITIES:
The Biochemical Technologist performs a special and indispensable role as a member of the scientific team in research, product development and application, production or quality control.

The nature of the task performed by the Biochemical Technologist depends on their field of employment. Since Biochemistry is the branch of science that deals with the Chemistry of living things, the Biochemical Technologist can be engaged in studying matter, plan and carry out experiments through chemical reactions or with living plants or animals; analyze food and other materials for content and purity; tabulate and evaluate results.
The Biochemical Technologist may work actively in medical and
dental research, in the pharmaceutical industry developing new drugs
and studying their effects; in the food industry, primarily in the
area of quality control and safety standards; in the field of agriculture
studying disease and effect of chemicals, fertilizers and pesticides on
food products; in areas of air and water pollution, environmental
health labs, teachers' aide, etc.
Biological Technology

ENTRANCE REQUIREMENTS:

1. Grade XII standing with demonstrated proficiency in English 301 or 300, Mathematics 301 or 300, and Physical Science 301 (or two of the following subjects: Biology 300, Chemistry 300 and Physics 300), or

2. Successful completion of the Pre-Technology Course.

3. Anyone not meeting the above requirements may apply as a Mature Student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:

Two school years, each of ten months duration, leads to a Diploma in Technology (Dipl. T). Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term.

FEES AND EXPENSES:

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

COURSE OUTLINE

First Year

TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<td>CHEM-103</td>
<td>Inorganic Qualitative Analysis</td>
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<tr>
<td>CHEM-108</td>
<td>Mechanics, Heat &amp; Electricity</td>
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<td>BIOL-101</td>
<td>Biology</td>
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17 13 25

TERM 2

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<th>Lab.</th>
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<td>Electronics</td>
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EMPLOYMENT OPPORTUNITIES:

Biology is the science dealing with the life processes of plant and animals, and is concerned with the composition of living matter and the chemical changes occurring in living tissue.

Emphasis is placed on theoretical and practical instruction in a broad variety of biological processes common to both Botanical and Zoological Sciences. Technologists are required for field work, survey work of plant and animal population, related activities, and in laboratory situations. These activities include: animal care; plant growth; bacteriology; analytical analysis of biological material, the preparation of plant and animal material for microscopic examination, etc.

Career opportunities are available in a wide variety of fields. These include University Departments; Medical Schools; Federal and Provincial Experimental and Research Stations; Veterinary Laboratories; Fish and Wildlife Services; Environmental and Public Health Agencies; Meat and Food Processing Industries; Inspectors of Food and Meat Products.
Civil Technology Department

ENTRANCE REQUIREMENTS:

1. English 301 or 300, Mathematics 301 or 300, Physical Science 301 or Physics 300 plus any other electives to give a complete Manitoba Grade XII standing. Candidates who have a complete Grade XII but do not have the required subjects indicated above are invited to apply to the Registrar to have their credentials reviewed by the Admissions Committee or

2. Successful completion of the Pre-Technology Course.

3. Anyone not meeting the above requirements may apply as a Mature Student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:

TWO SCHOOL YEARS, each of ten months duration, leads to a Diploma in Technology (Dipl. T.). Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term.

FEES AND EXPENSES:

The tuition fee is $100 for each term. Other expenses include books, incidentals, board and lodging.

COURSE OUTLINE

First Year

TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
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<th>Lab.</th>
<th>Credit Hours</th>
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<td>2</td>
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<td>CIVL-105</td>
<td>Strength of Materials</td>
<td>2</td>
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<td>CIVL-106</td>
<td>Drafting</td>
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14 16 25
TERM 2

<table>
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<tr>
<th>Course</th>
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<tr>
<td>ENGL-206</td>
<td>Specifications &amp; Reports ..................</td>
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<td>MATH-209</td>
<td>Mathematics ..................................</td>
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<td>CIVL-202</td>
<td>Mechanics ......................................</td>
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<td>Surveying .....................................</td>
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<td>Drafting .......................................</td>
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FLOW CHART SHOWING RELATIONSHIP OF BUILDING, CIVIL, DESIGN & DRAFTING, STRUCTURAL AND SURVEYING TECHNOLOGY COURSES
Building Technology

ENTRANCE REQUIREMENTS:
As outlined for Civil Technology Department courses (Page 165).

COURSE OUTLINE

First Year
As outlined for Civil Technology Department courses (Pages 165-166).

Second Year

TERM 3

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
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<td>Job Control and Costing</td>
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<tr>
<td>STRL-308</td>
<td>Theory of Structures</td>
<td>2 Lect., 2 Lab.</td>
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<td>STRL-311</td>
<td>Timber Design &amp; Formwork</td>
<td>3 Lect., 2 Lab.</td>
<td>4</td>
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<tr>
<td>STRL-317</td>
<td>Soil Mechanics</td>
<td>3 Lect., 3 Lab.</td>
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<tr>
<td>BLDG-302</td>
<td>Building Construction</td>
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<td>BLDG-306</td>
<td>Concrete Construction</td>
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TERM 4

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<td>BLDG-404</td>
<td>Construction Administration</td>
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<td>BLDG-407</td>
<td>Building Services &amp; Specifications</td>
<td>2 Lect., 2 Lab.</td>
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<td>Foundations</td>
<td>2 Lect., 2 Lab.</td>
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<td>Code Interpretation &amp; Safety</td>
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<td>Estimating</td>
<td>2 Lect., 5 Lab.</td>
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EMPLOYMENT OPPORTUNITIES:

The Building Technology course is designed to produce technologists who will receive a comprehensive training in the field of building construction.

The Building Technologist can be employed in the fields of estimating, construction and maintenance supervision, building inspection, materials testing, building products sales and other related areas. The graduate can also expect to work with consulting engineering firms, contractors, builders, fabricators, and suppliers of construction materials. After gaining the necessary experience he may choose to become self-employed as a construction supervisor or as a contractor.
Civil Technology

ENTRANCE REQUIREMENTS:
As outlined for Civil Technology Department courses (Page 165).

COURSE OUTLINE

First Year
As outlined for Civil Technology Department courses (Pages 165-166).

Second Year

TERM 3

<table>
<thead>
<tr>
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<td>Photogrammetry</td>
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<tr>
<td>CIVL-317</td>
<td>Soil Mechanics</td>
<td>3 3 6</td>
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<td>CIVL-320</td>
<td>Structural Design</td>
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<tr>
<td>CIVL-321</td>
<td>Street &amp; Highway Design</td>
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<tbody>
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<td>Geology</td>
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<td>CIVL-423</td>
<td>Water Supply &amp; Waste Disposal</td>
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<td>Hydrology</td>
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<td>Stabilization</td>
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<td>14 16 25</td>
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</table>

EMPLOYMENT OPPORTUNITIES:

The Civil Technologist is trained to assist the Civil Engineer in a variety of areas including construction of streets, highways, railroads, airports, drainage and flood protection facilities, hydro electric development projects, plus the installation of adequate facilities for water supply and sewage disposal. The Civil Technologist could find employment in the planning, design, construction or inspection of such projects. After gaining the necessary experience, a Civil Technologist might become a sales representative for a building materials or engineering equipment manufacturer. He is trained to adopt engineering theory to construction techniques.

His work is often described as developmental, covering the stages between engineering concepts and the physically completed project.
Design and Drafting Technology

ENTRANCE REQUIREMENTS:
As outlined for Civil Technology Department courses (Page 165).

COURSE OUTLINE

First Year

TERM 1
As outlined for Civil Technology Department courses (Pages 165-166).

<table>
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<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
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Second Year

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<tr>
<td>DEDR-311</td>
<td>Building Construction</td>
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<td>DEDR-312</td>
<td>Theory of Systems</td>
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<td>DEDR-321</td>
<td>Mechanical Drafting and Design</td>
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<td>Materials and Specifications</td>
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<td>DEDR-423</td>
<td>Tool and Die Design</td>
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</table>

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EMPLOYMENT OPPORTUNITIES:

The rapid absorption of new scientific knowledge into the engineering sciences and the increasing complexity of modern structures increases the need for clear, concise presentation of technical information.

This continuing change demands that design and working drawings — the working language of engineering and architecture — be prepared in order to convey this information from the designer to the fabricator, owner, financing agency, etc.

The Design and Drafting Technology programme, which has a wide and varied content in the fields of both engineering and architecture, permits graduates of this programme to be gainfully employed in a wide variety of job opportunities.

Graduates of this programme have found employment with architects, consulting engineers, contractors, fabricators and service industries as well as a variety of positions with the various departments of Municipal, Provincial and Federal Government Services.
Structural Technology

ENTRANCE REQUIREMENTS:
As outlined for Civil Technology Department courses (Page 165).

COURSE OUTLINE

First Year
As outlined for Civil Technology Department courses (Pages 165-166).

Second Year

TERM 3
As outlined for Building Technology courses (Page 167).

TERM 4

<table>
<thead>
<tr>
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<td>Foundations</td>
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<td>STRL-412</td>
<td>Structural Steel Design</td>
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<td>5</td>
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<td>STRL-414</td>
<td>Bridge Design</td>
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<td>Estimating</td>
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<td>Design of Structures</td>
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<td></td>
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EMPLOYMENT OPPORTUNITIES:

The Structural Technologist is trained to assist the Structural Engineer in the formulation and calculations of engineering design. Every commercial, industrial and large residential building, every highway and railroad bridge, every hydro-electric power plant and power transmission line, or any similar structure requires the services of Structural Engineers and Structural Technologists. The Structural Technology graduate can find job opportunities in structural design and analysis with consulting engineering firms, architectural firms, crown corporation or public works departments. After gaining the necessary experience the graduate could also find an interesting career in sales, or as a manager in the building materials or construction equipment fields.
SURVEYING TECHNOLOGY

ENTRANCE REQUIREMENTS:
As outlined for Civil Technology Department courses (Page 165).

COURSE OUTLINE

First Year

TERM 1

As outlined for Civil Technology Department courses (Pages 165-166).

<table>
<thead>
<tr>
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<th>Lab.</th>
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<td>SURV-204</td>
<td>Theory of Instruments</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>SURV-205</td>
<td>Drafting</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>SURV-213</td>
<td>Job Control &amp; Costing</td>
<td>1</td>
<td>1</td>
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<td>SURV-215</td>
<td>Survey Camp - 80 hrs.</td>
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<td>0</td>
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Second Year

TERM 3

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<th>Subject No.</th>
<th>Course Title</th>
<th>Lect.</th>
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<tbody>
<tr>
<td>MATH-310</td>
<td>Mathematics</td>
<td>3</td>
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<tr>
<td>SURV-302</td>
<td>Terrain Classification</td>
<td>1</td>
<td>2</td>
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<tr>
<td>SURV-303</td>
<td>Advanced Surveying</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>SURV-304</td>
<td>Theory and Use of Instruments</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>SURV-305</td>
<td>Drafting</td>
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<td>3</td>
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<tr>
<td>SURV-307</td>
<td>Routes Surveys</td>
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Plus one of the following electives:

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<tr>
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<th>Course Title</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>SURV-316</td>
<td>Photogrammetry</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>CIVL-317</td>
<td>Soil Mechanics</td>
<td>3</td>
<td>3</td>
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**TERM 4**

<table>
<thead>
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<tbody>
<tr>
<td>SURV-403</td>
<td>Control Surveys</td>
<td>2</td>
</tr>
<tr>
<td>SURV-406</td>
<td>Legal Surveying</td>
<td>2</td>
</tr>
<tr>
<td>SURV-407</td>
<td>Town Planning</td>
<td>2</td>
</tr>
<tr>
<td>SURV-408</td>
<td>Astronomy</td>
<td>2</td>
</tr>
<tr>
<td>SURV-409</td>
<td>Computer Application</td>
<td>0</td>
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<tr>
<td>SURV-424</td>
<td>Hydrology</td>
<td>3</td>
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<tr>
<td>SURV-415</td>
<td>Survey Camp - 80 hrs.</td>
<td>0</td>
</tr>
</tbody>
</table>

Plus one of the following electives:
- SURV-416  Cartography 3
- CIVL-425  Stabilization 2

**EMPLOYMENT OPPORTUNITIES:**

The Surveying Technology course is designed to provide a broad scope of employment opportunities in the construction and resource industries, and in government. The various fields include land, topographic, construction, mining, hydrographic and geodetic surveying.

A graduate also has the opportunity for further technical advancement by obtaining a commission as a Manitoba Land Surveyor by serving a term of articles and successfully passing further examinations. This would open up the specialized field of Cadastral surveying which is concerned with the registration of the extent of ownership of land.
Carpentry and Woodworking

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II, or

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $80.00.

AIM OF THE COURSE:

The aim of the course is twofold due to the range of age of the students. The younger participants usually enter apprenticeship in either carpentry or woodworking after the successful completion of the course, receiving credit for the in-school-training and the actual working time. Students who had affiliations with the trade and do not wish to enter a formal apprenticeship, benefit particularly from the theoretical instruction. Provided they have the required practical experience they may subsequently apply for their journeyman’s examination under the Tradesman Qualification Act and thus become fully qualified journeymen with the Provincial Certificate.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-503</td>
<td>Communications</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>MATH-504</td>
<td>Mathematics</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>RESC-517</td>
<td>Science</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
<td>120</td>
<td>4</td>
</tr>
<tr>
<td>PDEC-107</td>
<td>Wood Finishing</td>
<td>58</td>
<td>2</td>
</tr>
<tr>
<td>WOOD-101</td>
<td>Hand Tools</td>
<td>116</td>
<td>4</td>
</tr>
<tr>
<td>WOOD-102</td>
<td>Woodworking Machines</td>
<td>145</td>
<td>6</td>
</tr>
<tr>
<td>WOOD-103</td>
<td>Concrete Form Construction</td>
<td>116</td>
<td>4</td>
</tr>
<tr>
<td>WOOD-104</td>
<td>General Framing</td>
<td>87</td>
<td>3</td>
</tr>
<tr>
<td>WOOD-105</td>
<td>Equal Pitch Roofing</td>
<td>145</td>
<td>6</td>
</tr>
<tr>
<td>WOOD-106</td>
<td>Stair Building</td>
<td>120</td>
<td>5</td>
</tr>
<tr>
<td>WOOD-107</td>
<td>Finishing</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>WOOD-108</td>
<td>Cabinet Work</td>
<td>120</td>
<td>4</td>
</tr>
<tr>
<td>WOOD-109</td>
<td>Unequal Pitch Roofing</td>
<td>29</td>
<td>1</td>
</tr>
</tbody>
</table>
WOOD-110 Surveying ................................. 35  2
WOOD-111 Estimating ................................. 60  2

1320  50

EMPILOYMENT OPPORTUNITIES:

Employment is usually found in the building trades, either in commercial construction or housebuilding and in factories and cabinet making shops.

Journeymen find employment in other capacities too, such as foremen, supervisors, building inspectors, draftsmen, estimators, superintendents or specialists in related fields.
Masonry

ENTRANCE REQUIREMENTS:
Grade IX, or Basic Training for Skill Development Level II. Good health, physically strong and able to endure heights.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 5 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses include Tool Bag, spacing rule, 48" level (wood), trowel, hammer, bolster, jointers, nylon line, 9"-10" torpedo level. The cost of these supplies is approximately $65.00 (can be bought over a 5 month period). Textbooks and additional supplies cost $30.00.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH-503</td>
<td>Mathematics</td>
<td>48</td>
<td>2</td>
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<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
<td>35</td>
<td>1</td>
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<tr>
<td>MASN-101</td>
<td>Introduction, Materials, Tools</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>MASN-102</td>
<td>Masonry Bonds</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>MASN-103</td>
<td>Definitions</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>MASN-104</td>
<td>Walls</td>
<td>35</td>
<td>2</td>
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<tr>
<td>MASN-105</td>
<td>Estimating</td>
<td>7</td>
<td>.5</td>
</tr>
<tr>
<td>MASN-106</td>
<td>Practical Work</td>
<td>455</td>
<td>16.5</td>
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<tr>
<td></td>
<td></td>
<td>660</td>
<td>25</td>
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</tbody>
</table>

EMPLOYMENT OPPORTUNITIES:
The student who completes the course with a pass mark of 70\% in theory and 70\% in practical work will be accepted into the industry as an apprentice. After additional training, he can obtain journeyman status and then through personal endeavors will be eligible for positions such as foreman, estimator, draftsman, building inspector, maintenance man, contractor or building superintendent.
Painting and Decorating

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 5 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $30.00.

COURSE DESCRIPTION:

This course was drawn up to fulfill a need which has become increasingly apparent during recent years due to the rapid progress in the development of tools, materials, and techniques.

The instruction program provides a good grounding in fundamentals, basic skills, and knowledge of modern developments in tools, materials and procedures and their adaption to construction.

While the course is primarily intended to impart fundamental knowledge and skills, it is also concerned with maintaining standards of skill and craftsmanship, and instilling the traditions of integrity and pride of craft.

EMPLOYMENT OPPORTUNITIES:

A person who successfully completes this course will be given credit as an apprentice for the first level in the painting and decorating trade, with the opportunity of obtaining a Certificate of Qualification. This certificate identifies the holder as a journeyman, and he is recognized by employers and the public as a trained and competent tradesman. Painters and Decorators are employed by:

1. Construction Contractors
2. Home Improvement Contractors
3. Civil Service
4. Public Utilities
5. Manufacturing Companies
6. Self employed
<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-503</td>
<td>Communications</td>
<td>40</td>
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<tr>
<td>MATH-501</td>
<td>Mathematics</td>
<td>40</td>
<td>1</td>
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<tr>
<td>RESC-511</td>
<td>Science</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>PDEC-101</td>
<td>Introduction Safety, Study and History of</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>the Trade</td>
<td></td>
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<tr>
<td>PDEC-102</td>
<td>Basic Component of Paint</td>
<td>40</td>
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<tr>
<td>PDEC-103</td>
<td>Preparation and Application of Coatings</td>
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<tr>
<td></td>
<td>Interior-Exterior</td>
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<tr>
<td>PDEC-104</td>
<td>Tools, Equipment and Safety</td>
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<tr>
<td>PDEC-105</td>
<td>Re-Painted Surfaces</td>
<td>40</td>
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<tr>
<td>PDEC-106</td>
<td>Painted Failures, Causes and Remedies</td>
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<td>PDEC-107</td>
<td>Wood Finishing</td>
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<td>PDEC-108</td>
<td>Basic Color Theory and Mixing</td>
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<td>PDEC-109</td>
<td>Paper Hanging and Wall Covering</td>
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<td></td>
<td></td>
<td>660</td>
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</table>
Plumbing

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II, or

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $50.00.

COURSE OUTLINE

<table>
<thead>
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<th>Subject Name</th>
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<th>Credit Hours</th>
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<td>Science</td>
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<td>Sketching &amp; Blueprint Reading</td>
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<td>2</td>
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<td>SHOP-505</td>
<td>Machine Shop</td>
<td>54</td>
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<td>WELD-506</td>
<td>Welding</td>
<td>54</td>
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<td>PLUM-101</td>
<td>Introduction to Plumbing</td>
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<tr>
<td>PLUM-102</td>
<td>Piping</td>
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<tr>
<td>PLUM-103</td>
<td>Regulations and Project Installations</td>
<td>459</td>
<td>20</td>
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<tr>
<td>PLUM-104</td>
<td>Sheet Lead</td>
<td>54</td>
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<td>PLUM-105</td>
<td>Torches</td>
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<tr>
<td>PLUM-106</td>
<td>Pumps</td>
<td>81</td>
<td>4</td>
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<tr>
<td>PLUM-107</td>
<td>Builder's Level</td>
<td>14</td>
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<tr>
<td>PLUM-108</td>
<td>Rigging and Signaling</td>
<td>13</td>
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</table>

1320 50

EMPLOYMENT OPPORTUNITIES:

As the Plumber is a craftsman who installs water and waste disposal systems in rural areas and residential homes as well as commercial buildings such as schools, hospitals, industrial plants and other structures, job opportunities are found in almost every community, but most jobs are found in highly populated and industrial areas.

After graduating from this course a student usually can find em-
ployment with Plumbing Contractors and after further training on the job and in school as an apprentice he can become a journeyman after successfully passing an examination. He can then go into business for himself or continue working for Plumbing Contractors and possibly become a foreman or an estimator.
Upholstery

ENTRANCE REQUIREMENTS:
Grade X or Basic Training for Skill Development Level II, or
Anyone who does not meet the above prerequisites may submit an
application. The Admissions Committee will review the application
on an individual basis.

DURATION OF COURSE:
Approximately 10 months.
The course is divided into two terms each of five months duration.
Students who successfully complete Term 1 may seek employment at
that time or may, at the discretion of the College, continue into Term
2 of the course.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other
expenses including textbooks and supplies total approximately
$40.00.

COURSE OUTLINE

TERM 1

<table>
<thead>
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<tr>
<td>MATH-503</td>
<td>Mathematics</td>
<td>20</td>
</tr>
<tr>
<td>RESC-512</td>
<td>Science</td>
<td>20</td>
</tr>
<tr>
<td>UPHO-102</td>
<td>Basic Tools &amp; Equipment</td>
<td>60</td>
</tr>
<tr>
<td>UPHO-103</td>
<td>Spring Construction</td>
<td>60</td>
</tr>
<tr>
<td>UPHO-104</td>
<td>Burlap and Stuffing Up</td>
<td>140</td>
</tr>
<tr>
<td>UPHO-105</td>
<td>Trimmings</td>
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</tr>
<tr>
<td>UPHO-106</td>
<td>General Upholstery</td>
<td>220</td>
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</table>

660  25

TERM 2

<table>
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<th>Subject</th>
<th>Credit Hours</th>
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<tr>
<td>MATH-503</td>
<td>Mathematics</td>
<td>18</td>
</tr>
<tr>
<td>RESC-512</td>
<td>Science</td>
<td>18</td>
</tr>
<tr>
<td>PDEC-107</td>
<td>Wood Finishing</td>
<td>60</td>
</tr>
<tr>
<td>UPHO-206</td>
<td>Advanced General Upholstery</td>
<td>200</td>
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<tr>
<td>UPHO-207</td>
<td>Coverings</td>
<td>160</td>
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<tr>
<td>UPHO-208</td>
<td>Foam Rubber Applications</td>
<td>60</td>
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<td>UPHO-209</td>
<td>Woodworking</td>
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<tr>
<td>UPHO-217</td>
<td>On-Job Training</td>
<td>60</td>
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</tbody>
</table>

664  25
EMPLOYMENT OPPORTUNITIES:

The employment market served by this course has two major divisions. Completion of Term "I" provides the trainees with the necessary basic skills to obtain employment with manufacturing companies in this field as springers, trimmers, cutters, etc.

Completion of Term "2" qualifies the trainees to work in any of the above categories or to obtain employment in custom upholstering shops from where they may progress to become estimators, furniture salesman or inspectors.
Drafting Department
Architectural Drafting

ENTRANCE REQUIREMENTS:

Grade XI with proficiency in Mathematics and Physical Science, or Basic Training for Skill Development Level IA.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $75.00.

EMPLOYMENT OPPORTUNITIES:

Draftsmen and Draftswomen in the following concerns: architecture, structural engineering, town planning, building sub-trades. From the position of Draftsman, with experience gained in that field, there is the possibility of advancement into the following situation: estimating, specification writing, technical representative or salesman of building product lines, and building inspectors.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-503</td>
<td>Communications</td>
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<tr>
<td>MATH-509</td>
<td>Mathematics</td>
<td>80</td>
<td>5</td>
</tr>
<tr>
<td>RESC-524</td>
<td>Science</td>
<td>120</td>
<td>7</td>
</tr>
<tr>
<td>ADRA-101</td>
<td>Fundamentals</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>ADRA-102</td>
<td>Applied Drafting</td>
<td>940</td>
<td>30</td>
</tr>
<tr>
<td>ADRA-103</td>
<td>Calculating Machine Operation</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>ADRA-104</td>
<td>Surveying &amp; Topographical Drawing</td>
<td>40</td>
<td>2</td>
</tr>
</tbody>
</table>

1320 50
Machine Drafting

ENTRANCE REQUIREMENTS:

Grade XI with proficiency in Mathematics and Physical Science, or Basic Training for Skill Development Level 1A.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $100.00.

EMPLOYMENT OPPORTUNITIES:

A variety of employment opportunities await the trained student in sheet metal working industries, tool & die production, machine shop drafting, and consulting engineers' offices. With experience in some of the above situations, there are the possibilities of advancement into the technical representative & salesman's field of metal working equipment and products, and shop inspectors.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Credit Hours</th>
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<td>RESC-524</td>
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<td>MDRA-101</td>
<td>Fundamentals</td>
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<td>MDRA-102</td>
<td>Applied Drafting</td>
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<td>MDRA-103</td>
<td>Calculating Machine</td>
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<td>30</td>
</tr>
<tr>
<td>MDRA-104</td>
<td>Surveying &amp; Topographical Drawing</td>
<td>2</td>
<td>40</td>
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</table>

|              |                                       |              | 1320  |

184
Electrical-Electronic Technology Departments

ENTRANCE REQUIREMENTS:
1. English 301 or 300, Mathematics 301 or 300, Physical Science 301 or Physics 300 plus any other electives to give a complete Manitoba Grade XII standing. Candidates who have a complete Grade XII but do not have the required subjects indicated above are invited to apply to the Registrar to have their credentials reviewed by the Admissions Committee, or

2. Successful completion of the Pre-Technology Course.

3. Anyone not meeting the above requirements may apply as a Mature Student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:

TWO SCHOOL YEARS, each of ten months duration, leads to a Diploma in Technology (DipI. T.). Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term.

FEES AND EXPENSES:

The tuition fee is $100 for each term. Other expenses include books, incidentals, board and lodging.

COURSE OUTLINE

First Year

TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<td>Mathematics</td>
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<tr>
<td>RESC-103</td>
<td>Physics</td>
<td>3 L 2 L 4</td>
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<tr>
<td>ERIC-103</td>
<td>Basic Electrical Instruments</td>
<td>2 L 2 L 3</td>
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<td>ERIC-105</td>
<td>Engineering Drawing</td>
<td>1 L 2 L 3</td>
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<tr>
<td>ERIC-107</td>
<td>Electric Circuits</td>
<td>3 L 3 L 5</td>
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<tr>
<td>ERON-108</td>
<td>Basic Electronics</td>
<td>2 L 2 L 3</td>
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15 L 15 L 25
FLOW CHART SHOWING RELATIONSHIP OF COMPUTER, ELECTRICAL, ELECTRONIC, AND INSTRUMENTATION TECHNOLOGY COURSES

TERM I

TERM II

TERM III

TERM IV
Computer Technology

ENTRANCE REQUIREMENTS:
As outlined for Electrical-Electronic Technology Departments courses (Page 185).

COURSE OUTLINE

TERM 1
As outlined for Electrical-Electronic Technology Departments courses (Page 185).

TERM 2

<table>
<thead>
<tr>
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<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<td>MATH-202</td>
<td>Calculus</td>
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<td>RESC-203</td>
<td>Modern Physics</td>
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<td>ERON-207</td>
<td>Electric Circuits</td>
<td>3 2 5</td>
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</tr>
<tr>
<td>ERON-208</td>
<td>Basic Electronics</td>
<td>2 2 3</td>
<td></td>
</tr>
<tr>
<td>ERON-210</td>
<td>Basic Electronic Instruments</td>
<td>2 2 3</td>
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</tr>
<tr>
<td>COMP-209</td>
<td>Computer Topics</td>
<td>2 2 3</td>
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| Total       | 16 14 25 |             |             |

TERM 3

<table>
<thead>
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<th>Subject</th>
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<th>Credit Hours</th>
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<tbody>
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<td>Calculus</td>
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<td>ERON-304</td>
<td>Electronic Devices</td>
<td>3 3 5</td>
<td></td>
</tr>
<tr>
<td>ERON-306</td>
<td>Electronic Measurements</td>
<td>2 3 4</td>
<td></td>
</tr>
<tr>
<td>COMP-307</td>
<td>Control Systems</td>
<td>3 3 5</td>
<td></td>
</tr>
<tr>
<td>COMP-309</td>
<td>Logic Circuits &amp; Programming</td>
<td>2 2 4</td>
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<td>COMP-311</td>
<td>Pulse Circuits</td>
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| Total       | 15 15 25 |             |             |

TERM 4

MANDATORY SUBJECTS:

<table>
<thead>
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<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Electronic Devices</td>
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<td>COMP-408</td>
<td>Computer Interfacing</td>
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<td>COMP-409</td>
<td>Computer Circuits</td>
<td>3 3 5</td>
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<tr>
<td>COMP-410</td>
<td>Computer Systems</td>
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| Total       | 19 |             |             |
ELECTIVE SUBJECTS: (2 required)

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<th>Title</th>
<th>Units</th>
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<td>Numerical Methods with Fortran</td>
<td>2</td>
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<tr>
<td>COMP-401</td>
<td>Computer Peripherals</td>
<td>2</td>
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<tr>
<td>COMP-402</td>
<td>&quot;Maxi&quot; - Computer Systems</td>
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</tr>
<tr>
<td>COMP-403</td>
<td>Computer Projects</td>
<td>0</td>
</tr>
</tbody>
</table>

Electives other than the above listed may be chosen subject to approval by the Department Head.

EMPLOYMENT OPPORTUNITIES:

The graduate in Computer Technology has a thorough knowledge of electronic fundamentals, supplemented by an understanding of both the hardware and the software aspects of computer techniques. He may find challenging job opportunities as a computer applications technologist with industries using computers in process control, scientific application, data logging, numeric controlled machines or in areas of customer engineering.
Electrical Technology

ENTRANCE REQUIREMENTS:
As outlined for Electrical-Electronic Technology Departments Courses (Page 185).

COURSE OUTLINE

First Year

TERM 1
As outlined for Electrical-Electronic Technology Departments Courses (Page 185).

TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-201</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>MATH-202</td>
<td>3 2 4</td>
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<tr>
<td>ERIC-205</td>
<td>0 3 3</td>
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<tr>
<td>ERIC-206</td>
<td>2 2 3</td>
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<td>ERIC-209</td>
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<td>ERIC-210</td>
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<td>ERIC-211</td>
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<td>ERON-208</td>
<td>2 2 3</td>
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<td></td>
<td>13 17 25</td>
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Second Year

TERM 3

<table>
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<tr>
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<td>ERIC-304</td>
<td>2 2 3</td>
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<td>ERIC-305</td>
<td>2 3 5</td>
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<td>ERIC-313</td>
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<td>ERIC-317</td>
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<td>15 16 25</td>
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## TERM 4

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<td>ERIC-405</td>
<td>Electrical Machines</td>
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</tr>
<tr>
<td>ERIC-406</td>
<td>Control Systems</td>
<td>2</td>
</tr>
<tr>
<td>ERIC-408</td>
<td>Industrial Electronics</td>
<td>2</td>
</tr>
<tr>
<td>ERIC-412</td>
<td>Electrical Transmission and</td>
<td>3</td>
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<tr>
<td></td>
<td>Measurements</td>
<td></td>
</tr>
<tr>
<td>ERIC-414</td>
<td>Switchgear &amp; Protection</td>
<td>3</td>
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<tr>
<td></td>
<td>plus one of the following electives</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>CIVL-413</td>
<td>Job Control &amp; Costing</td>
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<tr>
<td>MATH-427</td>
<td>Statistics &amp; Quality Control</td>
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<tr>
<td>PROD-430</td>
<td>Management Studies</td>
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<tr>
<td>ERIC-418</td>
<td>Technical Research &amp; Report</td>
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<tr>
<td>ERIC-419</td>
<td>HVDC Systems</td>
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<td>Other (on approval)</td>
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<td>29</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

**EMPLOYMENT OPPORTUNITIES:**

The graduate occupies a key and unique spot between the engineer and craftsman. Trained to adapt engineering theory to industrial practice, he is limited only by his personal horizon. Consulting engineers, manufacturers, power companies, government agencies, contractors and distributors are some of the groups offering employment in this dynamic and challenging field.
Electronic Technology.

ENTRANCE REQUIREMENTS:
As outlined for Electrical-Electronic Technology Departments Courses (Page 185).

COURSE OUTLINE

TERM 1
As outlined for Electrical-Electronic Technology Departments Courses (Page 185).

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>Communications</td>
<td>1</td>
<td>3</td>
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<tr>
<td>MATH-202</td>
<td>Calculus</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>RESC-203</td>
<td>Modern Physics</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ERON-207</td>
<td>Electric Circuits</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>ERON-208</td>
<td>Basic Electronics</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ERON-209</td>
<td>Logic &amp; Computations</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ERON-210</td>
<td>Basic Electronic Instruments</td>
<td>2</td>
<td>3</td>
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<tr>
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<td><strong>Total</strong></td>
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TERM 2

<table>
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<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<td>ERON-303</td>
<td>Electronic Circuits</td>
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<td>4</td>
</tr>
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<td>ERON-304</td>
<td>Electronic Devices</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>ERON-306</td>
<td>Electronic Measurements</td>
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<td>4</td>
</tr>
<tr>
<td>ERON-307</td>
<td>Control Systems</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>ERON-309</td>
<td>Logic and Pulse Circuits</td>
<td>2</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td><strong>Total</strong></td>
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TERM 3

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MATH-402</td>
<td>Numerical Methods with Fortran</td>
<td>3</td>
<td>4</td>
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<tr>
<td>ERON-403</td>
<td>Electronic Circuits &amp; Fields</td>
<td>2</td>
<td>5</td>
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<tr>
<td>ERON-404</td>
<td>Electronic Devices</td>
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<td>ERON-411</td>
<td>Communication Theory</td>
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MANDATORY SUBJECTS:

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<th>Credit Hours</th>
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ELECTIVE SUBJECTS:

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<th>Course</th>
<th>Title</th>
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<tr>
<td>ERON-405</td>
<td>Radio Systems</td>
<td>2</td>
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<tr>
<td>ERON-406</td>
<td>Microwave Systems</td>
<td>2</td>
</tr>
<tr>
<td>ERON-407</td>
<td>Control Systems</td>
<td>2</td>
</tr>
<tr>
<td>ERON-408</td>
<td>Integrated Circuits</td>
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<tr>
<td>ERON-409</td>
<td>Electronic Project</td>
<td>0</td>
</tr>
</tbody>
</table>

Electives must include ERON-405 or ERON-406 and any other two, or ERON-405 and ERON-406 and one other.

Electives, other than the above listed, may be chosen subject to approval by the Department Head.

EMPLOYMENT OPPORTUNITIES:

The electronic technologist 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 — there is, in fact, a place for a technologist wherever electronic equipment is utilized.
Instrumentation Technology

ENTRANCE REQUIREMENTS:
As outlined for Electrical-Electronic Technology Departments Courses (Page 185).

COURSE OUTLINE

First Year

TERM 1
As outlined for Electrical-Electronic Technology Departments Courses (Page 185).

TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Name</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
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<td>ENGL-201</td>
<td>Report Writing</td>
<td>3 L, 0 Lab</td>
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<td>MATH-202</td>
<td>Calculus</td>
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</tr>
<tr>
<td>RESC-204</td>
<td>Instrumentation Physics</td>
<td>2 L, 2 Lab</td>
<td>3</td>
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<td>INST-203</td>
<td>Basic Instrumentation</td>
<td>2 L, 2 Lab</td>
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</tr>
<tr>
<td>INST-204</td>
<td>Instrumentation Layout &amp; Design</td>
<td>1 L, 2 Lab</td>
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</tr>
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<td>INST-207</td>
<td>Electric Circuits &amp; Machines</td>
<td>3 L, 2 Lab</td>
<td>5</td>
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<td>INST-209</td>
<td>Computational Techniques</td>
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<td>ERON-208</td>
<td>Basic Electronics</td>
<td>2 L, 2 Lab</td>
<td>3</td>
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</table>

|                |                                               | 17 L, 14 Lab   | 25           |

Second Year

TERM 3

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Name</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tbody>
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<td>MATH-305</td>
<td>Mathematics</td>
<td>2 L, 2 Lab</td>
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<td>INST-301</td>
<td>Fluid Mechanics</td>
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</tr>
<tr>
<td>INST-302</td>
<td>Process Measurements</td>
<td>2 L, 3 Lab</td>
<td>4</td>
</tr>
<tr>
<td>INST-305</td>
<td>Industrial Hydraulics</td>
<td>2 L, 2 Lab</td>
<td>3</td>
</tr>
<tr>
<td>INST-306</td>
<td>Digital &amp; Computer Control Techniques</td>
<td>2 L, 3 Lab</td>
<td>3</td>
</tr>
<tr>
<td>INST-307</td>
<td>Electrical Practices &amp; Design</td>
<td>2 L, 2 Lab</td>
<td>4</td>
</tr>
<tr>
<td>INST-309</td>
<td>Industrial Electronics</td>
<td>2 L, 2 Lab</td>
<td>4</td>
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</tbody>
</table>

|                |                                               | 14 L, 17 Lab   | 25           |
TERM 4

<table>
<thead>
<tr>
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<th>Course Title</th>
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<td>Process Measurements</td>
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<td>INST-403</td>
<td>Industrial Control Applications</td>
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<td>INST-404</td>
<td>Chemical Instrumentation</td>
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<tr>
<td>INST-405</td>
<td>Process Analysis</td>
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<td>INST-409</td>
<td>Industrial Electronics</td>
<td>2</td>
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<tr>
<td>INST-406</td>
<td>Control Systems</td>
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<td>plus one elective:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>5</td>
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</table>

Other (on approval) .............................................. 4
................................................................. 25

EMPLOYMENT OPPORTUNITIES:

There are two main fields of employment. One is with firms who design, manufacture and sell engineering, laboratory, scientific and optical instruments; the other is in industries such as the chemical, petroleum refining, papermaking, electrical utility, atomic research and the air transport fields. Smaller numbers of technicians are in meteorology, geophysics and similar scientific fields.

Occupations in instrumentation are still emerging and there is considerable overlap between instrumentation, mechanical, chemical and electrical technologists. Consequently, duties will vary from industry to industry, and from company to company within the same industry. In general, technologists are involved in the design and modification of process control systems.
Electrical Appliance Servicing

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $80.00.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH-509</td>
<td>Mathematics</td>
<td>80</td>
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<tr>
<td>RESC-522</td>
<td>Science</td>
<td>80</td>
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<td>SHOP-505</td>
<td>Machine Shop</td>
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<td>MARK-504</td>
<td>Marketing</td>
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<td>OSPR-506</td>
<td>Office Systems &amp; Procedures</td>
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<td>APPL-101</td>
<td>Elementary Circuitry</td>
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<td>D.C. Fundamentals</td>
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<td>A.C. Fundamentals</td>
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<td>A.C. Motors</td>
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<td>Electrical Code</td>
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<td>APPL-106</td>
<td>Electric Ranges</td>
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<td>APPL-107</td>
<td>Electric Dryers</td>
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<tr>
<td>APPL-108</td>
<td>Automatic Washing Machines</td>
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<tr>
<td>APPL-109</td>
<td>Refrigeration (Household)</td>
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1320       50

EMPLOYMENT OPPORTUNITIES:

Employment opportunities for students who successfully complete this course will expand. More appliances of increasing complexity will be used, requiring more maintenance and repair.

Employment opportunities are available in the following fields:

1. Field service for national manufacturers.
2. Independent service companies.
3. Dealer operated service departments.
ENTRANCE REQUIREMENTS:

Grade X, or Basic Training for Skill Development Level II. Grade XI preferred.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

NOTE: This course is divided into two 5 months sections, Term 1 and Term 2. To continue into Term 2 the student must successfully complete Term 1.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $120.00.

COURSE OUTLINE

TERM 1

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<th>Subject No.</th>
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<td>TRIC-101</td>
<td>Direct Current Fundamentals</td>
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<td>TRIC-102</td>
<td>Residential Blueprint Reading</td>
<td>160</td>
<td>6</td>
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<td>TRIC-103</td>
<td>Direct Current Machines &amp; Controls</td>
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<td>TRIC-151</td>
<td>Residential Wiring</td>
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<td>TRIC-152</td>
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TERM 2

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<td>TRIC-201</td>
<td>Alternating Current Fundamentals</td>
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<td>TRIC-202</td>
<td>3-Phase Systems &amp; Transformers</td>
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<td>TRIC-203</td>
<td>Alternating Current Machines &amp; Controls</td>
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</table>
EMPLOYMENT OPPORTUNITIES:

Students who successfully complete Term 1 may find employment in the electrical construction field. The student who completes Term 1 and enters the Electrical Construction Trade as an Apprentice will receive credit for Level I of the Apprenticeship program sponsored by the Department of Labour.

Students who successfully complete Term 2 may find employment in the following fields.

1. The utility companies as they generate and distribute electrical energy.
2. Electrical contractors.
3. Manufacturers of electrical equipment and machinery.
4. Industry as a whole where they use electrical installations and equipment.
5. Distributors of electrical equipment and machinery.

The student who completes Term 2 and enters the Electrical Construction Trade as an Apprentice will receive credits for Levels I and II of the Apprenticeship program sponsored by the Department of Labour.
Industrial Electrical

ENTRANCE REQUIREMENTS:

Grade XI or Basic Training for Skill Development Level 1A and completion of Term 2 of Electrical Course, or

Grade X and completion of Term 2 with a sufficient high standing.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 5 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $60.00.

COURSE OUTLINE

<table>
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<th>Subject No.</th>
<th>Subject</th>
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<th>Credit Hours</th>
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<tr>
<td>MATH-510</td>
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<tr>
<td>IRIC-101</td>
<td>Measuring Instruments</td>
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<td>IRIC-102</td>
<td>Vacuum Tubes &amp; Amplifiers</td>
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<td>IRIC-103</td>
<td>Semi-conductors</td>
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<td>IRIC-104</td>
<td>Industrial Tubes and</td>
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<td>Semi-Conductor Devices</td>
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<td>Sensing Devices</td>
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<td>IRIC-106</td>
<td>Static Controls</td>
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<td>IRIC-107</td>
<td>Industrial Blueprint Reading</td>
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<tr>
<td>IRIC-108</td>
<td>AC and DC Machines &amp; Controls</td>
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</tr>
</tbody>
</table>

660 25

EMPLOYMENT OPPORTUNITIES:

Students who successfully complete this course may find employment with:

1. Utility companies
2. Electrical contractors
3. Manufacturers of electrical equipment
4. Industries as they use electrical equipment
5. Distributors of electrical equipment
Refrigeration and Air Conditioning

ENTRANCE REQUIREMENTS:
Grade XI or Basic Training for Skill Development Level IA.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $80.00.

COURSE OUTLINE

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<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
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<tr>
<td>ENGL-503</td>
<td>Communications</td>
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<td>MATH-509</td>
<td>Mathematics</td>
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<td>RESC-521</td>
<td>Science</td>
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<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
<td>40</td>
<td>1</td>
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<tr>
<td>SHOP-505</td>
<td>Machine Shop</td>
<td>60</td>
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<td>WELD-506</td>
<td>Welding</td>
<td>60</td>
<td>3</td>
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<tr>
<td>FRIG-101</td>
<td>Safety and Fundamentals</td>
<td>60</td>
<td>2</td>
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<tr>
<td>FRIG-102</td>
<td>Basic Refrigeration Systems</td>
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<td>FRIG-103</td>
<td>Commercial Systems</td>
<td>400</td>
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<td>FRIG-104</td>
<td>Calculations</td>
<td>100</td>
<td>5</td>
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<td>FRIG-105</td>
<td>Basic Air Conditioning Systems</td>
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<tr>
<td>FRIG-106</td>
<td>Refrigeration Electrical</td>
<td>180</td>
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</tr>
</tbody>
</table>

1320 50

EMPLOYMENT OPPORTUNITIES:
Students who successfully complete this course may find employment in several areas:

1. Contractors engaged in installation, service and repair of commercial and industrial refrigeration and air conditioning equipment.
2. Many buildings and institutions such as hotels, hospitals, etc., employ refrigeration mechanics on their maintenance staff.
3. Firms engaged in manufacturing and suppliers of refrigeration equipment.
4. Independent service companies who service and repair domestic and/or commercial refrigeration equipment.

5. Service departments of large retail stores who sell domestic refrigerators, home freezers, unit air conditioners, humidifiers, etc.
Basic Electronics Servicing

ENTRANCE REQUIREMENTS:
Grade XI with proficiency in Mathematics and Physics, or Basic Training for Skill Development Level IA.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $80.00.

COURSE OUTLINE

### TERM 1

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<thead>
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<th>Subject No.</th>
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<td>RESC-523</td>
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<td>ENGL-503</td>
<td>Communications</td>
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<td>.5</td>
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<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
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<td>.5</td>
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<td>TRON-101</td>
<td>Direct Current Fundamentals</td>
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<td>TRON-102</td>
<td>Alternating Current Fundamentals</td>
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<tr>
<td>TRON-103</td>
<td>Power Supplies</td>
<td>50</td>
<td>2</td>
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<td>TRON-104</td>
<td>Tubes and Transistors</td>
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<td>4</td>
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<tr>
<td>TRON-105</td>
<td>Audio Frequency Amplifiers</td>
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<td>5</td>
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<tr>
<td>TRON-106</td>
<td>Oscillators</td>
<td>50</td>
<td>2</td>
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<tr>
<td>TRON-107</td>
<td>Tuned Radio Frequency Receivers</td>
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**Total:** 660 Hours 25 Credit Hours

### TERM 2

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<tr>
<td>TRON-109</td>
<td>Amplifiers</td>
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<td>3</td>
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<td>TRON-110</td>
<td>Transmitters (AM &amp; FM)</td>
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<tr>
<td>TRON-111</td>
<td>FM and Stereo Receivers</td>
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</table>
EMPLOYMENT OPPORTUNITIES:

Graduates have carried on into television servicing or industrial electronic courses, or into the employment field with railway communication systems, telephone systems, aviation electronic firms, broadcast stations, and sound engineering firms. Students are also employed by I.B.M., Burroughs, Underwood, Minneapolis Honeywell, Remington-Rand, Kodak Company, Toledo Scale Company, parimutuel operators, and other firms where new equipment requires that the service technician has a good electronic background.
ENTRANCE REQUIREMENTS:

Complete Basic Electronics Servicing Course, or three years relevant experience in industry.

DURATION OF COURSE:

Approximately 5 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $65.00.

COURSE OUTLINE

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<td>Television Standards</td>
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<td>Television Transmitters</td>
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<td>The Signal Circuits</td>
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<td>The Deflection Circuits</td>
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<td>The Auxiliary Circuits</td>
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<td>Solid State Television</td>
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<td>Color Television</td>
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<td>Closed Circuit Television</td>
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<td>Test Equipment</td>
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<td>Safety</td>
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660 25

EMPLOYMENT OPPORTUNITIES:

Students who successfully complete this course find employment in television broadcasting, television servicing, communications and related electronic industries in an installation, operating, or maintenance capacity.
Industrial Electronics

ENTRANCE REQUIREMENTS:

Complete Basic Electronics Servicing Course or equivalent background and training. (Refer to Prerequisites for Basic Electronics Servicing).

DURATION OF COURSE:

Approximately 5 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $55.00.

COURSE OUTLINE

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<td>MATH-510</td>
<td>Mathematics</td>
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<td>IRON-101</td>
<td>The Gas-Filled Electron Tube</td>
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<td>IRON-102</td>
<td>The Thyatron</td>
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<td>IRON-103</td>
<td>Phase-Shifting Circuits</td>
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<td>IRON-104</td>
<td>The Phototube</td>
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<td>IRON-105</td>
<td>Relays</td>
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<tr>
<td>IRON-106</td>
<td>Semiconductors</td>
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<td>IRON-107</td>
<td>Motor Control Circuits</td>
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<td>3</td>
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<tr>
<td>IRON-108</td>
<td>Pulse Circuits</td>
<td>110</td>
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</tbody>
</table>

660 25

EMPLOYMENT OPPORTUNITIES:

Successful completion of the course in Industrial Electronics will serve to prepare the student for employment in several fields.

These may include:

1. Service and maintenance of control equipment in production plants of all types.
2. Laboratory and testing situations involving electronic control and instrumentation.
3. Any other area of industry where electronic control and devices are used and require maintenance and servicing, including ancillary shop facilities where equipment is built and/or serviced.

As well as employment opportunities as technicians, a large number of related support jobs such as sales, equipment representatives, parts merchandising, and supervisory posts are open to people trained in this area.
Radio Operating and Electronic Communications

ENTRANCE REQUIREMENTS:

Grade XI with proficiency in Mathematics and Physics or Basic Training for Skill Development Level IA.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $70.00.

COURSE OUTLINE

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<td>RESC-523</td>
<td>Science</td>
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<tr>
<td>RADO-101</td>
<td>DC and AC Fundamentals</td>
<td>100</td>
<td>3</td>
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<td>RADO-102</td>
<td>Tubes and Transistors</td>
<td>60</td>
<td>2</td>
</tr>
<tr>
<td>RADO-103</td>
<td>Oscillators</td>
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<tr>
<td>RADO-104</td>
<td>Receivers</td>
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<td>2</td>
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<tr>
<td>RADO-105</td>
<td>Test Equipment</td>
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<td>1.5</td>
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<td>Communication Receivers (Marine)</td>
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<td>Communication Transmitters (Marine)</td>
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<td>RADO-108</td>
<td>Programmed Senders (Auto-Key)</td>
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<td>RADO-109</td>
<td>Automatic Alarm Systems (Radio)</td>
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<tr>
<td>RADO-110</td>
<td>Direction Finding Systems</td>
<td>30</td>
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<tr>
<td>RADO-111</td>
<td>Emergency Equipment (Marine)</td>
<td>30</td>
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<tr>
<td>RADO-112</td>
<td>Antenna &amp; Propagation Fundamentals</td>
<td>50</td>
<td>1</td>
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<tr>
<td>RADO-113</td>
<td>Morse Code Fundamentals</td>
<td>310</td>
<td>14</td>
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<tr>
<td>RADO-114</td>
<td>Normal Traffic Procedure</td>
<td>120</td>
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<tr>
<td>RADO-115</td>
<td>Special Service Procedure</td>
<td>80</td>
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<td>RADO-116</td>
<td>Toll Computation</td>
<td>80</td>
<td>2</td>
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<tr>
<td>RADO-117</td>
<td>Typing &amp; Teletype</td>
<td>60</td>
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</table>

1320          50
EMPLOYMENT OPPORTUNITIES:

Students who successfully complete this course and pass the 2nd class commercial Radio Operators examinations (D.O.T.), qualify for an internationally accepted certificate. In addition, graduates will qualify for employment as a communication specialist in any one of the following areas:

Department of Transport, weather stations, railways, airlines, police departments, public utilities, coast guard, marine service.

Graduates in good health (no glasses) may work in air traffic control.
Mechanical Technology Department

ENTRANCE REQUIREMENTS:
1. English 301 or 300, Mathematics 301 or 300, Physical Science 301 or Physics 300 plus any other electives to give a complete Manitoba Grade XII standing. Candidates who have a complete Grade XII but do not have the required subjects indicated above are invited to apply to the Registrar to have their credentials reviewed by the Admissions Committee, or
2. Successful completion of the Pre-Technology Course.
3. Anyone not meeting the above requirements may apply as a Mature Student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSES:
TWO SCHOOL YEARS, each of ten months duration, leads to a Diploma in Technology (Dipl. T.). Each of the ten month periods is divided into two equal terms with final examinations written at the end of each term.

FEES AND EXPENSES:
The tuition fee is $100 for each term. Other expenses include books, incidentals, board and lodging.

FLOW CHART SHOWING RELATIONSHIP OF HEAT & POWER, AND PRODUCTION TECHNOLOGY COURSES
## COURSE OUTLINE

### FIRST YEAR

#### TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-101</td>
<td>Communication</td>
<td>2</td>
<td>3</td>
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<tr>
<td>MATH-106</td>
<td>Mathematics</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>MECH-102</td>
<td>Electrical Fundamentals</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>MECH-103</td>
<td>Manufacturing Processes</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>MECH-104</td>
<td>Mechanical Drafting</td>
<td>0</td>
<td>3</td>
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<tr>
<td>MECH-105</td>
<td>Applied Mechanics</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>MECH-106</td>
<td>Management Methods</td>
<td>2</td>
<td>2</td>
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<tr>
<td>MECH-107</td>
<td>Industrial Materials</td>
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**Total: 16, 14, 25**

#### TERM 2

<table>
<thead>
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<th>Subject</th>
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<tbody>
<tr>
<td>MATH-206</td>
<td>Mathematics</td>
<td>3</td>
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<td>ENGL-201</td>
<td>Report Writing</td>
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<td>MECH-205</td>
<td>Applied Mechanics</td>
<td>2</td>
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<tr>
<td>MECH-206</td>
<td>Industrial Electronics</td>
<td>2</td>
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<tr>
<td>MECH-207</td>
<td>Production Welding</td>
<td>3</td>
<td>4</td>
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<td>MECH-208</td>
<td>Stress Analysis</td>
<td>3</td>
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<td>MECH-209</td>
<td>Industrial Fluid Mechanics</td>
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**Total: 16, 14, 25**

208
Heat and Power Technology

ENTRANCE REQUIREMENTS:
As outlined for Mechanical Technology Department Courses (Page 207).

COURSE OUTLINE

FIRST YEAR
As outlined for Mechanical Technology Department Courses (Page 208).

SECOND YEAR

TERM 3

<table>
<thead>
<tr>
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<th>Subject</th>
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<tr>
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<td>MECH-309</td>
<td>Work Study</td>
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<td>MECH-321</td>
<td>Machine Design</td>
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<tr>
<td>HEPR-310</td>
<td>Instrumentation &amp; Controls</td>
<td>2 2 3</td>
<td></td>
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<tr>
<td>HEPR-311</td>
<td>Fluid Power</td>
<td>2 2 3</td>
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<tr>
<td>HEPR-313</td>
<td>Heating &amp; Ventilation</td>
<td>2 2 3</td>
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<tr>
<td>HEPR-326</td>
<td>Thermodynamics</td>
<td>2 1 3</td>
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<tr>
<td>HEPR-327</td>
<td>Library Research</td>
<td>0 1 1</td>
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| Total      |                                  | 17 13 25       |              |

TERM 4

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<th>Subject</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MECH-405</td>
<td>Automation</td>
<td>2 2 4</td>
<td></td>
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<tr>
<td>HEPR-407</td>
<td>Human Relations &amp; Technical Report</td>
<td>1 2 2</td>
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<tr>
<td>HEPR-412</td>
<td>Mechanical Equipment for Buildings</td>
<td>2 1 2</td>
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<td>HEPR-413</td>
<td>Heating &amp; Ventilation</td>
<td>3 4 5</td>
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<td>HEPR-414</td>
<td>Refrigeration</td>
<td>1 2 2</td>
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<td>HEPR-415</td>
<td>Internal Combustion Engines</td>
<td>3 2 5</td>
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<td>HEPR-421</td>
<td>Machine Design</td>
<td>1 1 2</td>
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<tr>
<td>HEPR-426</td>
<td>Thermodynamics</td>
<td>2 1 3</td>
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</table>

| Total      |                                  | 15 15 25       |              |

SCOPE OF HEAT AND POWER TECHNOLOGY:
The Heat and Power Technology course was developed to cover approximately one-half of the broad field of mechanical technology. It is a composite program, involving the sciences of heat transfer and mechanical power, and its aim is to make the students aware of the
most efficient use of equipment in the building, construction, industrial, and mining fields. The graduates of this course will act as a liaison between the mechanical engineer and the craftsman.

EMPLOYMENT OPPORTUNITIES:

Graduates have found employment in consulting engineering offices, plant engineering offices, rocket research facilities, atomic energy research facilities, in the sale and field installation of gasoline, diesel, and gas turbine equipment, and in technical sales generally. The graduates technical knowledge and design background is particularly adaptable to the heating, air conditioning, and refrigeration areas. Further work possibilities may be found in instrumentation, food processing, plastics, and in the gas and oil industry.
Production Technology

ENTRANCE REQUIREMENTS:
As outlined for Mechanical Technology Department Courses (Page 207).

COURSE OUTLINE

FIRST YEAR
As outlined for Mechanical Technology Department Courses (Page 208).

SECOND YEAR

TERM 3

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tr>
<td>RESC-303</td>
<td>Chemical Physics</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>MATH-306</td>
<td>Mathematics</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>MECH-309</td>
<td>Work Study</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>MECH-321</td>
<td>Machine Design</td>
<td>3</td>
<td>2</td>
<td>4</td>
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<tr>
<td>PROD-302</td>
<td>Metallurgy</td>
<td>2</td>
<td>2</td>
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<tr>
<td>PROD-312</td>
<td>Non-Destructive Testing</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>PROD-331</td>
<td>Tool Design</td>
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<thead>
<tr>
<th>Term 4</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>PROD-427</td>
<td>Statistics &amp; Quality Control</td>
<td>2</td>
<td>1</td>
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<tr>
<td>MECH-405</td>
<td>Automation</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>MECH-407</td>
<td>Technical Research &amp; Report</td>
<td>0</td>
<td>2</td>
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<tr>
<td>PROD-403</td>
<td>Advanced Manufacturing Processes</td>
<td>3</td>
<td>7</td>
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<tr>
<td>PROD-411</td>
<td>Production Planning &amp; Layout</td>
<td>3</td>
<td>3</td>
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<tr>
<td>PROD-429</td>
<td>Accounting</td>
<td>2</td>
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<tr>
<td>PROD-430</td>
<td>Management Studies</td>
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</tbody>
</table>

SCOPE OF PRODUCTION TECHNOLOGY:

Production technology is the science of planning and controlling the manufacture of consumer, industrial, military, and scientific products to required specifications at minimum cost. The relative efficiency of the production industry determines the standard of living of any nation, and the development of a better manufacturing industry is being stressed by economists and government planners in Canada, and especially in Manitoba.
EMPLOYMENT OPPORTUNITIES:

The practitioner in the production field requires a comprehensive knowledge of business administration, report writing, industrial materials, design, automation, machinery, and manufacturing processes. Previous graduates have become established in nuclear power, X-ray radiography, product design, plant management, work study, production control, welding technology, industrial marketing, customer liaison, materials technology, in the aerospace industry and a wide spectrum of other responsibilities.
Operating Engineers

ENTRANCE REQUIREMENTS:

1. English 301 or 300, Mathematics 301 or 300, Physical Science 301 or (Physics 300 and Chemistry 300), plus any other electives to give a complete Manitoba Grade XII standing. Candidates who have a complete Grade XII but do not have the required subjects indicated above are invited to apply to the Registrar to have their credentials reviewed by the Admissions Committee, or

2. Basic Training for Skill Development Level IA with demonstrated proficiency in English, Mathematics and Physical Science, or

3. Successful completion of the Pre-Technology Course.

4. Anyone not meeting the above requirements may apply as a Mature Student. A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants may be required to write an entrance exam and/or appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

FEES AND EXPENSES:

The tuition fee is $100 for each term. Other expenses include books, incidentals, board and lodging.

EMPLOYMENT OPPORTUNITIES:

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; breweries; hospitals; and large public buildings. In these plants, Operating Engineers are responsible for the operation of steam boilers, refrigeration compressors, air compressors and air conditioning systems 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 Examinations. 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.
## COURSE OUTLINE

### TERM 1

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESC-106</td>
<td>Chemistry</td>
<td>2</td>
<td>1</td>
<td>2</td>
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<tr>
<td>ENGL-101</td>
<td>Communications</td>
<td>3</td>
<td>0</td>
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<tr>
<td>MATH-104</td>
<td>Mathematics</td>
<td>3</td>
<td>0</td>
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<tr>
<td>RESC-105</td>
<td>Physics</td>
<td>1</td>
<td>2</td>
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<tr>
<td>OPER-101</td>
<td>Power Plant Theory &amp; Practice</td>
<td>7</td>
<td>6</td>
<td>10</td>
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<tr>
<td>OPER-102</td>
<td>Electricity</td>
<td>2</td>
<td>1</td>
<td>2</td>
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<tr>
<td>OPER-103</td>
<td>Instruments &amp; Controls</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>11</td>
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<td>OPER-108</td>
<td>Drafting</td>
<td></td>
<td></td>
<td>40 hrs.</td>
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<td>OPER-109</td>
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<td></td>
<td>35 hrs.</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
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### TERM 2

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<th>Subject No.</th>
<th>Subject</th>
<th>Lect.</th>
<th>Lab.</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
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<tr>
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<td>2</td>
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<tr>
<td>MATH-204</td>
<td>Mathematics</td>
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<tr>
<td>RESC-205</td>
<td>Physics</td>
<td>1</td>
<td>2</td>
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<td>ENGL-201</td>
<td>Report Writing</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>2</td>
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<tr>
<td>OPER-201</td>
<td>Power Plant Theory &amp; Practice</td>
<td>7</td>
<td>5</td>
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<td>Electricity</td>
<td>2</td>
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<tr>
<td>OPER-203</td>
<td>Instruments &amp; Controls</td>
<td>2</td>
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</table>
Metals Department
Machine Shop Practice

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:

Approximately 10 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

This course is divided into two parts of 5 months each. To continue into Term 2 the student must successfully complete Term 1.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $65.00.

EMPLOYMENT OPPORTUNITIES:

A student may, on successful completion of Term 1 of this course, continue into Term 2 or proceed to the labor market as a Machine Tool Operator, a Machinist's Helper, or a Machine Shop Inspector.

A student who successfully completes Term 2 of this course may obtain employment in industry as a more advanced Machine Tool Operator, or Machinist Apprentice.

This course also provides basic knowledge and skill valuable to other occupations such as mechanical draftsman, technician, estimator or salesman.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
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<th>Credit Hours</th>
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<td>Sketching &amp; Blueprint Reading</td>
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<td>MATH-509</td>
<td>Mathematics</td>
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<tr>
<td>RESC-516</td>
<td>Science</td>
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<tr>
<td>SHOP-101</td>
<td>Bench Work</td>
<td>150</td>
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<tr>
<td>SHOP-102</td>
<td>General Operation and Control</td>
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<td>15</td>
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<td></td>
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<td></td>
<td></td>
<td>660</td>
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<td>Term 2</td>
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<tr>
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<td>WELD-506</td>
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<td>SHOP-201</td>
<td>Measuring Devices</td>
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<td>SHOP-202</td>
<td>Power Saws</td>
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<td>SHOP-203</td>
<td>Lathe Operation</td>
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<td>SHOP-204</td>
<td>Milling Machine Operation</td>
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<td>SHOP-205</td>
<td>Jig Borer Operation</td>
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<td>Horizontal Boring Mills</td>
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<td>SHOP-207</td>
<td>Grinding Machine Operation</td>
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<tr>
<td>SHOP-208</td>
<td>Heat Treatment</td>
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Note: Approximately 30% of time allotted to classroom and shop lectures.
Sheet Metal

ENTRANCE REQUIREMENTS:
Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

DURATION OF COURSE:
Approximately 8 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:
The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $60.00.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Credit Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-503</td>
<td>Communications</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
<td>3</td>
<td>70</td>
</tr>
<tr>
<td>SHOP-505</td>
<td>Machine Shop</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>MATH-505</td>
<td>Mathematics</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>RESC-513</td>
<td>Science</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>WELD-506</td>
<td>Welding</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>SMET-101</td>
<td>Sheet Metal Hand Tools</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>SMET-102</td>
<td>Hand Operated Sheet Metal Machines</td>
<td>5</td>
<td>130</td>
</tr>
<tr>
<td>SMET-103</td>
<td>Power Hand Tools</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>SMET-104</td>
<td>Power Operated Machines</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>SMET-105</td>
<td>Sheet Metal Sciences &amp; Techniques</td>
<td>4</td>
<td>110</td>
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<tr>
<td>SMET-106</td>
<td>Soldering</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>SMET-107</td>
<td>Pattern Development</td>
<td>9</td>
<td>320</td>
</tr>
</tbody>
</table>

Total: 1060 Hours

EMPLOYMENT OPPORTUNITIES:
Sheet Metal workers shear, form, weld, solder, and assemble items used in building construction, homes, and industry. They must be able to work from plans, blueprints, shop drawings, and verbal instructions. The Sheet Metal worker uses cold rolled steel, galvanized steel, tinplate, aluminum, copper, stainless steel, plastics, fibreglass, etc., while working at his trade. A skilled sheet metal worker is one of the few remaining craftsman who still fabricates the finished product from flat sheets, using patterns which he develops himself. Em-
ployment opportunities are excellent due to lack of truly skilled, all-round mechanics, and include the following fields:—sheet metal manufacturing; heating and ventilating; sheet metal contracting of a general nature; air-conditioning air distribution; commercial stainless steel work and kitchen equipment; sign work; aircraft fabrication—providing either or both indoor and outdoor work. For the ambitious sheet metal worker the opportunities are there, his own desire establishing the limit.
Watch Repair

ENTRANCE REQUIREMENTS:

Applicants for this course will be required to take a series of tests to determine their suitability for training. Characteristics for which applicants will be tested are mechanical aptitude, manual dexterity and an ability to benefit from the training offered.

DURATION OF COURSE:

Approximately 12 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $7.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $260.00 as follows: Texts and supplies $30.00, basic tools $40.00 required to start the course, additional tools required each subsequent month approximately $18.00.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject Name</th>
<th>Hours</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL-503</td>
<td>Communications</td>
<td>95</td>
<td>3</td>
</tr>
<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
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</tr>
<tr>
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<tr>
<td>MATH-505</td>
<td>Mathematics</td>
<td>50</td>
<td>2</td>
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<tr>
<td>WACH-101</td>
<td>Basic-Exercises - Screwplates and Lathe</td>
<td>260</td>
<td>12</td>
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<tr>
<td>WACH-102</td>
<td>Balance Wheels - Staking and Truing</td>
<td>250</td>
<td>10</td>
</tr>
<tr>
<td>WACH-103</td>
<td>Hairspring - Preparation Blanks for Service</td>
<td>200</td>
<td>8</td>
</tr>
<tr>
<td>WACH-104</td>
<td>Fundamental Construction of Watches</td>
<td>150</td>
<td>5</td>
</tr>
<tr>
<td>WACH-105</td>
<td>Repairing of Watches</td>
<td>500</td>
<td>18</td>
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</tbody>
</table>

1580  60

EMPLOYMENT OPPORTUNITIES:

Students successfully completing the twelve month course may enter the trade at the level of an improver. After working at the trade for twelve months they will be eligible to write the Canadian Jewellers Institute examination to qualify as a “Certified Watchmaker.” This certificate is recognized by the Canadian Jewellers Association across Canada and in most states of the U.S.A. There are many employment opportunities for good watchmakers in the jewellery trade and in the instrument repair field.
Welding

ENTRANCE REQUIREMENTS:

Grade X or Basic Training for Skill Development Level II.

Anyone who does not meet the above prerequisites may submit an application. The Admissions Committee will review the application on an individual basis.

Employment in this field requires vigorous good health, with good eyesight, particularly in respect to depth perception and color recognition. Applicants who wear glasses should check with their eye specialists before registering for this course.

DURATION OF COURSE:

Approximately 6 months. Successful completion of this course qualifies the graduate for a Certificate of Attainment.

FEES AND EXPENSES:

The tuition fee is $14.00 per month, or fraction thereof. Other expenses including textbooks and supplies total approximately $90.00.

COURSE OUTLINE

TERM 1

<table>
<thead>
<tr>
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<tr>
<td>MATH-507</td>
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<td>RESC-514</td>
<td>Science</td>
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<tr>
<td>WELD-101</td>
<td>General Principles of the Oxy-Acetylene Process</td>
<td>40</td>
<td>1.5</td>
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<tr>
<td>WELD-102</td>
<td>Oxy-Acetylene Cutting</td>
<td>40</td>
<td>1.5</td>
</tr>
<tr>
<td>WELD-103</td>
<td>Miscellaneous Application, Inspection and Management</td>
<td>40</td>
<td>1.5</td>
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<tr>
<td>WELD-151</td>
<td>Oxy-Acetylene Welding of Ferrous Alloys</td>
<td>120</td>
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280 10

TERM 2

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Subject</th>
<th>Hours</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>DRAF-504</td>
<td>Sketching &amp; Blueprint Reading</td>
<td>60</td>
<td>2</td>
</tr>
<tr>
<td>MATH-507</td>
<td>Mathematics</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>RESC-514</td>
<td>Science</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>WELD-201</td>
<td>Safety Precautions in Arc Welding</td>
<td>5</td>
<td>.5</td>
</tr>
<tr>
<td>WELD-202</td>
<td>Arc Welding Theory</td>
<td>25</td>
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<td>WELD-205</td>
<td>Miscellaneous Welding Theory</td>
<td>20</td>
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</table>

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EMPLOYMENT OPPORTUNITIES:

Students who successfully complete this course may find employment in the fields of:

1. Heavy equipment maintenance and repair.
2. Steel fabrication industry.
3. Steel erection.
4. Industrial maintenance.
5. Heavy construction industry such as: hydro-electric construction, pipeline construction (maintenance), and highway construction.

In general, an increased demand for welders due to new manufacturing methods and expanding economic conditions, provides satisfactory employment prospects for welding course graduates.
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.

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 trade are offered in full-time day classes at the Red River Community College Industrial and Technology Division, as outlined in the attached schedule of 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 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)*

<table>
<thead>
<tr>
<th>Designated Trade</th>
<th>No. of Years</th>
<th>Length of Course (in Weeks)</th>
<th>Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I</td>
<td>II</td>
</tr>
<tr>
<td><strong>Red River Community College, Winnipeg</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Body Repair (Paint Section)</td>
<td>3</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Auto Body Repair (Metal Section)</td>
<td>3</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Auto Body Repair (Paint &amp; Metal Section)</td>
<td>4</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td><strong>Assiniboine Community College, Brandon</strong></td>
<td></td>
<td></td>
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<tr>
<td>Heavy Duty Repair</td>
<td>5</td>
<td>4</td>
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<tr>
<td><strong>Keewatin Community College, The Pas</strong></td>
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<td></td>
</tr>
<tr>
<td>Industrial Electrical</td>
<td>4</td>
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</tr>
<tr>
<td>Industrial Mechanical</td>
<td>3</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Industrial Welding</td>
<td>3</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td><strong>Red River Community College, Winnipeg</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lathing</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Machinist</td>
<td>4</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Painting &amp; Decorating</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Plumbing</td>
<td>5</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Refrigeration</td>
<td>4</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Sheet Metal</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Steamfitting</td>
<td>5</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Woodworking (Factory)</td>
<td>4</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

Prerequisites: Minimum age 16 years and approval of the Director of Apprenticeship, Department of Labour.

For further information contact directly:

**Department of Labour**

**Room 609, Norquay Building, Winnipeg, Manitoba**

**R3C 0P8**

**Telephone 946-7551**

223
"SKILL FOR SECURITY"
## Teacher Education Programs

### COURSES

<table>
<thead>
<tr>
<th>BUSINESS EDUCATION:</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting-Major (One-Year)</td>
<td>232</td>
</tr>
<tr>
<td>Secretarial-Major (One-Year)</td>
<td>232</td>
</tr>
<tr>
<td>Accounting-Major (Two-Year)</td>
<td>233</td>
</tr>
<tr>
<td>Secretarial-Major (Two-Year)</td>
<td>234</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INDUSTRIAL EDUCATION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Arts (Two-Year)</td>
<td>235</td>
</tr>
<tr>
<td>Vocational Industrial</td>
<td>238</td>
</tr>
</tbody>
</table>
Business Teacher Education

ENTRANCE REQUIREMENTS:

TWO YEAR COURSES

A Grade XII standing in 300, 301, or 305 subjects or their equivalents.

Preference is given to applicants who have had satisfactory work experience and to those who have a record of high achievement in high school.

ONE YEAR COURSES

1. A Grade XII standing in 300, 301, or 305 subjects or their equivalents.

Preference is given to applicants who have had satisfactory work experience and to those who have a record of high achievement in high school.

2. Complete standing in the High School Business Education program or standing in a Business Education program of approximately ten months in duration at an approved business college.

To be approved, a Business Education program must consist of the following courses at the Grade XII or equivalent level:

(a) Typewriting 302
(b) Shorthand 302 or Accounting 302
(c) Three of the following: Office Practice, Business Law, Economics, Marketing, Business Management, Business Data Processing, Accounting [Where not applied in (b)], and other approved courses.

All students must have completed an introductory accounting course at or above the Grade XI level.

Other post high school Business Education programs will be considered on an individual basis.

3. Preference will be given to those who demonstrate proficiency in office skills. All candidates* are required to prove established speeds of 50 words per minute in typewriting and demonstrate proficiency in typewriting production. Secretarial candidates must also prove the established speed of 80 words per minute in Pitman Shorthand as well as proficiency in shorthand theory.

* See NOTE

More favourable consideration will be given to those who have maintained a high level of achievement in all Business Education subjects and who have relevant work experience.

Graduates from the two-year Business Administration, Secretarial
Science, and the Computer Analyst/Programmer course at Red River Community College will be considered as eligible for the one-year program.

NOTE: Where an applicant has completed a post-secondary program which would allow him advanced credits in the one-year program, Typewriting will not be a prerequisite. This applies mainly to graduates of Red River Community College and the University of Manitoba, Faculty of Commerce.

Applicants not meeting the above requirements may be admitted as mature students.

MATURE STUDENT — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants will be required to write an entrance exam and appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

All applicants may be required to attend a personal interview. Applicants may be required to submit references from their last school principal and/or employer.

DURATION OF COURSE:

Two school years, each of ten months' duration;

OR

One school year of ten months' duration where the applicant has the Business Education prerequisites.

FEES AND OTHER COSTS:

In 1972-1973, fees are waived for applicants agreeing to teach in Manitoba for one year for each year of training received. Fees for other applicants are $200 per year.

An activity fee of $1.50 per month will be collected at the time of registration.

Books and supplies for the two-year course cost approximately $75 in the first year and $100 in the second year. The cost in the one-year course is approximately $125.

Students being sponsored by Canada Manpower or any other agency will not be expected to pay their own fees.

FINANCIAL ASSISTANCE:

Applicants may apply for Canada Student Loans and Department of Education bursaries.

Applicants for admission to the one-year course may be eligible for sponsorship by Canada Manpower, under C.M.T.P.

EMPLOYMENT OPPORTUNITIES:

The Business Teacher Education course has been established to
meet the certification requirements of the Department of Education for Business Education teachers.

Graduates may be employed in the secondary schools of Manitoba and by Provincial Community Colleges.

Two types of Business Teacher Education courses are offered: the "Secretarial-Major" and the "Accounting-Major."

The "Secretarial-Major" course places greater emphasis on the skill areas, particularly Pitman shorthand. The "Accounting-Major" course places the emphasis on accounting, and includes data processing and a heavier course in marketing.
### ONE YEAR PROGRAM

#### Accounting—Major

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUTE-105</td>
<td>Business Mathematics and Office Machines</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-108</td>
<td>Business Law</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-111</td>
<td>Data Processing I</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-112</td>
<td>Data Processing II</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-204</td>
<td>Economics Principles I &amp; II</td>
<td>160</td>
</tr>
<tr>
<td>BUTE-207</td>
<td>Marketing</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-209</td>
<td>Methods of Teaching Basic Business and Accounting</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-211</td>
<td>Course Construction in Business Education</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-212</td>
<td>Student Teaching</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-213</td>
<td>Educational Testing and Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-216</td>
<td>Methods of Teaching Typewriting</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-217</td>
<td>Business Organization and Management</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-218</td>
<td>Educational Psychology</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-220</td>
<td>Accounting III</td>
<td>200</td>
</tr>
<tr>
<td>BUTE-221</td>
<td>Office Practice</td>
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**TOTAL 1340**

#### Secretarial—Major

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BUTE-105</td>
<td>Business Mathematics and Office Machines</td>
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</tr>
<tr>
<td>BUTE-108</td>
<td>Business Law</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-201</td>
<td>Shorthand Transcription and Typewriting</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-204</td>
<td>Economics Principles I &amp; II</td>
<td>160</td>
</tr>
<tr>
<td>BUTE-205</td>
<td>Marketing I</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-208</td>
<td>Methods of Teaching Skill Subjects</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-209</td>
<td>Methods of Teaching Basic Business and Accounting</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-211</td>
<td>Course Construction in Business Education</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-212</td>
<td>Student Teaching</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-213</td>
<td>Educational Testing and Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-217</td>
<td>Business Organization and Management</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-218</td>
<td>Educational Psychology</td>
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</tr>
<tr>
<td>BUTE-219</td>
<td>Accounting II</td>
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<tr>
<td>BUTE-221</td>
<td>Office Practice</td>
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**TOTAL 1220**
## Two Year Program

**Accounting—Major**

### First Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>COURSE</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BUTE-101</td>
<td>Typewriting</td>
<td>240</td>
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<tr>
<td>BUTE-104</td>
<td>Accounting I</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-105</td>
<td>Business Mathematics and Office Machines</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-106</td>
<td>Office Experience</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-107</td>
<td>Introduction to Business</td>
<td>60</td>
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<tr>
<td>BUTE-108</td>
<td>Business Law</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-109</td>
<td>Communication Skills</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-110</td>
<td>Introductory Psychology</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-111</td>
<td>Data Processing I</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-112</td>
<td>Data Processing II</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-207</td>
<td>Marketing</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-210</td>
<td>Principles of Business</td>
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</tr>
<tr>
<td></td>
<td>Education</td>
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### Second Year

<table>
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<tr>
<th>Subject No.</th>
<th>COURSE</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUTE-202</td>
<td>Office Practice</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-204</td>
<td>Economics Principles I &amp; II</td>
<td>160</td>
</tr>
<tr>
<td>BUTE-209</td>
<td>Methods of Teaching Basic Business and Accounting</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-211</td>
<td>Course Construction in Business Education</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-212</td>
<td>Student Teaching</td>
<td>100</td>
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<tr>
<td>BUTE-213</td>
<td>Educational Testing and Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-216</td>
<td>Methods of Teaching Typewriting</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-217</td>
<td>Business Organization and Management</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-218</td>
<td>Educational Psychology</td>
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</tr>
<tr>
<td>BUTE-220</td>
<td>Accounting III</td>
<td>200</td>
</tr>
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<td>Option Course</td>
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<td></td>
<td><strong>TOTAL</strong></td>
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</tbody>
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233
## TWO YEAR PROGRAM

### Secretarial—Major

#### First Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>BUTE-101</td>
<td>Typewriting</td>
<td>240</td>
</tr>
<tr>
<td>BUTE-102</td>
<td>Shorthand</td>
<td>240</td>
</tr>
<tr>
<td>BUTE-104</td>
<td>Accounting I</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-105</td>
<td>Business Mathematics &amp; Office Machines</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-106</td>
<td>Office Experience</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-107</td>
<td>Introduction to Business</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-108</td>
<td>Business Law</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-109</td>
<td>Communication Skills</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-110</td>
<td>Introductory Psychology</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-205</td>
<td>Marketing I</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-210</td>
<td>Principles of Business Education</td>
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</table>

**TOTAL** 1200

#### Second Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUTE-111</td>
<td>Data Processing I</td>
<td>80</td>
</tr>
<tr>
<td>BUTE-201</td>
<td>Shorthand Transcription and Typewriting</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-202</td>
<td>Office Practice</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-204</td>
<td>Economics Principles I &amp; II</td>
<td>160</td>
</tr>
<tr>
<td>BUTE-208</td>
<td>Methods of Teaching Skill Subjects</td>
<td>120</td>
</tr>
<tr>
<td>BUTE-209</td>
<td>Methods of Teaching Basic Business and Accounting</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-211</td>
<td>Course Construction in Business Education</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-212</td>
<td>Student Teaching</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-213</td>
<td>Educational Testing and Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-217</td>
<td>Business Organization and Management</td>
<td>60</td>
</tr>
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<td>BUTE-218</td>
<td>Educational Psychology</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-219</td>
<td>Accounting II</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Option Course</td>
<td>80</td>
</tr>
</tbody>
</table>

**TOTAL** 1260
Industrial Arts Teacher Education

ENTRANCE REQUIREMENTS:

A complete Grade XII program as prescribed by the Department of Education.

Preference will be given to applicants with proficiency in mathematics and the sciences. Applicants are preferred who have taken courses or who have been employed in situations where skills relevant to Industrial Arts have been developed.

Applicants may be required to write entrance tests and to appear for personal interviews.

Applicants may be required to submit references from their last school principal and/or employer.

Applicants not meeting the above requirements may be admitted as mature students.

MATURE STUDENT — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. An applicant may be required to write an entrance exam and appear for a personal interview. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF THE COURSE:

Two school years, each of ten months duration.

A maximum of one year's credit may be transferred into the two-year Industrial Arts Teacher Education program for suitable training completed prior to enrollment.

FEES AND OTHER COSTS:

In 1972-1973, fees are waived for applicants agreeing to teach in Manitoba for one year for each year of training received. Fees for other applicants are $200 per year.

An activity fee of $1.50 per month will be collected at the time of registration.

Books and supplies for the two year course cost approximately $100 in the first year and $100 in the second year. The cost in the one year course is approximately $125.

FINANCIAL ASSISTANCE:

Applicants may apply for Canada Student Loans and Department of Education bursaries.
TOOLS AND EQUIPMENT:
Relatively expensive tools and equipment are made available by the college. Certain items which, for sanitary or other reasons should be personal property, are purchased by the student.

EMPLOYMENT OPPORTUNITIES:
The Industrial Arts Teacher Education course has been established to meet the certification requirements of the Department of Education for industrial arts teachers.

Graduates may be employed in the Junior and Senior High Schools in Manitoba.
## Industrial Arts

### TWO YEAR PROGRAM

### First Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IATE-101</td>
<td>Drafting and Design</td>
<td>200</td>
</tr>
<tr>
<td>IATE-102</td>
<td>Metalwork</td>
<td>200</td>
</tr>
<tr>
<td>IATE-103</td>
<td>Graphic Arts</td>
<td>200</td>
</tr>
<tr>
<td>IATE-104</td>
<td>Woodwork</td>
<td>200</td>
</tr>
<tr>
<td>IATE-105</td>
<td>Methods of Teaching Industrial Subjects</td>
<td>120</td>
</tr>
<tr>
<td>IATE-109</td>
<td>Communication Skills</td>
<td>80</td>
</tr>
<tr>
<td>IATE-112</td>
<td>Audio Visual Education</td>
<td>60</td>
</tr>
<tr>
<td>IATE-212</td>
<td>Student Teaching</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-110</td>
<td>Introductory Psychology</td>
<td>60</td>
</tr>
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<td></td>
<td><strong>TOTAL</strong></td>
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### Second Year

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>IATE-201</td>
<td>Plastics</td>
<td>200</td>
</tr>
<tr>
<td>IATE-202</td>
<td>Electricity and Electronics</td>
<td>200</td>
</tr>
<tr>
<td>IATE-203</td>
<td>Power Technology</td>
<td>200</td>
</tr>
<tr>
<td>IATE-205</td>
<td>Laboratory Methods in Industrial Arts</td>
<td>80</td>
</tr>
<tr>
<td>IATE-207</td>
<td>General Science</td>
<td>80</td>
</tr>
<tr>
<td>IATE-209</td>
<td>Organizing Industrial Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facilities</td>
<td>60</td>
</tr>
<tr>
<td>IATE-210</td>
<td>Principles of Industrial Education</td>
<td>60</td>
</tr>
<tr>
<td>IATE-211</td>
<td>Course Construction in Industrial Education</td>
<td>60</td>
</tr>
<tr>
<td>IATE-212</td>
<td>Student Teaching</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-213</td>
<td>Educational Testing and Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-218</td>
<td>Educational Psychology</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>1160</strong></td>
</tr>
</tbody>
</table>

TOTAL 237
Vocational Industrial Teacher Education

ENTRANCE REQUIREMENTS:

1. A Grade XI academic standing or standing in the three-year High School Vocational program.

2. A Journeyman’s Certificate in a designated trade or evidence of satisfactory trade training and approved experience in a non-designated trade.

3. A minimum of three years of approved work experience after journeyman certification or the equivalent experience in a non-designated trade.

4. Applicants may be required to write entrance tests and appear for personal interviews.

   Applicants not meeting the above requirements may be admitted as mature students.

MATURE STUDENT — A mature student is considered to be one who is at least 20 years of age on or before September 30, in the year of registration. Applicants will be required to write entrance exams and appear for personal interviews. The Admissions Committee will consider each applicant on an individual basis.

DURATION OF COURSE:

   One school year of ten months’ duration.

FEES AND OTHER COSTS:

   Books and supplies for the ten-month course will cost approximately $100.00.

   An activity fee of $1.50 per month will be collected at the time of registration.

FINANCIAL ASSISTANCE:

   Bursaries are available on the basis of need. Students may also apply for Canada Student Loans. Applicants are advised to investigate the possibility of sponsorship through the Canada Manpower Training Program.

   Students being sponsored by Canada Manpower or any other agency will not be expected to pay for books or fees.

TOOLS AND EQUIPMENT:

   Relatively expensive tools and equipment are made available by the college. Certain items which, for sanitary or other reasons should be personal property, are purchased by the student.
EMPLOYMENT OPPORTUNITIES:

The Vocational Industrial Teacher Education course has been established to meet the certification requirements of the Department of Education for Vocational Industrial teachers.

COURSE OUTLINE

<table>
<thead>
<tr>
<th>Subject No.</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>VITE-101</td>
<td>Trade Theory and Practice</td>
<td>400</td>
</tr>
<tr>
<td>VITE-102</td>
<td>Drawing Interpretation</td>
<td>100</td>
</tr>
<tr>
<td>IATE-105</td>
<td>Methods of Teaching Industrial Subjects</td>
<td>120</td>
</tr>
<tr>
<td>IATE-109</td>
<td>Communication Skills</td>
<td>80</td>
</tr>
<tr>
<td>IATE-112</td>
<td>Audio Visual Education</td>
<td>60</td>
</tr>
<tr>
<td>IATE-207</td>
<td>General Science</td>
<td>80</td>
</tr>
<tr>
<td>IATE-209</td>
<td>Organizing Industrial Education Facilities</td>
<td>60</td>
</tr>
<tr>
<td>IATE-210</td>
<td>Principles of Industrial Education</td>
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</tr>
<tr>
<td>IATE-211</td>
<td>Course Construction in Industrial Education</td>
<td>60</td>
</tr>
<tr>
<td>IATE-212</td>
<td>Student Teaching</td>
<td>100</td>
</tr>
<tr>
<td>BUTE-213</td>
<td>Educational Testing and Evaluation</td>
<td>60</td>
</tr>
<tr>
<td>BUTE-218</td>
<td>Educational Psychology</td>
<td>60</td>
</tr>
</tbody>
</table>

TOTAL 1200
AART-101
Introduction to Advertising
This course is designed to develop an awareness of the advertising business. Special emphasis is on the purposes and kinds of advertising, as well as on the relationship of copy to art.

AART-103
Mechanical Drawing
An introduction to the fundamentals of drafting, commencing with good drafting-room procedure and the use of equipment. Visualization and representation of three-dimensional objects in space. Methods of plotting perspectives, shades and shadows. The practical work consists of drafting exercises in pencil, and in pen and ink.

AART-104
Fundamentals of Drawing
An introduction to the five elements of form through analysis and drawing. The co-ordination of the elements for pictorial imagery and the investigation and application of the media and materials employed by the artist. Subject matter will be life studies.

AART-105
Fundamentals of Design
A study of the elements of design, control of point, line, plane, color, value, texture, surface and space investigation. An introduction to the various materials and media available to the designer. A study of the properties of various media through explanatory exercises and discussions.

AART-106
Fundamentals of Photography
Introduction to the fundamentals of photography. Simple object recording. Photograms, contact printing, development, lighting, light meter and camera usage. Tone, texture, viewpoint, depth of field scale.

AART-108
Introduction to Art
An introductory investigation into the nature of fine arts, primarily painting, drawing, sculpture and the related visual areas. Emphasis will be placed upon the elements within a work of art, the creative process and the sociological importance of art throughout the History of Man.

AART-201
Introduction to Advertising
This course continues the general survey of the advertising business. Students will study the relative merits of the various advertising media. Prerequisite AART-101.

AART-203
Mechanical Drawing
Problems involving the application of the fundamentals covered in course AART-103. Photo retouching, mechanical illustration, etc. Prerequisite AART-103.

AART-204
Drawing
Fundamentals of drawing from life (nude and costumed models). Approaches to anatomical and proportional analysis. Students are exposed to various attitudes and disciplines, both as to medium and concept. Prerequisite AART-104.

AART-205
Fundamentals of Design
The elements of design as related to problems in two and three dimensional applications. A practical study of proper layout design and technique to enable the student to express and render his or her ideas visually. A further study in the use of media and materials as related to artists and designers. This would entail practical explanations of rendering and reproduction techniques. Prerequisite AART-105.

AART-206
Fundamentals of Photography
Application of photographic principles. Reflection, distortion, multiple images, lighting control, motion studies, etc. Recording and interpretation of complex objects. Additional darkroom techniques including enlarging. Introduction to various camera formats. Photography as an artist's tool. Prerequisite AART-106.

AART-207
Reproduction Methods and Materials
A comprehensive look at photomechanical and direct printing proce-
AART-208
Introduction to Art
A further look into the fine arts as seen by the Art Historian. A descriptive analysis of art from Pre-Historic to Contemporary times, with emphasis on the influences and style of the artist. Instruction will be primarily lecture and audio-visual presentation. Prerequisite AART-108.

AART-301
Advanced Photography
Problems related to photographing people, places and things. Experimenting with the camera and process for purposes of communicating a message: camera movements, image distortion, focus variation, exposure and development and darkroom technique. Prerequisite AART-206, or FOTO-200, 201, or equivalent professional experience.

AART-302
Photographic Theory

AART-303
Composition
Development of a sense of line and form, through the study of planes and basic proportions, involving a series of exercises in the use and interpretation of mass, line, texture, shape, rhythm, positive and negative, and tone relationships. Prerequisite FOTO-104.

AART-304
Drawing
Continuation of AART-204 with more stress on finished drawings as applied to both the illustrator and designer. The program will include experimental approaches as well as current techniques of the industry. Prerequisite AART-204.

AART-305
Illustration
Preparation of illustrations from character and costume models and backgrounds. Emphasis on composition, mood, character, and content. Value, form, color and drawing to various media. Prerequisite AART-204 & 205.

AART-306
History of Photography
A survey of the work of the photographic masters with emphasis on style and composition. Study of the development of the photographic media and its ensuing growth. The period covered from the pre-history of photography to the revolution in photography which took place after the First World War.

AART-307
Lighting
Exploration of the theory, means and principles of photographic lighting as they apply to the drawing of the form, shapes and textures of various photographic subjects. The use of basic studio lighting equipment with emphasis on balance, contrast, and exposure control stressed. Prerequisite AART-206 or FOTO-201 or equivalent professional experience.

AART-308
Communication Design
Introduction to visual communication, layout, merchandising and research problems. Development of an idea from comprehension through finished art for reproduction, television graphics, audio-visual story boards and production. Prerequisite AART-205.

AART-310
Visual Exploration
An extended analysis of the visual fields through photography. The program will be handled in a seminar manner and will be aimed specifically at the designer and the illustrator. Prerequisite AART-206.

AART-401
Advanced Photography
Continuation of AART-301 with assigned problems in various photographic disciplines: documentation, pictorialism, journalism, architecture, illustration, etc.; with some attention to the photographic requirements of the audio-visual and television industries. Prerequisite AART-301.
AART-402
Photographic Theory
Continuation of AART-302 with emphasis on aspects of colour photography: trichromatic theory, development of additive processes, subsequent development of contemporary subtractive processes, principles and processing of negative, reversal, and positive print colour stock, colour negative assessment and process control. Prerequisite AART-302.

AART-403
Composition
Continuation of AART-303 with emphasis on symbolic interpretation of two and three dimensional forms and its application in the production of complete photographic visuals. Prerequisite AART-303.

AART-404
History of Photography
Analytical study of the work of influential photographers from 1918 to the present. Special emphasis is placed upon the styles of the recognized modern masters particularly as they apply to present day trends in the media. Prerequisite AART-306.

AART-405
Advanced Illustration
Illustration problems involving a variety of advertising products and services. Editorial illustration in black and white and full or limited color, problems in illustrating clothes and accessories for fashion and advertising promotions. Working to advertising design, fashion and editorial layouts in conjunction with communication design majors. Stress on reproduction requirements; black and white; one, two and full color handling in line, tone and mass. Prerequisite AART-304 and AART-305.

AART-408
Commercial Problems
Creative use of type, letterforms and symbols. Stress on graphic thinking integrating layouts with photography and illustration working with majors in these fields. Black and white and limited color assignments for magazine advertising, brochures, newspaper, direct mail and television graphics, etc. Prerequisite AART-308.

AART-410
Visual Exploration
A continuation of AART-310 with special emphasis on pictorial and aesthetic presentation through documentation of the visual image. The seminar approach will dominate and art and photography will be the directives. Prerequisite AART-310.

AART-411
Professional Practices
Business and studio management and practices; client-photographer relations; production of photographs; physical factors; legal aspects; employer-employee relationships, etc. Prerequisite AART-301.

AART-412
Photographic Problems
Photographic problems involving a variety of products and services, to be done in both black and white and colour; creative solutions to these problems are sought; photography in conjunction with advertising art commercial problems. Specialization will be encouraged based upon the interests and inclinations of the individual student. Prerequisite AART-301 & AART-307.

ABOD-101
Oxy-Acetylene Welding and Cutting
Equipment, fusion welding, braze welding, cutting, both practical and theory. Safety.

ABOD-102
Hand Tools, Power Grinders, Vibrators, Sanding Discs
Glossary of terms, tools and their uses, care and maintenance of tools, methods of using types of discs, production paper, wet and dry sandpaper.

ABOD-103
Basic Metal Working and Soldering
Roughing out, hammering on and off dolly, forging, shrinking, picking and filing. Patching, shaping of flanges, crowns, flat metal panels, body construction, tinning and torch soldering.

ABOD-104
Hydraulic Power Equipment and Alignment of Automobile Bodies
Method of using hydraulic equipment and attachments. Method of alignment of bodies, doors, fenders
and component parts.

**ABOD-201**  
**Hardware Trim and Glass**  
Door assemblies, windows, headlinings, upholstery, mouldings, seats, etc.

**ABOD-202**  
**Alignment of Frame and Body Components**  
Frames, doors, trunk lids, hoods, bumpers and mouldings, etc.

**ABOD-203**  
**Repairing Damaged Vehicles**  
Actual repair of body damage on customer's cars.

**ABOD-204**  
**Spray Painting**  
Equipment: painting equipment, guns, transformers, hoses, compressors, booths and infra-red. Method of using equipment and adjustments.

**ABOD-205**  
**Paint Products and Their Application**  
Primers, lacquers, enamels, acrylic lacquers, thinners, reducers, etc. Methods of using these products.

**ABOD-206**  
**Refinishing Vehicles**  
Cleaning, sanding, masking, priming, glazing and actual refinishing of customers' cars. Pre-delivery cleaning of cars after painting.

**ABOD-207**  
**Collision Damage Estimating**  
Flat rate, time allowance, forms and method of filing, percentages and sublets.

**ACNT-160**  
**Accounting**  
A thorough working knowledge of double entry bookkeeping; adjustments and work sheet for preparation of financial statements; financial statements pertaining to sole proprietorship; special journals; subsidiary ledgers and controlling accounts; inventories; basic accounting principles.

**ACNT-162 & 262**  
**Business Communications**  
Review of functional principles of word usage that are used in speaking and in writing; sentence variety; synonyms, antonyms, homonyms; punctuation; capitalization; use of figures; laboratory work in vocabulary and reading development.

Introduction involving psychological approach to business communications; emphasis is placed on the writing of various types of business letters; writing of research papers and reports that involve other subject areas will provide maximum carry-over through practical assignments and inter-subject integration; preparing the student for effective speaking in various on-the-job situations. Prerequisite ACNT-162.

**ACNT-164 & 264**  
**Business Mathematics**  
Review of basic fundamentals; application of percentage; profit and loss; trade discounts; retail selling; banking; discounting notes and drafts; collection charges, cheques; installment buying; foreign exchange; partnership; annuities; amortization; custom duty; sales tax; insurance and finance; the stock market. Prerequisite ACNT-164.

**ACNT-167**  
**Business Machines**  
The function and use of ten key adding machines and printing calculators and their applications to business calculations.

**ACNT-168**  
**Basic Typewriting**  
Basic Typewriting I: The basic fundamentals and techniques are stressed. Instruction is given in letter styles, addressing envelopes, tabulating, preparing of manuscripts, and the care of typewriter. Speed range 25-35 w.p.m.

**ACNT-260**  
**Accounting**  
The application of accounting procedures, methods, and techniques as they apply to fixed assets; partnerships; formation of limited companies; share capital and retained earnings; flow of funds, payrolls; basic auditing principles and techniques. Prerequisite ACNT-160.

**ACNT-261**  
**Cost Accounting**  
An introduction to the procedures and techniques utilized in accounting for a manufacturing concern. Areas covered include financial statement preparation; job order cost accounting system; process cost accounting system; control of material, labour and
overhead costs; and analysis of cost variances. Prerequisite ACNT-160.

ACNT-265
Principles of Organization & Management

Functions of the Canadian economy; forms of Canadian Business Organization; the role of Government in Canadian business; the finance activity; employment training, labor relations; production cycle; purchasing; inventory control; marketing; administrative organization; office procedures; data collection and processing methods.

ACNT-266
Introduction to Computers

The purpose of this course is to introduce the concepts of the punched card, punched card data processing and computer data processing. Punched card data processing includes duplicating, interpreting, sorting and collating of punched cards. Computer data processing is illustrated by means of computer augmented accounting.

ADMN-101
Accounting

Double entry bookkeeping routine; adjustments and worksheet for preparation of financial statements; financial statements pertaining to sole proprietorship; special journals; subsidiary ledgers and control accounts; inventories; basic accounting principles.

ADMN-102
Economic Principles

An introduction to the basic principles of economics including the basic aims of economic activity, the basic forms of economic systems, the basic forms of business organization, the theory of prices and output under various degrees of competition and application of these theories; monopoly and its control; principles of income determination.

ADMN-103 & 203
Marketing

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. Prerequisite ADMN-103.

ADMN-106
Business Law

This course will be a study of the Canadian Legal system, contracts, sales of goods, real property, forms of business organizations, credit transactions, mortgages, conditional sales, and bills of exchange.

ADMN-109
Introduction to Business

A comparative study of ownership, organizations, capital structure, location, and work force of the various forms of business organizations in Manitoba and Canada.

ADMN-110
Financial Mathematics

The application of mathematics to practical business problems dealing with: simple interest; compound interest; installment payments; annuities; sinking funds; depreciation and present values; evaluation of stocks and bonds.

ADMN-111
Economic Principles

An introduction to the basic principles of economics; theory of output and prices; various degrees of competition; principles of income determination.

ADMN-116
Special Mathematics

An upgrading course in Mathematics to provide the necessary foundation for the courses, Mathematics of Finance and Statistics, where this background of the student is considered deficient.

ADMN-201
Accounting

The application of accounting procedures, methods, and techniques as they apply to fixed assets; partnerships; formation of limited companies; share capital and surplus; payroll; departmental operations; manufacturing concerns; elementary cost accounting; and income taxes. Prerequisite ADMN-101.

ADMN-202
Economic Principles

This is a continuation of course ADMN-102, including the theory of wage termination, history of trade unions and trade union activities, the theory of rent, interest, and profit as a price; public finance; money and banking; national income and national product, business cycles; theory of eco-
nomic stabilization by government action; economic growth and progress. Prerequisite ADMN-102.

ADMN-205
Statistics
This course is an introduction to economic and business statistics. Topics of study include: initiating a statistical investigation; design of samples; tabulation of data; interpretation of data; measures of location and variation; index numbers; time series.

ADMN-208
Accounting
The application of accounting procedures as they apply to fixed assets, partnerships, limited companies, share capital and surplus, departmental operations and manufacturing concerns. Prerequisite ADMN-101.

ADMN-211
Economic Principles
This is a continuation of ADMN-111 including the theory of wage determination, rent interest, and profit. Macroeconomics including monetary and fiscal policies, national income and product, theory of economic stabilization. Prerequisite ADMN-111.

ADMN-217
Introduction to Computers
This course includes an introduction to punch card data processing, computers, flow charting and programming using Fortran IV. Examples will consist mainly of applications of computer processing in business problems.

ADMN-302
International Economics and Trade
A continuation of Course ADMN-202 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 principal issues facing the Canadian firm in a foreign field when exporting and/or importing.

ADMN-304
Labor Economics and Industrial Relations
A study of the Canadian labor market which examines composition of the labor force, unemployment, changing demand for labor, immigration and emigration, cyclical unemployment and the relationship of wages, prices and employment. The course examines the history and development of Canadian unions with particular emphasis on current problems.

ADMN-305
Statistical Analysis
Areas of study include: probability and expectation; sampling and statistical inference; quality control; inventory control; statistical simulation; techniques in the effective application of statistical program. Prerequisite ADMN-205.

ADMN-312
Business Finance
A course to develop skill in planning and controlling the investment in each of the asset accounts. Particular emphasis will be placed on the analysis and interpretation of financial data.

ADMN-313
Personnel
A study of work environment, motivation and morale and their influence on productivity. An examination of procedures for employee recruitment, selection, placement, and training; job evaluation, merit rating, wage structure and employee communications. Case studies allow the students to gain a familiarity with contemporary personnel programs, policies and procedures.

ADMN-314
Selling & Advertising
The function of advertising in the marketing mix; analyzing and translating the needs of the market into buying appeals, selection of advertising and marketing media; the selling process; planning the sales story. Prerequisite ADMN-203.

ADMN-318
Intermediate Accounting-A
A review of accounting procedures and systems - income determination, closing procedures, basis of income measurement, the nature of revenues and costs, accounting principles; Balance sheet - limitations, forms and presentation, standards of disclosure; Revising statements and error corrections - Analysis of the effect of errors, analysis of error working papers, corrections; reconstructing statements from incomplete data and supporting computations; working capital items - Cash and secondary cash resources, receivables, current liabilities, budget-
ing, controlling cash, bad debts, long term liabilities - bonds, mortgages, long term leases; inventory - cost basis of valuation, cost or market replacement basis problems of valuation. Prerequisite ADMN-201.

ADMN-322
Computer Applications in Business
An introduction to computer systems analysis and design and their business applications, accounts receivable, payroll accounts payable, wholesale and retail impact, merchandise information systems, marketing research and information systems. Prerequisite ADMN-217.

ADMN-402
Systems in Business
A study of the latest methods and techniques in the field of Systems that can be effectively utilized by Management.

The course is divided into lectures and practical work so that the student will understand how management can operate with greater efficiency, economy, and control.

ADMN-403
Cost Accounting
The course is an introduction to the problems involved in accounting for a manufacturing concern. Areas covered are financial statement preparation, job order, cost accounting system, process cost accounting system, control of material, labor and overhead costs and analysis of cost variances. Topics are developed through lecture, classroom discussion and problem solving. Prerequisite ADMN-201.

ADMN-407
Production Management and Work Study
An introduction to the concepts and methods of production management to the level of useful application. Types of production; plant layout; product design; planning, costing, and technology selection for maximum utilization of inputs; Production Standards and Work Study; Analysis of investments in equipment; Quality Control; PERT/CPM.

ADMN-409
Retail Accounting and Financial Management
Mathematics and accounting for retail operations: financial statement analysis; accounting for the management of departmental, branch and agency operations; consolidations; accounting for receivables and inventories; equipment; and property lease financing; internal auditing programs.

ADMN-410
Merchandising
A study of merchandising methods of retail organization; how to establish pricing policies; calculating markup required; controlling markdowns; controlling stock shortages; evaluating inventory by cost and retail method; measuring stock turnover; analyzing sales and stock records; planning sales and expenses; factors in profit and loss; retail advertising and sales promotion.

ADMN-411
Public Finance
Study of governmental activities - the theory and structure of taxation. Taxes on income, goods sold and property and their economic consequences. Government borrowing and fiscal policy. The expenditure of Canadian governments. Canadian public finance and the Carter Report. Particular emphasis is placed on local (i.e. Manitoba) taxation changes and problems.

ADMN-412
Finance and Financial Intermediaries
This course is designed to introduce the student to the role or function of financial institutions and markets in the allocation of capital among alternative uses. The second half of the course is a practical approach to the art and science of investment analysis and portfolio management.

ADMN-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.

ADMN-418
Intermediate Accounting-B
Investments in stocks, bonds, funds, and miscellaneous items; plant and equipment - acquisition, use, retirement, depreciation, depletion, revaluations; intangible assets; share capital at time of organization, subsequent changes in capital; retained earnings -
distribution, appropriations, retained earnings statement; financial statement analysis - use of comparative data, special ratios and measurements; statement of source and application of funds. Prerequisite ADMN-318.

ADMN-419
Business Seminar

A study of the administrative process itself; the formulation of business policy and the translation of policy into action. Students, in management size groups will be required to submit a comprehensive report outlining the formation of a company of their choice. The appointment of senior officers and the choice of product will be made by the group. Typical functional areas will be investigated and included if applicable to the operation of the company chosen. The Business Seminar should allow students to draw on information and knowledge acquired to date, thereby integrating all courses in the entire Business Administration Program.

ADMN-420
Risk and Insurance

Principles of risk management and insurance; nature of risk; economic effects; law of large numbers and theory of insurance; the various types of insurance contracts and their interpretation; risk management.

ADMN-421
Marketing Research

A one term course in Marketing Research for advanced undergraduate students in Business Administration. The course emphasizes the use of information in the management of marketing functions.

Considerable attention will be focused on the identification and solution of marketing problems through the systematic collection, analysis, and interpretation of data.

The course will consist of two parts: the first part will be lectures and case discussion. In the second part, an actual comprehensive research project will be undertaken. Prerequisite ADMN-203 & 305.

ADMN-422
Computer Programming

This is a study of the Cobol programming language. Students are required to write several business oriented programs in COBOL and prove them on the I.B.M. 360. Tape and disk concepts will be studied. Prerequisite ADMN-217.

ADRA-101
Fundamentals

Practice in the use of architectural and engineering scales, basic letter form, material symbols, architectural conventions and techniques, orthographic and pictorial drawing.

ADRA-102
Applied Drafting

A study of common building practices, and the production of working drawings for “Residential Dwellings”, and “Industrial, Commercial and Institutional Buildings”.

ADRA-103
Calculation Machine Operation

Practice in using the divisumma 24 calculator when making quantity estimates.

ADRA-104
Surveying & Topographical Drawing

Practice in the use of the transit and level, the plotting of cuts and contours, and the techniques of topographical drawing.

APPL-101
Elementary Circuitry

Theory and practice of circuits containing switches, relays, pilot devices, etc.

APPL-102
D.C. Fundamentals


APPL-103
A.C. Fundamentals

Voltage-current relations in A.C. circuits containing resistance, inductance, capacitance.

APPL-104
A.C. Motors

Single-phase, construction, operating principles and characteristics.

APPL-105
Electrical Code

Application of the Canadian Electrical Code in the appliance field leading to a limited licence.
APPL-106
Electric Ranges
Disassembling, testing and replacing parts, checking out circuits, diagnosing faults, emphasis on circuitry.

APPL-107
Electric Dryers
As above plus servicing the air circulating system.

APPL-108
Automatic Washing Machines
Disassembling, testing and replacing parts, checking out circuits, diagnosing faults. Emphasis is on the mechanics of the machine.

APPL-109
Refrigeration (Household)
Basic refrigeration cycle. Replacing compressors, controls, repairing leaks, recharging system with refrigerant. Test run equipment, etc. (The students will use service manuals, parts and price lists, shop work orders, make out invoices, etc.)

AUTO-101
Shop Practice
Use of hand tools, Measuring instruments. Use of special equipment - hoists, jacks and stands, safety, chassis, lubrication, and servicing. Uses of special lubricants, Light servicing, Tire repair.

AUTO-102
Engines I & II
Fundamental operating, construction and design features and characteristics of two stroke and four stroke cycle internal combustion engines.
Fundamental service, maintenance and overhaul methods and procedures, precision measuring, diagnosis and correction of automotive engine problems.

AUTO-103
Electrical Systems
Wiring diagrams and circuits, Generators, Regulators, Cranking motors, Solenoids and switches, gauges, Ignition systems, etc.

AUTO-104
Fuel Systems & Emission Controls
Carburetors, fuel pumps, filters, gas lines, fuel tank ventilation, exhaust emission controls and air cleaners.

AUTO-105
Tune-Up & Test Equipment
Tune-up machines, compression and vacuum gauges, ignition circuits, carburetor adjustments, gas analysis, engine performance, testing and operation.

AUTO-106
Transmissions and Overdrive
Clutch and pressure plate assemblies, three and four speed synchromesh transmissions, simple planetary gears and overdrive, construction, operating and service fundamentals.

AUTO-107
Rear Axles and Drive Lines
Gears and bearings, Tooth patterns, Universal joints, Positraction and limited slip differentials, Transaxles, Axle Shafts, Etc.

AUTO-108
Hydraulic Brakes
Hydraulic principles, single and dual master cylinders, brake lines and couplings, wheel cylinders, drum brakes and machined drums, disc brakes and machining rotors, power units, controls and switches, bearings, seals and brake fluid.

AUTO-109
Steering and Suspension
Springs, shocks, Wheel Balance, Steering geometry, Steering Gears, Steering alignment, etc.

AUTO-110
Automatic Transmissions
Fluid couplings and torque converters, compound planetary gears, clutches, bands, servos and hydraulic system, construction, operating and service fundamentals.

AUTO-252
Engines - Overhauling

AUTO-253
Electrical and Ignition

AUTO-254
Fuel Systems

AUTO-255
Tune-up Dyna Testing

AUTO-256
Transmissions - Standard and Automatic

AUTO-257
Rear Axles - Drivelines
AUTO-258  
Brakes - Hydraulic, Disc Power

AUTO-259  
Suspension - Balancing - Alignment  
(AUTO-252 to 259 inclusive will be covered in the live garage during the second term of the Automotive Mechanics course).

BAKE-102  
Breads, Rolls, Sweet Doughs

BAKE-103  
Plain and Sweet Pastry

BAKE-104  
Danish and Puff Pastry

BAKE-105  
Cake Making

BAKE-108  
Basics of Baking  
Sanitation, safety, measuring foods, recipes, costing, quality control and salesmanship.

BAKE-110  
Cookies & Short Breads

BAKE-111  
Practical Baking

BARB-101  
Health and Sanitation  
Personal hygiene; public hygiene; mental hygiene; cleanliness; posture; good health habits. Classification of bacteria; three general forms of bacteria; groupings of bacteria; six disease producing bacteria; bacterial growth and reproduction; infection. Methods of sterilization; antiseptics and disinfectants; wet sterilizer; dry sterilizer; proportions for making percentage solutions; safety precautions; sterilization rules. Board of Health; barber examining board; duties of barbering inspector; importance of sanitation; sanitary rules.

BARB-102  
Barbering Implements, Honing, Stropping  
Straight razors; regular shears; tapering shears; clippers; hones; strops; accessory implements. Purpose of honing; preparation for honing; how to hold razor and hone; how to stroke razor; testing razor edge; care of hones. Purpose of stropping; technique of stropping; testing razor edge; care of strops.

BARB-103  
Face Shaving  
Fundamentals of face shaving; four standard positions and strokes; preparing a customer for a shave; preparing the face for shaving; positions and strokes in shaving the neck shave; accidental cuts in shaving; why a customer may find fault with a shave; shaving the moustache; styles of moustaches; shaving the beard; styles of beards; special problems in shaving.

BARB-104  
Men's Haircutting  

BARB-105  
Men's Hairstyling  

BARB-106  
Current Trends in Barbering  
Hairpieces for men. Hair relaxing and processing. Ladies' haircutting.

BARB-107  
Anatomy and Physiology  
Tissues; organs; systems; and skeletal system; bones of the head, face and neck; the muscular system; muscles of the head, face and neck; the nervous system; nerves of the head, face and neck; the circulatory system; blood vessels of the head, face and neck; histology - the microscopic study of the skin and hair.

BARB-108  
Disorders of the Scalp, Skin and Hair  
Justification for study; primary lesions of the skin; secondary lesions of the skin; definitions of disease terms; diseases of the oil glands; diseases of the sweat glands; dandruff; skin inflammations; dermatitis; eczema; types of alopecia; parasitic affections; non-contagious hair affections; skin pigmentations; skin growths; the control of venereal diseases.

BARB-109  
Shampoos, Tonics, Massages  
Preparation of supplies; preparing a
customer; step-by-step procedure for a plain shampoo; inclining method; reclining method; massage manipulations during a shampoo; common faults in shampooing; special shampooing as part of hairstyling, haircoloring and scalp and hair treatments. Composition of hair tonics; when to use hair tonics; how to apply a professional scalp tonic (Scalp steam), benefits of hair tonics. Theory of massage; benefits of scalp massage; step-by-step procedure for a scalp massage; when to recommend scalp treatments; general scalp treatment; special problems - dry scalp treatment; dandruff treatment; alopecia treatment. Benefits of facial treatments; equipment needed; rolling cream massage (plain massage); points to remember in facial massage; facial massage movements using hands; using vibrator; rules to follow in using hands or vibrator; special problems - dry skin facial; oily skin facial; clay pack facial; acne facial.

BARB-110
Light Therapy, Cosmetology
How electricity is produced; forms of electricity; types of electrical circuits; safety practices; high-frequency current; methods of using tesla current; methods of using vibrator; light therapy; composition of light; how light rays are reproduced; how to use ultra-violet and infra-red rays in the shop; benefits of ultra-violet and infra-red rays. Chemistry of water; United States Pharmacopeia; classification of cosmetics for scalp, skin and hair.

BARB-111
Shop Management and General Aspects
Ethics applied in the barber shop; good ethics in the barber shop; bad ethics in the barber shop. Functions performed by a barber shop; types of ownership; selecting the right location; equipping the barber shop; advertising the barber shop; salesmanship in the barber shop; records in the shop; operating expenses; first aid; things to consider when going into business; business law. Origin of the barber; superstitions in barbering; Greek and Roman influence in barbering; rise and fall of barber surgeons; modern trends in barbering. The need for barbering regulations; how barbering regulations are legislated; how barbering legislations are enforced; point by point review of regulations under the barber's act.

BARB-112
Modern Men's Haircoloring
Reasons for learning men's haircoloring; preparation of supplies; uses of hydrogen peroxide; purpose of bleaching; the three layers of hair and their relation to haircoloring; formulas for bleaching and coloring; procedure for doing a virgin bleach; swatch experiments in bleaching; purpose of the patch test in haircoloring; procedure for doing temporary colors including sprays; working with semi-permanent colors; working with permanent colors.

BCHM-304
Organic Chemistry
Similar to CHEM-304 with the omission of the laboratory section. Prerequisite CHEM-204.

BCHM-305 & BCHM-405
Instrumental Biochemical Analysis
Similar to CHEM-305 and CHEM-405, but modified to meet the requirements of Biochemical Technology. Prerequisite ERON-204, CHEM-203, CHEM-204, RESC-207, Concurrently BCHM-314.

BCHM-306 and BCHM-406
Biophysical Chemistry
Course deals with the physical principles, concepts and techniques important in biochemistry. Topics covered are ideal and non-ideal gas behavior, laws of thermodynamics and their application, thermochemistry, liquid and solution properties, biochemical reactions, polymer and colloid chemistry, examination of molecular structure, photochemistry, radiobiology. Experiments are designed to meet the need of the Biochemical Technology Course.

BCHM-307 & BCHM-407
Laboratory Techniques
Theoretical and practical glass-blowing techniques; repair of chemical glassware and construction of simple apparatus. Design and fabrication of apparatus for chemical laboratory use; consideration of problem, choice of materials, design of fittings, vacuum techniques. Fractional distillation. Prerequisite RESC-107, CHEM-307.

BCHM-314 and BCHM-414
Biochemistry
The study of the chemistry and
metabolism of amino acids, proteins, enzymes, carbohydrates, lipids, and nucleic acids. The cell and its components will be included, as well as a discussion on body fluids, hormones and vitamins.

The laboratory session includes studies on basic biochemical compounds and modern biochemical techniques. Prerequisite CHEM-204.

BCHM-315 and BCHM-415
Microbiology
This course deals with microorganisms with respect to their physiology, nutrition, growth, death, environmental effect, culturing, identification, location and application in industry.

The laboratory session includes studies on the microscope, preparation, evaluation, isolation and identification of culture, etc. using modern techniques. Prerequisite CHEM-204.

BIOL-101
Biology
An introduction to the fundamental principles of Biology. Topics include cell theory, cell structure, cells as organizational units, energy transformations in the cell as well as a comparison of the organ systems as elucidated at the various phylogenetic levels.

Note: Subject descriptions for Biol-201 and Terms 3 and 4 subjects for Biological Technology have not been finalized to date.

BLDG-302
Building Construction
The manufacture, testing, properties, types, uses, storage, site handling, inspection, equipment and the methods and procedures of application of ready-mixed concrete, concrete systems, forming systems, steel and masonry block construction.

The laboratory portion of this course is designed to make available all construction materials so the students can build typical structural and architectural systems and test these systems under loads of environmental conditions. Prerequisite CIVL-202, CIVL-205.

BLDG-306
Concrete Construction
Review and design of simple beams, floor slabs and column design. Introduction and applications of prestressed concrete design. Application, construction and design of reinforced concrete footings. Complete design and working drawings of a reinforced concrete project. Prerequisite CIVL-202, CIVL-205, MATH-209.

BLDG-402
Building Construction
The manufacture, testing, properties, types, uses, storage, site handling, inspection, equipment and the methods and procedures applied to brick, stone and wood. Site and building layout, excavation procedures and equipment.

Design of the individual components of buildings based on CSA Standard S16 using the C.I.S.C. handbook. To include design of tension members, columns, column base plate, simple beams, laterally unsupported beams, bolted and welded building connections.

Labs to consist of tours to manufacturing plants and construction sites. Prerequisite ENGL-101.

BLDG-404
Construction Management
Construction company management and control, both in Head Office and field. Relationship between owners, designers, company personnel, public bodies and sub-contractor:

Canadian construction contract law including formation of contract, breach of contract, mechanics liens etc. Construction company financing and insurance. Prerequisite ENGL-101.

BLDG-407
Building Services and Specifications

BLDG-410
Foundations
Stress distribution beneath loaded areas, bearing capacity evaluation; Design of footings (square, rectangu-

BLDG-411
Code Interpretation and Safety
Zoning and building by-laws, regulations and laws relating to building premises, Department of Labour, Workmen's Compensation Act, Electrical, heating and ventilating, air-conditioning and plumbing.

BLDG-412
Estimating
Pre-Tendering investigation; specification, working and shop drawing interpretation; quantity take off; direct and indirect costing; cost accounting cycles and keys.

Contract Management; analysis of actual to estimated costs; subtrade bidding and tendering practices.

Filing and information retrieval systems. Prerequisite BLDG-302, BLDG-402 concurrent.

BUTE-101
Typewriting
Basic Typewriting I: The basic fundamentals and techniques are stressed. Instruction is given in letter styles, addressing envelopes, tabulating, preparing of manuscripts, and the care of the typewriter. Speed range 25-35 w.p.m.

Basic Typewriting II: Stress on speed and accuracy in additional skill-building exercises and practical use of these skills. Speed range 35-50 w.p.m.

BUTE-102
Shorthand
Basic Shorthand I: Training in the elementary principles and practices of Pitman Shorthand. Instruction in reading, writing and transcribing shorthand daily.

Basic Shorthand II: A continuation of Basic Shorthand I with introduction of light dictation and transcription and reemphasis of the basic fundamentals and of the important short forms, contractions, and phrases. Speed range 80-100 w.p.m.

BUTE-104
Accounting I
A course in double entry bookkeeping routine, including special journals, subsidiary ledgers and control accounts, adjustments for the preparation of financial statements, and the preparation of financial statements pertaining to sole proprietorship and partnership.

BUTE-105
Business Mathematics and Office Machines
A course designed to develop knowledge of and skill in the use of office calculating machines. The application of this knowledge and skill is then applied to the solving of Business Mathematics problems. The course is designed to enable the student teacher to present meaningfully the Business Mathematics course taught in the High Schools and Vocational Schools.

BUTE-106
Office Experience
A period during which students will be sent to various business offices to participate in the daily routines. Students will be supervised by experienced office personnel.

BUTE-107
Introduction to Business
A course which introduces future business education teachers to the Canadian business sector. The course concentrates on various aspects of consumer economics such as investing, savings, budgeting, credit buymanship, insurance, home ownership, and government spending and taxation.

BUTE-108
Business Law
Business Law as it relates to business transactions and the legal rights and obligations of individuals. A detailed study of the principles and applications of the topics, contracts, agency, sale of goods, negotiable instruments, bailments, real property, partnerships, corporations, insurance copyrights, patents and trademarks, and wills and inheritances. Students will prepare a casebook for use in teaching High School Business Law.

BUTE-109
Communication Skills
This course involves reading, writing, listening and speaking. The basic purpose is to create an increased awareness of the communication pro-
cess. It is designed to interest and inform, provoke and challenge. Students are presented with both theoretical and practical concepts, emphasis being placed on their application within the education structure.

BUTE-110
Introductory Psychology

This course is concerned with the adjustment concept, understanding the individual's behaviour, personal problems, personality development, the psychology of supervision and group dynamics, and psychological aspects of labour unions and automation in business and industry.

BUTE-111
Data Processing I

This course will acquaint teachers with the basic concepts of data processing, punched cards, flow-charting, programming, and electronic computers. Teachers will be required to teach similar course in Manitoba high schools.

BUTE-112
Data Processing II

A continuation of Data Processing I. In this course, the principles and practices of programming are stressed using a student language. The application of data processing to accounting is a major part of the course.

BUTE-201
Shorthand Transcription and Typewriting

Emphasis on efficient techniques of taking dictation, proper methods of transcribing, and business vocabularies. Speed range 100-120 w.p.m.

BUTE-202
Office Practice

Students review the various office tasks and become proficient in their performance. The various aspects of the Office Practice course taught at the High School and Vocational School levels are discussed. Activities to make the teaching of the course more meaningful are planned and assessed. Simulated office situations and their application to the classroom are considered.

BUTE-204
Economics Principles I & II

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, comparative economic systems, and an analysis of the economy of Manitoba.

BUTE-205
Marketing I

An introduction to the field of marketing concerned with a survey of the process required to transfer goods from the producer to the consumer, determination of market prices, middlemen, warehouse systems, and problems of the manufacturer, wholesaler, and retailer.

BUTE-207
Marketing

An introduction to the field of marketing concerned with a survey of the process required to transfer goods from the producer to the consumer, determination of market prices, middlemen, warehouse systems, and problems of the manufacturer, wholesaler, and retailer.

The second half of the course will be an intensive study of selling, advertising, and retailing.

BUTE-208
Methods in Teaching Skill Subjects

This course is designed to prepare the prospective teacher to instruct in the skill subjects of typewriting and shorthand. Opportunity is provided for the student teacher to observe teaching techniques and to demonstrate teaching techniques.

BUTE-209
Methods of Teaching Basic Business and Accounting

This course is designed to prepare the prospective business education teacher to teach basic business and economics subjects, accounting, and business mathematics. Opportunity is given to participate in micro teaching.

BUTE-210
Principles of Business Education

A course designed to introduce students to the field of Business Education. A basic philosophy of Business Education is developed through a study of the history and legislation relating to vocational business education and of present business education offerings in junior, senior and post-high school institutions. Current
trends in education and the professional status of teachers are discussed.

BUTE-211
Course Construction in Business Education
Development of an orderly procedure for the identification of concepts and instructional units to be used in teaching. The culminating project will be a course outline involving analysis of content, instructional objectives, resource units and sample tests.

BUTE-212
Student Teaching
A period of student involvement in actual classroom practice. Student will be assigned to an experienced teacher in the public school to observe and participate in teaching activities. Informative lectures and conferences will be arranged to prepare, support, and evaluate the student in his student teaching period.

BUTE-213
Testing and Evaluation
A study of how to construct, conduct, and evaluate tests. Purpose of testing. Use of standardized tests. Methods of evaluation of student progress during the school year. Meaning of terminology.

BUTE-216
Methods in Teaching Typewriting
This course is designed to prepare the prospective teacher to instruct in typewriting. Opportunity is provided for the student teacher to observe teaching techniques and to demonstrate teaching techniques.

BUTE-217
Business Organization and Management
This course is designed to prepare students to teach General Business 101 and Business Principles 201 in the Manitoba high schools. The topics taught in these courses will be examined extensively.

BUTE-218
Educational Psychology
The study of growth and development from infancy to maturity, with emphasis on adolescence. The learning process in acquiring skills, ideas, and attitudes. Motives and problems in the life of the individual student. Mental health of the teacher.

BUTE-219
Accounting II
A continuation of Accounting I. The objectives of the course are to master basic accounting procedures and to become familiar with and to appreciate the principles of accounting as applied to the sole proprietorship, partnership and corporation.

BUTE-220
Accounting III
The prerequisite is standing in a recognized course in Bookkeeping. The objectives of the course are to master basic accounting procedures and to become familiar with the use and kinds of accounts, journals, ledgers, and statements required in the operation of a sole proprietorship, partnership, and a corporation: and to become familiar with accepted accounting principles.

BUTE-221
Office Practice
The various aspects of the Office Practice courses taught at the High School and Vocational School levels are reviewed and discussed. Activities to make the teaching of these courses more meaningful are planned and assessed. Simulated office situations and their application to the classroom are considered.

CART-101
Lettering
The course is designed to develop the students' talent and manual dexterity in the art of lettering. The student will, on completion of the prescribed practice, reach a standard that will enable him to produce well formed letters, properly optically spaced, consistent and well-defined strokes and an even tone throughout.

CART-102
Design
This course is designed to cultivate talent for arranging the various elements or copy in a pleasing and forceful way. It will develop the ability to add mood and appropriateness to the written message by using a combination of the various elements and principles of design and typography.

CART-103
Screen Printing
This course is designed to apply the
students' technical and manipulative skills to the art of Screen Printing and to encourage the use of talent and ingenuity in the production of artwork in quantity, using this medium. The student will, on completion of the prescribed instruction, practice and assignments have a sound basic knowledge of paints and solvents.

CART-104 Studio and Shop Skills

Job performance training; standards of conduct and craftsmanship; development of good work habits; working with others. Preparing symbols and designs for competitions. Executing decorative displays. Creation and maintenance of a "morgue" or clip-file. Maintenance of notebook on tips and techniques. Conducted tours of industry. Guest lectures on trade standards and wage scales.

CART-105 Basic Sketching and Illustrating

Anatomy; perspective, rhythm, symmetry and balance. Light and shade, action sketches and stationary objects. Cartoons and stylized figures.

CART-106 Bulletin Sign and Window Lettering

Lettering with enamels and waterproof poster paints; outdoor bulletins; sign cotton, canvas and paper banners; vehicle lettering, techniques in window lettering, cartoons and stylized figures.

CART-107 Mechanical Drawing

Designed to give the Commercial Art student experience in disciplined drawing and the use of drafting instruments. Emphasis is placed on pictorial techniques that are possible by mechanical means. The course develops from the basics of line technique and instrument usage through geometrical drawing to axonometric and perspective drawing.

CART-108 Graphic Arts

This course takes a comprehensive look at photomechanical and direct printing procedures, photoengravings, letterpress, offset lithography, rotogravure, composition, three and four color process, binding and paper problems. The purpose is to provide the student with a basic understanding of graphic arts production requirements, standards and limitations of various reproduction methods.

CBOM-140 Accounting

Fundamental elements of double-entry bookkeeping; use of accounts; analyzing business transactions; recording changes in Asset, Liability and Capital accounts of a Non-trading Organization. Completion of bookkeeping cycle; adjustments; worksheets; financial statements and year end closing. Introduction to Control Accounts; Payroll and Banking. Practice Work sets are assigned in this course.

CBOM-142 and 242 Business Machines

Functions of calculating machines; application to business problems; use of ten-key adding-listing machines; ten-key printing calculators, key-driven calculators, and manual, semi-automatic, fully automatic rotary calculators; ten-key and full-keyboard bookkeeping and accounting machines for accounts receivable, accounts payable, payroll and distribution.

CBOM-144 and 244 Business Mathematics

The fundamentals of arithmetic as applied to business calculations; aliquot parts; percentage; trade discounts; retail selling; payroll; interest; bank discount; mathematics applied to business problems to prepare students for further application to bookkeeping and business machine problems. Prerequisite CBOM-144.

CBOM 146 & 246 Business Communications

The objective of the review of word usage, beginning initially with the study of the parts of speech, is to enable the student to identify the various functions and the effectiveness of all words within any sentence. In addition, the topic areas of capitalization, punctuation, spelling, and the development of an expanded business vocabulary aim to promote the objectives of clear, concise business communication. Prerequisite CBOM-146.

The correspondence section of this course incorporates the mechanics of written expression and the psychology
of modern business activities required for correct and effective communication. Consequently, emphasis is primarily centered on the elements of writing craftsmanship.

These elements are to be emphasized in the review of the basic sentence and the transitional skills taught and mastered for paragraph unity, clarity, and style as well as in the writing of the paragraphs. Transfer and application of these basic skills are to be coordinated in the following subject areas: general introduction to business letters together with specific types of business letters, précis, and report writing.

CBOM-240
Accounting I

Bookkeeping for Trading organizations with Financial Statements; expansion of Purchase Journal and Sales Journal; Accounts Receivable and Accounts Payable. Practice Set I - complete bookkeeping cycle for Trading organizations with simple Special Journals. Prerequisite CBOM-140.

CBOM-241
Accounting II

Bookkeeping for Trade Organizations with financial statements; expansion of purchase journal and sales journal; accounts receivable and accounts payable. Practice Set I - complete bookkeeping cycle for trade organizations with simple Special Journals. Includes above and, end of period adjustments; accruals; expansion of Cash Receipt and cash payments journals; synoptic journal; Voucher System; Departmental Accounting; Practice Set 2 - complete bookkeeping cycle for Trading Organization using Special Columnar Journals.

Note: If students elect both CBOM-240 and CBOM-241, they will include these additional topics: Partnerships; Introduction to Corporations. Practice Set 3 - Complete Bookkeeping Cycle for a Partnership Trading Organization, including payroll. Prerequisite CBOM-140.

CBOM-243
Data Processing

Data Processing cycle; the tabulating and electronic computer systems; functions of commonly used machines; input media; punched cards, punched paper tape, magnetic tape and magnetic ink characters; card planning and layout; codes, introduction to electronic data processing; terminology; methods of computer programming.

CBOM-247
Consumer Education

Contracts and Credit; the use and source of credit, interest and costs, pitfalls of credit, credit unions; Elements of contracts and legal protection available. Schemes and Frauds: Types; Legislation protecting Consumers; Organizations available for consumer protection. Money Management: Budgeting; Savings; Stock and Bonds with relation to Corporations; Mutual Funds; Buying a home; Buying a car; Income Tax; Pensions. Insurance: Types; Rates; Comparisons; Canada Pension Plan, Employment opportunities; Pyramid selling; bait and switch; Unions; misleading newspaper advertising; Wages and working conditions. Debates. Panel discussions, Guest Speakers, Dramatization and Role Playing, projects, written and oral reports. Displays and Exhibits.

CCSC-101 & 201
Philosophy of Child Care and Its Implementation

To introduce the student to child care services as they exist in Canadian society, to study the methods and theories of pre-school education which have influenced the development of child care in Canada and to determine the trends in early childhood education and child care services today. To study child care centres in terms of their program and facilities, focusing on the planning and teaching of a curriculum set out to meet the needs of the child in care.

CCSC-102 & 202
Child Care Forum

To provide a methodology for observation and participation in the preschool setting. To integrate the theoretical with the practical aspects of child care - that is, attempt to relate the principles of child development to practical procedures according to the philosophy of programs studied. To investigate the roles of the teacher and program in relation to the needs of the child.

CCSC-103 & 203
Field Placement

The student will spend one morning per week in child care centres. In
Term I, the pattern will be observation in various centres. In Term II, the pattern will be one of more involvement with children and extended placement at a given centre.

CCSC-104 & 204
Creative Activities

Instructional help from both the Creative Arts and Physical Education Departments will be available for a non-structured exploration of creative activities for children of pre-school age.

CCSC-105
Community Resources

To make the student aware of the resources available in the community and to indicate to the student how to use these resources to the best advantage for the children who will come under her care.

CCSC-206
Physical Care of the Child

This course will provide the student with an understanding of the basic principles of health and health promotion and the physical care that is required during early childhood.

Topics will include recognition of specific health problems, interim measures, hygiene, safety, allergies, communicable diseases, etc.

CCSC-300 & CCSC-400
Independent Studies in Child Care

A chance for each individual student to research a topic of his or her interest under the supervision of an instructor. Strengthening any weak areas of knowledge. Discussion of career goals and plans. Maximum of 3 credit hours.

CCSC-301 & CCSC-401
Curriculum Planning

Learning to deal wisely with the various events of the preschool day and how to organize them and eventually organize weeks’ events. The administration of a preschool will be dealt with.

CCSC-302 & CCSC-402
Child Care Forum

Continued integration of the practical and theoretical aspects of child care on a more individual basis. Helping the student refine skills of working with children.

CCSC-303 & CCSC-403
Field Placement

During term III, the students will spend one day a week in a preschool centre, observing and then participating under supervision. In the fourth term the time spent in a preschool centre will be two three-week periods.

CCSC-306
The Family System

A study of the family interaction with the society, the various ways families organize themselves and the problems they are facing. The aim is an understanding of situations which the students may meet in their work.

CCSC-310
Nutrition and First Aid

A brief survey of the fundamentals of nutrition and dietary considerations with emphasis upon the growing child. Elementary principles of first-aid will constitute approximately one-half of the course.

CCSC-321
Elements of Music for Children

Learning about the use of music in the preschool, songs, rhythm activities, instruments for children.

CCSC-341
Movement Education

Learning about physical activities that children can experience and learn for including dance and the appropriate equipment for such activities.

CHEF-301
Kitchen Management

Review of subject 101 - quality control, purchasing methods, equipment and layout.

CHEF-302
Garde Manger

Advanced Buffet work, planning, setting up and supervising of projects.

CHEF-303
Patisserie

Desserts, fancy pastries, decorating and baking a variety of foods.

CHEF-304
Practical Work

Preparing, planning, writing of Menus, foods and managing a kitchen.

CHEM-101
General Chemistry

Atomic structure; energy levels and
the periodic table; chemical bond; stoichiometry; the gaseous state; properties of liquids; types of solids, changes of state; solutions, colloids; chemical equilibrium; electrochemistry.

CHEM-102
Descriptive Inorganic Chemistry
Atomic theory and periodic classification of the elements. Properties of the elements and their respective compounds. Processes involved in their manufacture, etc.

CHEM-103
Inorganic Qualitative Analysis
Chemical equilibria; ionization; solubility product; complex ions, and other topics pertinent to a study of qualitative analysis; laboratory practice in separation and identification of cations and anions.

CHEM-107
Mechanics & Heat
Statics; kinematics; dynamics; energy; rotary motion; hydrostatics; elasticity; temperature; thermal expansion; radiation, conduction and convection; thermo-dynamics.

CHEM-108
Mechanics, Heat & Electricity
Statics; kinematics; dynamics; energy; rotary motion; hydrostatics; elasticity; temperature; thermal expansion; radiation, conduction and convection; thermo-dynamics; basic electricity, Kinhoff Laws, electrical currents, electric fields and magnetism.

CHEM-115
Microbiology
The characteristics of microorganisms, with emphasis on those which cause disease. Included are the effects of microbes in the body, immunity, allergy, as well as an introduction to epidemiology.

CHEM-203
Inorganic Quantitative Analysis
The theory behind classical quantitative analysis as used in industry. Practical work involves mainly gravimetric and volumetric quantitative analysis. Prerequisite CHEM-102 and CHEM-103.

CHEM-204
Organic Chemistry
A study of aliphatic organic chemistry and related topics including discussion on the characterization of organic reactions. Laboratory: development of basic laboratory techniques and preparation of representative organic compounds related to the theoretical study, including industrially important substances. Prerequisite CHEM-101.

CHEM-207
Optics & Nuclear Chemistry
Light-reflection, refraction, dispersion; interference and diffraction; lenses optical instruments; polarization; relativity; atomic physics; nuclear and nuclear energy; nuclear reactions.

CHEM-304
Organic Chemistry
Aromatic Organic Chemistry to include: structure and nomenclature, preparations and properties; functional group reactions; methods of identification and commercial uses of important members; aliphatic and aromatic hydrocarbons and their derivatives; halogen, nitrogen, sulfur, mono and di-carboxlic acids; esters; proteins; carbohydrates; amino compounds; polynuclear hydrocarbons; etc. The fundamentals of stereochemistry; geometrical and optical isomerism; tautomerism, resonance, simple reaction mechanism.

The laboratory will dwell on the techniques of Organic Chemistry and experiments related to the above topics, including chromatography, electrophoresis, vacuum distillation, carbon-hydrogen train, etc. Prerequisite CHEM-204.

CHEM-305 & CHEM-405
Instrumental Chemical Analysis
Discussion of errors; theory and instrumentation of visible and photoelectric colorimetry; fluorimetry; turbidimetry and nephelometry; spectrophotometry (ultraviolet, visible and infrared); spectrographic analysis (emission and Raman spectra); flame photometry; gas detection and gas chromatography; radiochemistry; potentiometric titration and pH measurements, aquametry; electrodeposition and polarography; coulometry and amperometry; conductometry; chemical microscopy; spectroscopic analysis by comparison; ion exchange mass spectrometry; atomic absorption; spec-
trophotometry; electronic instrumentation related to chemical instruments, etc. Prerequisite ERON-204, CHEM-203, CHEM-204, RESC-207.

**CHEM-306 & CHEM-406 Physical Chemistry**

Ideal and non-ideal gas behavior; the solid state; the three laws of thermodynamics and their applications; general characteristics of liquids and solutions; colligative properties; thermochemistry (heat of reaction, heat of combustion, etc); chemical equilibria; electrochemistry; electrical conductance; phase diagrams; chemical kinetics; surface chemistry and catalysis; colloids (sedimentation osmotic pressure, emulsions, etc) Labo-

**CHEM-307 & CHEM-407 Laboratory Techniques**

Theoretical and practical glassblowing techniques; repair of chemical glassware and construction of simple apparatus. Design and fabrication of apparatus for chemical laboratory use; consideration of problem, choice of materials, design of fittings, vacuum techniques. Fractional distillation. Prerequisite RESC-107.

**CHEM-309 Industrial Chemistry**

Raw material requirements, production and chemical control methods in Canadian industry; industrial water supply and control methods; energy sources; petroleum, rubber and plastics; paints; lacquers and protective coatings; agrichemicals; pulp and paper; industrial electrochemistry; organic and inorganic chemicals; industrial hazards and practices; etc. Prerequisite CHEM-204, MATH-207.

**CHEM-410 Chemical Projects**

A project is required to be satisfactorily completed by all graduating students. This project is to include:

(a) literature search and feasibility, 
(b) practical laboratory work, 
(c) written report. 
Concurrently CHEM-405.

**CHEM-411 Chemical Data Handling**

Course deals with the methods for collecting, analyzing and summarizing analytical chemical data, by correlating the quantitative values and by calculating reliability factors for the summaries. Experimental variables, instrumentation error analysis, factors, sequencing, design and control of bias will be considered. Computations will include the computer with FORTRAN IV LANGUAGE. Prerequisite MATH-307, MATH-312.

**CHEM-412 Economics and Industrial Relations**

The economic section will acquaint the student with modern economic theory and its practical applications to the Chemical Industry and the national economy. Topics will include business organization; theory of price; national income and income distribution; public finance; money and banking; international trade, etc.

The Industrial Relation portion will deal with human relations and its effects on morale and work production; selecting, inducting, training, and promoting employees; merit rating, labor relations; public relations of the chemical business as an industry in the community.

**CHEM-413 Industrial Chemistry**

Raw material requirements, production and chemical control methods in Canadian industry; industrial water supply and control methods; energy sources; petroleum, rubber and plastics; paints; lacquers and protective coatings; agrichemicals; pulp and paper; industrial electrochemistry; organic and inorganic chemicals; industrial hazards and practices; etc.

**CHEM-414; 415; 416**

(Subject content to be determined at a later date)

**CIVL-102 Mechanics**

The basic concepts of statics as applied in the analysis of structures. Forces, moments, free body diagrams, trusses, frames, centres of gravity, centroids and moments in inertia for simple areas. Parallel axis theorem.

**CIVL-103 Surveying**

Methods of measuring distance with

CIVL-105
Strength of Material
Stress, strain, temperature stress, Poisson's ratio, bolted and welded connections, thin walled pressure vessels, torsion; shear force and bending moment.

CIVL-106
Drafting
Principles of Engineering Drawing based on Canadian Standards Association series in the field of drawing practice; instruments and their use; applied geometry; lettering; orthographic drawing and sketching; pictorial drawing and sketching; dimensioning; sections and conventions; intersections and developments; charts, graphs and diagrams; maps and topographic drawing; applied descriptive geometry.

CIVL-202
Mechanics

CIVL-203
Surveying
Cross-section and calculation of areas. Determination of areas and volumes by formula, pick & scale and the polar planimeter. Theory and use of simple, spiral and vertical curves. Special curve problems, moving the back tangent, moving the forward tangent, inaccessible PI's & intersection of a simple curve and straight line. Methods of stadia. Grade staking and slope staking. Prerequisite CIVL-103, MATH-109.

CIVL-205
Strength of Material
Shear force and bending moment diagrams, points of inflection, maximum shear and moment for moving loads. Flexure formula, general shear equation, steel and timber beam design, combined stresses, Mohr's circle, the three moment equation. Prerequisite CIVL-102, CIVL-105, MATH-109.

CIVL-206
Drafting
Detailing of steel, concrete and timber structures, commercial building project, underground services project; street and highway project. Prerequisite CIVL-109.

CIVL-312
Hydraulics

CIVL-316
Photogrammetry

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the photographic mission. Prerequisite CIVL-106, MATH-109.

CIVL-317
Soil Mechanics


CIVL-320
Structural Design

Steel — Analysis and design of tension members, columns and beams. Timber — Design of sawn and glulam beams. Concrete — Basic reinforced concrete theory; analysis and design of simple beams and slabs; design of columns. Prerequisite CIVL-205.

CIVL-321
Street & Highway Design

Preliminary, location and construction survey requirements. Design factors for street and highway design - projected traffic volumes, speed, curvature, superelevation, sight distances, grades, drainage, culvert design, right of way width. Design of rural and urban roadway sections including cross sections, quantities, mass diagram; profiles, plans, cost estimates and specifications required for tendering. Soil considerations including, subgrade, subbase, base course and load carrying capacity of various pavements. Construction methods. Prerequisite CIVL-203, CIVL-206.

CIVL-413
Job Control and Costing

Critical path method of planning and scheduling; network theory; project scheduling; resource allocation; costing and Manpower allocation. Applied industrial psychology.

CIVL-418
Pavement Mix Design


CIVL-419
Geology


CIVL-423
Water Supply and Waste Disposal


CIVL-424
Hydrology

Hydrologic cycle; Hydrologic Equation; Conversion factors; Precipitation - types, measurement, presentation of data; frequency data as a basis of design; Stream gaging; discharge measurements; velocity measurements: rating curves; mass curves; Hydrographs; snow melt. Prerequisite MATH-309, CIVL-312.

CIVL-425
Stabilization

Mechanical Stabilization - description, suitable soils, mixing, compacting.
Mechanical Stabilization with commercial stabilizing agents - Stabilization with lime; description and use, suitable soils, types of lime, lime content. Strength requirements, construction procedures. Stabilization with Portland cement; types of cement treatment, cement content, construction procedures. Suitability of combination of lime and cement. Stabilization with bitumen; types, uses, suitable soils, types of bitumens, bitumen content, strength, moisture content, construction procedures. Various other chemical stabilizers. Prerequisite CIVL-317.

CLLRK-100 Typewriting
A course designed to permit the achievement of typewriting skill with an understanding of business correspondence, reports, tables, forms, and manuscripts, and the building of speed skills.

CLLRK-101 Business Communications
Basic sentence faults; grammar; punctuation; capitalization; sentence structure; spelling.

CLLRK-102 Business Mathematics
The fundamentals of arithmetic as applied to business calculations; aliquot parts; percentage; trade discounts; retail selling; payroll; interest; mathematics applied to business problems to prepare students for a better understanding of other business subjects and the use of business machines.

CLLRK-104 Recordkeeping
A brief overview of a one-write accounting system including accounts receivable and payable, handling of cheques, cash, invoices and related documents.

CLLRK-105 Business Machines
Covers the operation of the Automatic Rotary Calculator or Printing Calculator and their applications in Business. Students who progress at an accelerated rate may elect additional training in machine transcription, other calculating machines, the Key Punch.

COMP-209 Introductory Computer Topics
Boolean Algebra, switching theory, and assembler language programming (PAL-III).

COMP-307 Control Systems
Introduction to linear control systems; frequency response: feedback concepts; Laplace transforms; transfer functions; Bode diagrams; stability; block diagram algebra; control system components; transient response; derivative and integral compensation; example systems.

COMP-309 Logic Circuits and Programming
Basic logic gate circuits; more advanced circuits such as counters, shift registers, A/D and D/A circuits; a continuation of assembly language programming.

COMP-311 Pulse Circuits
A) General circuit analysis including: Kichoff voltage and current laws leading to intro-differential equation analysis using nodal and loop methods, Thevenin theorem, Norton theorem, Reciprocity theorem, and Superposition theorem, Determinant and Matrix solutions.
B) Digital circuit analysis including: Waveform analysis, switching characteristics of transistors, clipping circuits, clamping circuits, AND/OR gates, and multivibrators.

COMP-401 Computer Peripherals
In-depth study of peripheral devices available at RRCC; the RF/RS-08 1/4M word dish, the TU56 DEC tape system and graphics systems.

COMP-402 Muxicomputers
A study of medium and large scale computers. In particular the differences in hardware and in applications.

COMP-403 Computer Projects
Investigation of an approved topic followed by any required construction, testing and the submission of a formal report.

COMP-408 Computer Interfacing
Theory and practice of interfacing peripheral devices to a computer.
COMP-409
Computer Circuits
A continuation of the logic circuits presented in Term III; computer circuits such as adders, subtractors, multipliers and dividers; core and monolithic memory systems and associated gating, etc. computer architecture of the minicomputer (including instruction decoding, etc.).

COMP-410
Computer Systems
Computer control theory and various applications such as relay control, furnace control, parallel generators, etc.

COOK-102
Basic Cookery
Sanitation, safety, measures and recipes, meal planning, stocks, soups, sauces and vegetable cookery.

COOK-201
Garde Manger
Salads, sandwich making, appetizers, buffetwork and meats (Hotel style).

COOK-202
Pastry Shop
Breads, pies, pastries and desserts.

COOK-203
Restaurant Cooking
Beverages, fountain work and breakfast cookery and cooking to order.

CRCO-101
Creative Writing Workshop
Introduction to and practice in a wide variety of writing formats and styles, including stories, opinion, poetry and promotional writing. Students will attempt, through practice and self-criticism, to develop their writing strengths while discovering and correcting their writing weaknesses.

CRCO-102
Reporting Workshop
This course is designed to expose students to situations faced by working reporters, to train them in gathering facts for news stories, and to train them to write in acceptable style for newspapers, magazines and the broadcast media. The course consists largely of covering and writing news stories in a real life situation, rather than being limited to simulated situations.

CRCO-104
Advertising
Basic theory of advertising, oriented to answer the question "Why advertise?" Advertising is considered in relation to the overall marketing function, with emphasis on the kinds of advertising, organization of agencies and departments, procedure in producing an advertisement, and principles of copywriting. Included is a full discussion of sales promotion techniques.

CRCO-105
Principles of Journalism
This is designed to instruct students in the mechanics and theories of news gathering, news writing, and production of a daily or weekly newspaper. Attention is given to the main objectives of a newspaper or newscast program, and to the philosophy behind news communication.

CRCO-201
Creative Writing Workshop
Further development of creative and promotional writing, with intensive practice in researching and writing retail, national and vocational advertisements. A considerable amount of writing will be done for radio and TV. Prerequisite CRCO-101.

CRCO-202
Reporting Workshop
Further development of reporting skills. In addition to newsgathering and reporting, students will compare their writing with published news stories by professionals covering the same or comparable events. Students are encouraged to write news stories on any events which they personally attend or in which they are interested. Prerequisite CRCO-102.

CRCO-203
Radio-TV Lab.
Working with the College's closed circuit TV facilities and tape recorders, students will be trained in the fundamentals of radio and TV production. This training will be closely linked with script-writing done in CRCO 201 and 202. Students will also utilize those skills learned in Oral Communications.

CRCO-204
Advertising Media
A detailed study of the major ad-
vertising media, their strengths and limitations, their respective appropriateness for different kinds of products, and a comprehensive explanation of the technical aspects of these media as they relate to the copywriter. Prerequisite CRCO-104.

CRCO-205

Editing

Principles of copy editing and headline writing, including techniques of improving copy, proofreader's symbols, how to use the style book, development of headline vocabulary, photo editing and the duties of the copy editor in the various media. Prerequisite CRCO-105.

CRCO-207

Photography

Introduction to such fundamentals of photography as correct exposure, flash, and light meter, with concentration on composition of photos, including the posing of people and the taking of on-the-spot news shots. Particular attention will be given to the kind of pictures that should accompany articles and other kinds of writing.

CRCO-208

Design and Graphics

The main objective is to give the writing student a full appreciation of the design and production problems involved in displaying his message effectively. Principles of lay-out and typography are included along with the study of printing processes and the use of color.

CRCO-301

Copywriting Workshop

Major writing assignments will be undertaken in advertising copywriting. These assignments will involve original research, product analysis, media study, criticism, and designing a campaign. Some assignments will be coordinated with those of the Advertising Art course. Prerequisite CRCO-201 and CRCO-204.

CRCO-302

Journalism Workshop

Advanced writing techniques designed to aid the student in coping with complex reporting situations. Covers interpretive reporting, editorials, columns and reviews, as well as the study of magazine markets for freelance writers.

CRCO-303

TV-Radio Lab.

The techniques of electronic communications. Students will further develop their skills in writing news for radio and television broadcast, writing scripts to accompany video tape and film, and planning the production of commercials and programs. Prerequisite CRCO-203.

CRCO-304

Creative Writing

The student will pursue whatever creative writing field seems best for him, based on the previous year's work. From human interest, humor and social comment features to long narratives and plays - the range of choices is wide, and each student will arrange his term program individually. If he chooses, the student may pursue a further study of modern and contemporary literature. Prerequisite CRCO-201.

CRCO-305

Public Relations

An introduction to the public relations profession, its purposes, its functions, its organization and its major goals. Students will consider the problems of industrial and commercial public relations, press information, establishment and publication of house organs. Prerequisite CRCO-202 and CRCO-204.

CRCO-401

Writing Seminar

Discussion of cases and problems in both journalism and advertising writing, enhanced by guest speakers from advertising agencies, public relations offices, newspapers, TV stations and radio stations. Students will be able to compare experiences of dealing with their individual assignments. Prerequisite CRCO-301, CRCO-302 and CRCO-304.

CRCO-402

Advanced Writing Projects

Major work projects done in the student's chosen field. At this stage, the entire project situation will simulate a typical job that the student might be responsible for as a full-fledged copywriter or reporter, complete with intensive research, planning, budgeting, writing and supporting visual materials. All attempts will be made to have this work carried
out in connection with a specific company. Prerequisite CRCO-301, 302, 303, 304 and 305.

CRCO-403
Cultural History
A survey of the principle trends and developments in music, painting, architecture and other related arts. Through the use of slides, films and recordings, an examination will be made of the relationship between the arts and the society in which they exist. The aim of the course will be to provide students in Creative Communications with a general background in the arts to assist in their understanding of many of the forces influencing today's world.

CRCO-404
Special Problems in Advertising
Students will consider a broad range of management problems in advertising, including such topics as: media strategy, adjusting to trends in creative techniques, sales promotion, evaluating advertising effectiveness, retail advertising, international advertising, non-commercial advertising, government controls, and budgeting.

CRCO-405
Interpretive Reporting
A practical course based on community and reading assignments aimed at identifying and interpreting the news. Coverage extends to politics and governmental activity, both civic and provincial, and to the specialized fields of international affairs, business, labor, science, sports, drama, film, music, art and book reviews. The course includes development of contacts and sources, methods of research, use of a newspaper library and morgue, and work in Winnipeg newsrooms.

CRCO-406
Economics and Law
Canada's court system and laws, with particular emphasis on libel and other statutes affecting writers; labor and management; public finance; money; banking and financial structure, consumer price and other indices, types of businesses.

CRCO-407
Freelance Writing
A course designed to emphasize the practical aspects of freelance writing or broadcasting. Particular attention will be given to exploring market requirements in fiction, magazine articles, trade magazine reports, school broadcasts and radio and TV editorials. Students will select a particular market and then devote considerable time to writing and preparing work for that market.

CRCO-408
Copywriting and Copy Editing
Using the copywriting skills developed in the first three terms, the student will prepare a series of sample advertisements for suggested media and those will be included in a presentation portfolio. Students will also develop skills in editing copy by working with the Term II copywriting instructor and students.

CRCO-409
TV-Radio Lab
Students will learn more of the actual day-to-day operation of TV and radio stations. They will gain practical experience through first hand experience in Winnipeg stations where possible, and through further work in the college facilities. Some work will include co-operation with Term II students.

CRCO-410
Public Relations
Students will be placed in a public relations departmental and agency situation, both real and simulated, and will have opportunities to evolve and implement PR projects. Particular attention will be given to the role of research in PR practice.

CRCO-411
Mass Media and Society
A study of the mass media and their effects on society, with particular reference to the major mass media in Canada. This course will take a critical look at the media in relation to entertainment, persuasion, regulations, intellectual stimulation, social change, etc.

CRCO-412
Theatre Arts
An analysis of the ways in which the stage and film can be used for communication. Students will examine the use of stage and film in the development of an idea, reinforcing the idea through stage movement and design,
and the special problems of various presentations.

**DEDR-205**

**Architectural Drafting**

Study of styles and techniques for architectural proposal drawings for a row housing development, complete with the design of individual units and their structural components.

Study and styles and techniques for architectural and structural working drawings for a simple office warehouse, complete with design and structural techniques.

**DEDR-207**

**Mechanical Drafting**

Screw threads, fasteners, keys, rivets, and springs; limits and precision welding drawings; design practices; power transmission. Prerequisite CIVL-106.

**DEDR-208**

**Strength of Materials**

Shear force and bending moment diagrams. Flexure formula, general shear equation, stresses in beams, beam design, combined stresses, Mohr's circle. Prerequisite CIVL-102, CIVL-105.

**DEDR-210**

**Materials**

An introduction to the physical and chemical properties of the commonly used construction materials including steels, non-ferrous metals, concrete, timber, plastics, adhesives, etc.

Introduction study of Workshop technology including metals, their alloys, treatments and their uses, machine tools, manufacturing processes and metal joining techniques.

**DEDR-212**

**Theory of Systems**

Light — Light Sources and their characteristics; light and illuminations.

Sound — Basic principles and characteristics of sound and its control.

Electricity — Basic principles; materials; wiring design; motor and generator fundamentals.

Psychrometry — Heat and change of state; Pressure-Volume-Temperature relationships; introduction to psychrometry and its practical applications.

**DEDR-305 & DEDR-405**

**Architectural Detailing & Design**

Study of styles and techniques for advanced architectural working drawings; technical drawings that provide graphic description of basic building design, graphic presentation and practical application of building construction and strength of material principles; renovation and surveying of existing buildings. Prerequisite CIVL-205, CIVL-206.

**DEDR-308**

**Strength of Materials**


**DEDR-311**

**Building Construction**

Basic methods of construction; qualitative aspects of structural design; code engineering; cost estimates; foundations, structural members and masonry construction; wood, steel and cast in place concrete construction; wall sections; precast and prestressed concrete.

**DEDR-312 & DEDR-412**

**Theory of Systems**

Basic principles of architectural structures; loads on structures; structural requirements; psychrometry; heating and air conditioning; plumbing and sprinkler systems; electric power and lighting; vertical transportation. Prerequisite RESC-204, DEDR-208, MATH-209.

**DEDR-321 & DEDR-421**

**Mechanical Drafting and Design**

Introduction to and practical advanced detail design of manufactured machine components, tigs and fixtures, mechanisms, manufacturing controls and methods. A study of industrial processing plants, fluidics and control systems. Detail design of mechanical and electrical systems and components for buildings. This course is related to DEDR-312 and DEDR-412, DEDR-420 and DEDR-423 in as
much as design projects utilize information from these courses. Prerequisite ENGL-101, DEDR-207, DEDR-210.

DEDR-322 & DEDR-422
Materials & Specifications
A detailed study of the physical and chemical properties of the commonly used engineering materials including steels, non-ferrous metals, concrete, timber, plastics, adhesives, building materials, etc. The following topics will be covered: engineering approach to material selection; material standards; specifications and codes; standardizing bodies and their jurisdiction; material testing and inspection; use of handbooks and catalogues; standard methods for specifying material; commercial sources of supply including stock sizes and grades; techniques of material estimating; quantity surveying; material specifications and contracts.

DEDR-423
Tool and Die Design
Study of tool and die design as related to manufacturing methods. Subjects include: fundamentals of metal cutting tools, standard tooling components, and accessories, pressing and breaking dies, drill jigs, punches, gauges, gauge blocks, work measurement.

DESL-101
Running Gear I (Theory)
Use of hand tools, measuring instruments, special equipment, bearings, gears, seals, chains, fasteners, fittings and tubing, drive lines, axles, clutches, transmissions, and Crawler power trains.

DESL-102
Running Gear II (Theory)
Torque convertors and fluids, powershifts transmissions, front end steering systems, geometry and alignment, brake systems (mechanical and hydraulic), booster and power brakes, hydraulics - principles, systems, formulas, lubrication, types of oils and greases, chassis lubrication.

DESL-103 & 104
Engine Overhaul I & II
Internal combustion, Compression ignition, High speed Diesels, Tune-up, Trouble shooting, Dynamometer Testing, Overhaul and Servicing.

DESL-105
Engine Tune-up
Injection pumps, Fuel injection systems, carburetion, blowers and superchargers, heavy duty electrical generators, regulators, cranking motors, magnetos, ignition systems, etc.

DESL-105 to 156
Inclusive
Will be covered in the live garage.

DNUR-101
Anatomy and Physiology
Study of the structure and function of the human body with emphasis on the anatomy.

DNUR-102
Nursing Fundamentals
This subject presents the knowledge which is the basic groundwork for nursing all patients. The main emphasis is on the basic needs of patients and the nursing measures taken to meet these needs.

DNUR-103
Nursing Techniques
Included in this subject are the knowledge and experiences needed in providing both comfort measures for the patient and basic nursing procedures.

DNUR-201
Anatomy and Physiology
Continuation of DNUR-101, with increased emphasis on physiology and the pathological changes associated with illness and disease. Prerequisite DNUR-101.

DNUR-202
The Growing Family
Understanding the health needs originating in the childbirth period of family life and how these needs are met within the family group, and the nursing actions which assist the family in so doing. Prerequisite DNUR-102 & 103.

DNUR-203
Introduction to Nursing in Illness
This subject is concerned with general disturbances of normal homoeostasis and the nursing actions which facilitate re-establishment of balance. Application of nursing actions is provided through experiences in hospitals and visits by student groups to community health and welfare agencies.
who function to help patients maintain that balance while in the home setting. Prerequisite DNUR-102 and 103.

DNUR-204 Basic Sciences
Study of the procedures and equipment utilized in medical and nursing care of the patient and the basic principles of physics and chemistry which underlie their purpose and function. Included are principles of tractions, monitors, gaseous pressures, suction. Prerequisites DNUR-102 and 103.

DNUR-301 & 401 Nursing of Adults in Illness
The extension of basic nursing knowledge in the caring of adult patients by introducing the psychosocial and pathophysiological processes and expanding on preventive health measures and rehabilitation through patient teaching. The lectures promote an increasing ability to make nursing judgement and to increase the skills in nursing care of patients with complex health problems. Prerequisite - Term 2.

DNUR-302 Medical and Surgical Nursing Experience.
The nursing experiences assigned to students in the clinical periods are arranged for in hospitals and other community health agencies and are related as closely as possible to the health problem being discussed in class. The majority of these experiences deal with adults who are ill or disabled and embraces all of the medical and surgical knowledge required of a general duty nurse at this level of her course. Prerequisite Nursing Term 2.

DNUR-303 & 403 Nursing of Children
This course assists the students to identify nursing problems and to initiate appropriate action arising from physical, mental, emotional and social growth and development needs as they relate to children. Care of the well child, prevention of disease in infants and children and guided clinical experience in the care of sick children in hospitals and at home is included. Prerequisite Nursing Term 2.

DNUR-402 Medical and Surgical Nursing Experience
The majority of these experiences deal with adults who are ill or disabled and embraces all of the medical and surgical knowledge required of a general duty nurse. Emphasis in the final weeks of the term is on the role and responsibility of the diploma graduate nurse as a member of the nursing staff of a hospital or health agency. The length of the clinical experiences increases to the equivalent of four shifts per week, which will where possible include day, evening and night experience. Opportunity is provided for the student to have an elective in the clinical area of her choice. Prerequisite DNUR-301 and 302.

DRAF-504 Sketching & Blueprint Reading
Applied Drafting and Blueprint Reading as applied to the trade.

ENGL-101 Communication
An essentially practical course designed to give technologists experience in preparing, writing and presenting technical documents of the type likely to be encountered in industry.

ENGL-102 Oral Communication (30 hours)
A thirty hour introductory course in oral communication. The objective is to have students become totally involved in the process of effective speaking and critical listening, through the preparation and presentation of formal and informal speaking assignments.

ENGL-103 English and Composition
A refresher course in English grammar and effective organization of sentences and paragraphs. Much of the course will be conducted as a clinic in which individual composition problems may be dealt with.

ENGL-104 English
This course is designed to stimulate an active interest in modern literature and to encourage the student to participate intelligently in the cultural environment. Motion pictures based on the works will be used to supplement the texts. One third of the time available will be devoted to library research techniques and to practising basic writing skills.
ENGL-106
Modern Literature
A survey of the major literary figures from 1900 to World War II and evaluation of their influence on present-day writing. Representative works of some of the following authors will be studied: James, Forster, Joyce, Dreiser, Steinbeck, Faulkner, Hemingway, Lawrence, Shaw and selected poets.

ENGL-107
Oral Communication (80 hours)
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.

ENGL-108
Study Skills (30 hours)
A thirty hour course in which individualized aid is given to students in the fully-equipped Study Skills Centre. The object is to increase reading speed and comprehension and to develop effective study habits.

ENGL-110
Business Communications
A course in the fundamentals of communication in business; techniques of business letters, collecting material and writing reports. Also an examination of the influence of effective communication upon business relations; persuasive writing, editing business news and feature articles for internal or external publication. Basic grammar will be incorporated to the depth indicated by the individual class.

ENGL-112 & 212
Child Care Literature (40 hours)
The aim of the course is to provide an understanding of how the child responds to and is affected by reading material, television and films. Various examples of all three media will be studied in relation to the theories of John Holt, F. Wertham and other social commentators.

ENGL-114
Sales Communication (80 hours)
This course is designed to help develop the potential salesman's communication skills. These skills are speaking, listening, reading and writing. Material from other sales courses is utilized in the form of marketing and business organization case studies, letters and reports.

ENGL-157
Communication
The basic purpose of the course is to create an awareness of the communication process. A second major objective is to train students to communicate effectively both in their work and off-the-job. Additional emphasis is placed on application of these concepts through the development of specific communications skills e.g., reading, writing, listening and speaking.

ENGL-201
Report Writing
This course emphasizes formal report writing and oral presentation of technical information. Additional topics covered: illustrating reports; instruction and description writing; letter of application; employment interview.

ENGL-202
Advanced Communication
Three approaches to effective communication are grouped to form a course in applied English: instruction in improving reading speed and comprehension and improving studying methods; instruction in advanced writing skills, the conveying of thoughts in writing so they can be easily grasped by a reader; and instruction in advanced report writing, using good organization and format to record incidents or evidence and (where applicable) judgments in report writing situations. Prerequisite ENGL-101.

ENGL-203
Communication
The emphasis is on improving written and oral communication skills required in an industrial environment. Topics include writing instruction and information sheets, conducting technical briefings, giving oral instructions, interviewing, and writing letters of application.

ENGL-206
Specifications and Reports
Communication topics emphasize formal report writing and oral presen-
tation of technical information; also covers illustration of reports, letter of application, and employment interview. Specifications topics include interpretation of specifications and the preparation and writing of specifications, standard forms, requisitions, work orders, change orders, purchase orders, etc. Prerequisite ENGL-101.

ENGL-207
Contemporary Literature
Following up ENGL-106, this course will feature a study of the most important writing done since the Second World War. Such authors as Updike, Mailer, Barth, Baldwin and Cheever will figure prominently in the program. Prerequisite ENGL-106.

ENGL-208
Oral Communication (40 hours)
A program similar to that in ENGL-102, but taking 40 hours.

ENGL-209
Study Skills (40 hours)
A program similar to ENGL-108, but taking 40 hours.

ENGL-211
Written English Skills (40 hours)
A refresher course in the basics of grammar and composition. The student is given a rapid, practical review of the transition from word roots, through sentences and paragraphs, to full-length papers.

ENGL-213
Basic Business Communications
A 100 hour course in the fundamentals of effective communication in business. The written portion provides practice in the construction of typical business letters, memorandums, and short reports. The oral portion incorporates basic principles of effective speaking and applies them to situations such as interviewing, conferences, presentations or briefings, informal and formal speeches.

ENGL-214
Advanced Sales Communication (60 hours)
This is a continuation of ENGL-110, but on a higher level, with emphasis on group discussions and conferences. Prerequisite ENGL-114.

ENGL-310
Report Writing
This course examines in depth (60 hours) the total process of researching, preparing, writing and editing all types of business reports. Provision is made for oral presentations where business meetings and conference situations can be simulated.

ENGL-506
Communication
Copy editing is a vital part of layout and design. The course is designed to enable the student to take a realistic and intelligent approach to effective copy editing. The study of the elements of analysis and persuasion in writing develops an increasing awareness of the communications process.

ENGL-413
Business Communications (80 hours)
An advanced course in the effective use of language with special emphasis on the preparation, writing and editing of all types of business correspondence. The majority of the work will involve business letters.

ENGL-501
Communication for Trades (20 hours)
To provide the student with experience in areas of communication skills and to develop clarity of expression. Technical and related topics are considered material for written and oral communications. The course is tailored to fit the needs of the students and the requirements of the Advisory Boards.

ENGL-503
Communication (40 hours)
To provide the student with experience in communication skills and to develop clarity of expression, with an emphasis on written skills. Technical and related topics are used as vehicles for the practice of communication. The course is tailored to fit the needs of the students and the requirements of the Advisory Boards.

ENGL-504
Communication for Apprentices
This course is split into three areas; Business Writing, Oral Communication and World of Work - each one of which is available to the apprenticeship trades. The course area is allocated to the trade by the instructor after consultation with the Department Head responsible for that trade. The course is designed to improve the communication skills of the student.
ENGL-505
Communication for Food Supervisors
The course is designed to aid the students in those aspects of communication that they will encounter as Supervisors in the food trades.

ENGL-506
Communication for Commercial Artists (40 hours)
This course is designed to teach and develop an understanding of the process of communication, written, oral and visual, with direct reference to the Commercial Art Trade.

ENGL-507
Communication for Photo-technicians (40 hours)
This course is designed to teach and develop a facility with communications in the context of business and photography.

ERIC-103
Basic Electrical Instruments
Units & prefixes; lab orientation; practical lab familiarization; care and use of instruments; theory and operation of DC meters - voltmeters, ammeters, ohmmeters, multimeters; loading effects; DC bridges; Basic AC meters; AC bridges and impedance measurements.

ERIC-104
Engineering Drawing
Covers the principles of Engineering drawing including the necessary working knowledge in the care and use of instruments. Provides training in the preparation of drawing and sketches of working quality. Provides an awareness of materials, standards and components.

ERIC-107
Electric Circuits
Ohm's law; power and energy; series and parallel circuits; series-parallel circuits; DC network analysis; Introduction to AC concepts; impedance; series and parallel AC circuits; series-parallel AC circuits; AC network analysis.

ERIC-205
Electrical Layout & Design
This course covers Domestic, Industrial, Power Diagrams and Blueprint Reading, Design Practices, Graphs & Charts, Parts and Specifications.

ERIC-206
Materials
A study of the electrical and mechanical properties of materials: Conductors, insulators, electrical breakdown, basic metallurgy, corrosion, strength properties, specifications, selection and use of materials.

ERIC-209
Computational Techniques
Hands on use of a computer as a problem solving tool. Students use a PDP-8 multi-user, interactive conversational system. Assignments are given to re-enforce the material covered in other courses through the judicious selection of examples and problem assignments.

ERIC-210
Basic Electrical Instruments
VTVM's, basic power meters, Wattmeters, Varmeters, Phase meters power factor measurement, measurements in single phase and three phase circuits, DC and AC bridges and potentiometers, oscilloscopes.

ERIC-211
Electrical Circuits
AC Network analysis; Power in AC circuits; Resonance; Magnetic circuits; Transformers.

ERIC-304
Electrical Circuits
Circuit concepts are developed with the aid of mathematical tools to provide a more illuminating understanding of electrical networks and devices; matrix methods of analysis; application of the Laplace transform method to the solution of transient problems; computer solutions. Balanced and unbalanced three phase circuits.

ERIC-305
Electrical Machines
Fundamentals of the energy conversion process, simple AC generator, commutation, electrical and mechanical features of DC motors and generators. Introduction to the per unit concept for machines. Compound DC machines. Voltage and speed control; volt-ampere and torque-speed characteristics.

ERIC-306
Digital & Computer Control Techniques
Binary numbering system; logical
algebra; logic operations; AND, OR, NOT, NAND, NOR; truth tables; static control system examples.

Computers in Control Systems - concept of a digital computer; characteristics of a real-time system; A/D and D/A conversion; Data acquisition, graphic display and computer control.

ERIC-308 Industrial Electronics

A comprehensive course on electronic amplifiers which discusses pre-amplifiers, power amplifiers and operational amplifiers. The use of amplifiers is illustrated with specific applications from electrical technology.

ERIC-313 Electrical Measurements

Wave forms and AC meters - periodic wave-forms; form factor; rectifier instruments; thermocouple instruments; electrostatic voltmeter.

Power and Energy - Hall effect wattmeter; Thermal converter; polyphase power measurements; power factor meters.

Instrument transformers - current transformers; potential transformers; standard burdens; accuracy classes; effect of C.T's and P.T.'s on metering.

ERIC-317 Electrical Practices and Design

Underwriters, CSA, and Canadian Electric Code; resistance and wire tables; basic circuits and devices; overcurrent devices; conductor selection; grounding; wiring methods and materials; motor conductor sizing and control.

Electrical design and layouts; wiring in hazardous locations; auxiliary systems; main distribution design.

ERIC-405 Electrical Machines


ERIC-406 Control Systems

Linear systems; frequency response; feedback concepts; bode diagrams; stability, transfer functions; block diagram algebra; control system components; example systems.

ERIC-408 Industrial Electronics

Various rectifier and filter circuits for single and three phase; AC to DC and DC to AC conversion by means of SCR and saturable reactor circuits; SCR power control circuits with application to motor speed control and w e l d e r control; digital circuits; and discussion of several special devices.

ERIC-412 Electrical Transmission and Measurements

Transformer concepts - equivalent circuits; polarity testing; exciting and inrush current; harmonics in three phase banks; parallel operation of transformers; auto transformers.

Transmission line topics: analog telemetry systems; digital telemetry systems; power system grounding considerations.

ERIC-414 Switchgear & Protection

Various types of switches; various types of circuit breakers; fault current calculations; protective devices.

ERON-104 Electricity & Magnetism

Comprises basic electricity; DC and AC circuit analysis; frequency spectrum; use of test instruments; basic magnetism; magnetic circuits.

ERON-108 Basic Electronics

Safety; soldering techniques; physical characteristics of components; factors affecting resistance; temperature effects; wire tables; capacitors; types and color coding; tolerances; dielectric strength; wiring and fabrication techniques; vacuum tubes; diodes, triodes; basic amplifiers; biasing techniques.

ERON-204 Electronics

Amplification by vacuum tubes and transistors; amplifier circuits; oscillators; comparison measurement; operational amplifiers for measurement and control; electronic switching and counting circuits. Prerequisite ERON - 104.
ERON-207
Electric Circuits
AC Network analysis; Power in AC circuits; Resonance; Magnetic circuits; Transformers.

ERON-208
Basic Electronics
Vacuum tube analysis; AC load lines; semiconductor characteristics; transistor biasing; transistor circuit configurations; D.C. analysis; graphical analysis.

ERON-209
Logic & Computations
Introduction to number systems, codes and Boolean Algebra. Computer logic and gates, counters and registers. Application of time-shared computer system to mathematical computations.

ERON-210
Basic Electronic Instruments
Application of basic test equipment including VTVM, oscilloscopes, AF and RF signal generators.

ERON-303
Electronic Circuits
Kirchoff's Laws; loop and nodal analysis; circuit response in determinantal forms; analysis of communication circuits including tuned amplifiers, modulators etc.

ERON-304
Electronic Devices
Semiconductor characteristics, amplifiers bias techniques, small signal equivalent circuit analysis, analysis of small signal amplifiers, power amplifiers.

ERON-306
Electronic Measurements
Electronic measuring instruments; AF, RF, and UHF measuring techniques.

ERON-307
Control Systems
Equations of physical systems; hydraulic pneumatic, mechanical and electrical, components of physical systems; transfer functions.

ERON-309
Logic Pulse Circuits
Linear waveshaping of RLC networks; switching characteristics of devices; clipping, clamping and comparator circuits; multivibrators; sampling gates; counting and timing.

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

ERON-404
Electronic Devices
Oscillator circuits, Tunnel diodes, unijunction transistors, Silicon Controlled Rectifiers, Optoelectronic devices, linear integrated circuits, digital integrated circuit families.

ERON-405
Radio Systems

ERON-406
Microwave Systems
Radar: Pulse and Digital Microwave: Radio Relays.

ERON-407
Control Systems

ERON-408
Integrated Circuits
Monolithic and Film Technology, Linear Circuits (OP amps, Comparators, Voltage Regulator, Multipliers, modems), Digital Circuits (Flip-Flops, Counters, Shift Registers, Parity Checkers), Optical Display (7-segment, 5x7 matrix), A/D and D/A Converters, ROM, RAM, PROM circuits, MSI & LSI Circuits.

ERON-409
Electronic Projects
Investigation of approved topic. Construction and testing of the system
in consideration, followed by submission of a formal report.

ERON-411
Communication Theory
Resonant Circuits
RF Amplifiers
RF Oscillators
Amplitude Modulation
Frequency Modulation
Single Sideband
Pulse Modulation
Multiplex Transmissions

FOTO-100, FOTO-200
Photographic Theory

Photographic printing, contact and projection. Darkroom equipment and design.

Colour photography: trichromatic theory, development of additive processes, subsequent development of contemporary subtractive processes, principles and processing of negative, reversal and positive print colour stock, colour negative assessment, process control.

FOTO-101, FOTO-201
Practical Photography-Monochrome
Processing: processing of 35 mm. roll and sheet films, specialized development techniques, elementary process control, post development process.


Printing: production of prints by contact and projection from 35 mm. roll and sheet film negatives, printing paper types, control methods, specialized techniques, e.g. multiple printing, giant enlargements. Retouching and Finishing: negative and positive dye and knife techniques for monochrome and colour, mounting and presentation of photographic work.

FOTO-102, FOTO-202
Related Sciences (Physics)
Properties of matter, definitions of units of measurement: Metric, British, U.S. weights and measures.


Related Sciences (Chemistry)

FOTO-104
Composition and Design
Introduction to letter forms and type suitabilities, experimental analysis in two dimensional design. Layout and designing of brochures, mailing shots, show cards. Suitability of photography and designing for a specific purpose. Principles of composition and perspective.

FOTO-203
English and Related Business Studies

FOTO-204
Graphic Arts

FOTO-205
Practical Photography Colour
Studio work: lighting for colour photography, measurement and control of colour temperature. Exposure control for negative and reversal.

Processing, processing of negative,
reversal and positive print colour stock. Assessment of colour negatives for printing and of prints for colour balance. Process control.

FRIG-101
Safety and Fundamentals
Types of injuries from mechanical causes, electrical and refrigerant burns, explosions, toxic gases, etc. Trade terms, types of heat, heat transfer methods, volumes, pressures, density. Formulas used in calculations. Tools of the trade, fittings and other materials.

FRIG-102
Basic Refrigeration Systems
The refrigeration cycle. Compressors, condensers, refrigerant metering devices, evaporators, refrigerants, oils, temperature controls, charging and testing systems.

FRIG-103
Commercial Systems
Types of systems - Low-temperature, medium temperature; remote; multiple; open type; semi-sealed and sealed units. Defrosting systems - Reverse cycle systems; heat pumps. Types of installations. Application and selection of equipment and accessories, installation of and servicing of equipment, adjusting of controls.

FRIG-104
Calculations
Compressor capacities, speed ratios, evaporator capacity, pipe sizing and component selection.

FRIG-105
Basic Air Conditioning Systems
Direct expansion, water chiller, single, multiple, air and its properties. Types of compressors used. Fans, filters, and air distribution systems.

FRIG-106
Refrigeration Electrical
Electrical circuits, magnetism, motors, relays, controls and control systems. Electrical code as pertaining to refrigeration equipment.

FUSS-102
Kitchen Management & Supervision
FUSS-202
Kitchen Management & Catering
Food production systems, inventory control, equipment operation, scheduling layouts, time studies, tours, and field experiences, supervisory techniques, restaurant service.

FUSS-104
Nutrition
Study of normal nutrition and health and the preservation of nutrients, introductory study of digestive system.

FUSS-105
Sanitation and Safety
Study of the fundamentals of good health, hygiene, sanitary handling, food poisoning, safety rules, legal regulations, fire prevention.

FUSS-203
Diet Therapy
Effect of foods, on disease conditions, preparation of special diet menus.

GART-100
English
Vocabulary development; spelling; punctuation; review of grammar and composition; word-division and proof-reading.

GART-102
Mathematics for Printing
Printer's measure; calculating ems; copy fitting; calculating stock and ink; equations for camera and darkroom.

GART-103
Design and Layout
Principles of Design, balance form and proportion. Introduction into the use of black/white and color in design and layout. An investigation into the use of various type styles. Creative use of typography, exploring its potential in communications design. The production of finished working layouts as applied to newspapers and print.

GART-104, GART-204
Hand Composition
Cycle of basic typesetting operations; principles and practices in composition; machines in the composing room; general mechanical principles in
machine-casting type and materials; accessory mechanisms for typesetting machines.

GART-105, GART-205
Machine Composition
Principles in slug-cast composition; the variables for different kinds of composition, straight matter composition, tabular composition; kinds and purposes of machine models; routine maintenance of machines and equipment; teletypesetter operation.

GART-106, GART-206
Type Imposition
Forms of imposition - signature schemes; sheetwise; work and twist; work and turn; work and tumble, bleed forms; collating marks; problems of imposition; trim; margins; shingling.

GART-107, GART-207
Platen and Cylinder Press
Mechanism of presses; make-ready; underlay; overlay; operating adjustments; anti-offset sprays; inks, characteristics of paper.

GART-108, GART-208
Paste Make-up
Hot type conversion; cold type composition; layout and keylining; ruling; mechanical art; color break; proofing.

GART-109, GART-209
Camera and Darkroom
Light and illumination; refraction and lenses; types of copy; densitometry; photo-materials and their properties; contacting; half-tones; introduction to color.

GART-110, GART-210
Imposition & Platemaking
Imposition layouts; negative and positive stripping; screen tints; step and repeat forms; scribing negatives; chemistry of plate-making; types of press plates.

GART-111, GART-211
Offset Press
Types of feeders; guides; grippers; insertion devices; printing impression unit; inking systems; delivery mechanism; lithographic inks; paper for lithography; chemistry of lithography.

GART-112, GART-212
Bindery Operations
Specification of paper; cutting; folding; binding; basic bindery operations.

HAIR-125
Introduction to Cosmetology
Duties, Responsibilities and grooming.

HAIR-126
Bacteriology, Sterilization and Sanitation
Methods of sterilizing, use of sterilizers.

HAIR-127
Anatomy and Physiology
Cells, organs, muscles, tissues, bones, and systems.

HAIR-128
Shampoos and Rinses
Types of shampoos and rinses, applications of shampoos and rinses.

HAIR-129
Hair and Scalp
Histology of hair, treatment of hair, treatments of scalp, commercial products.

HAIR-130
Hairstyling
Use of equipment, types of styles, wigs and hairpieces.

HAIR-131
Hair Cutting
Use of equipment, techniques.

HAIR-132
Permanent Waving
History of permanent waving, use of equipment, types of cold waves, commercial products, hair straightening.

HAIR-133
Manicuring
Structure and diseases of nail, massages, types of manicuring.

HAIR-134
Tinting and Bleaching
Introduction to tinting and bleaching, methods of application, commercial products, tipping and blending, reconditioning and corrective work.

HAIR-135
Skin and Facial Treatments
Care of skin, application of treatments and massage, masks and packs, special equipment, make-up and eyebrow arching.

HAIR-136
Beauty Salon Management
Salesmanship and shop management.
HAIR-137
Beauty, Charm and Poise
Skin Care and Cosmetic Application - Cleaning, lubricating, stimulating, protection, face shapes, complexions, cosmetic inventory, makeup techniques. Visual Poise - standing, walking, and sitting techniques.
Personality Development - developing a self-image and good working relationships.
Public Speaking - techniques, voice projection, poise, voice control, work pronunciation.
Job Success - attitudes, business techniques, job interviews, resignations.

HEPR-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.

HEPR-311
Fluid Power
Introduction to oil hydraulics; principles of power hydraulics; hydraulic fluids; hydraulic piping and sealing, reservoirs and fluid conditioners; hydraulic actuators; directional controls; directional controls; servo valves; control systems; volume controls; pumps, accessories; and industrial hydraulic circuits.

HEPR-313
Heating and Ventilation
Introduction to and use of ASHRAE Guide and Data Book. Heat and change of state; heat transfer; properties of air psychrometry; psychrometric chart; comfort heating and cooling; air conditioning load analysis; load calculations; heating systems.

HEPR-326
Thermodynamics
The study of the conversion of heat and energy; thermodynamic laws and processes; heat engines and their cycles; gases, vapors, and mixtures.

HEPR-327
Library Research
Supervised technical research with current periodicals. This includes work on Air Conditioning, Refrigeration, Machine Design, I.C. Engines, etc.

HEPR-407
Human Relations and Technical Report
The Human Relations portions involves case study for understanding people, selection and induction, training employees, developing and maintaining morale, effective communications, appraising employee performance, discipline and corrective action. The technical report portion is designed to make use of the technical theory and practice gained throughout the four terms. The data required for the compilation of a major technical report is to be obtained from work conducted on the shop equipment.

HEPR-412
Mechanical Equipment for Buildings
A general study of the mechanical and electrical services for buildings. Valves and piping, plumbing, sprinkler systems, feed water treatment, pumps, fans, electrical controls and lighting.

HEPR-413
Heating and Ventilation
A continuation of Course HEPR-313 with air duct design; equipment selection; air conditioning systems; control systems; air distribution; hand tools in sheet metal; metal allowances; types of seams; dampers; grilles; fans.

HEPR-414
Refrigeration
Simple refrigeration cycles; refrigerants and their properties; compressors; condensers; expansion valves; evaporators; auxiliary equipment.

HEPR-415
Internal Combustion Engines
A course covering the operation of spark ignition and compression ignition engines including; engine components; air cycle approximation; fuel-air cycle approximation (using charts); actual engine cycle; engine friction; detonation; air capacity; carburetors.

HEPR-421
Machine Design
A continuation of course MECH-321 for bearings; screw fastenings; springs; spur gears; helical gears.
HEPR-426
Thermodynamics
A continuation of course HEPR-326 including analysis of vapor and gas power cycles; performances of steam turbines; I.C. engines and steam generators; refrigeration; nozzle theory; introduction of heat transfer.

HOTL-101-201
Food and Beverages

HOTL-102
Sanitation, Safety, Housekeeping

HOTL-103
Typewriting and Business Machines
Introductory basic typewriting to approximately 30 w.p.m. and the use of general business office machines.

HOTL-104
Accounting and Introduction to Business
Double entry bookkeeping routines, special journals; subsidiary ledgers and control accounts; adjustments for the preparation of financial statements; financial statements for proprietorship and partnerships; inventories; accounting principles.
To acquaint the student with business vocabulary, business activity, ownership, organization, purchasing, production, marketing, finance, managerial problems, personnel problems, business regulation and taxation.

HOTL-105
Mathematics
Review of business Mathematics; basic arithmetical calculations; fractions; decimals; percentages; ratio and proportion; the metric system, weights and measures.

HOTL-202
Building and Equipment Maintenance
Fundamentals of the physical environment; heating, air conditioning, lighting, acoustics, electrical systems, plumbing, fire prevention and protection, swimming pools, local by-laws; provincial and federal regulations. Contract maintenance, maintenance records, equipment preventive maintenance.

HOTL-203
Front Office Procedures
The organization of the front office, basic functions; materials; equipment and supplies. Techniques of handling registrations, and reservations for individuals and groups. Handling of cash and credit; sales and accounting records, telephone switchboard, and daily records and reports; practice with modern accounting and posting machines.

HOTL-204
Departmental Cost Controls
This course is an introduction to solving problems involved in cost controls for hospitality firms and institutions. Areas covered are financial statement preparation, special function costing, production costing, controls for material, labour and overhead costs, and analysis of cost variances. Topics are developed through lectures, classroom discussion, problem solving, and cases. Prerequisite HOTL-104.

HOTL-206
Special Catering; Waitress Service
Basic principles for the organization and service requirements for receptions, buffets, luncheons and banquets. The principle types of waitress service; customer service and techniques; the attitudes and responsibilities, grooming and hygiene. Side Work. Wine Service.

HOTL-301
Food Service Operations
This course examines individual types of food service operation; profit operations including hotels, motels, restaurants and catering companies; non-profit operations including industry and business staff feeding, and institutions such as hospitals, schools and others.
HOTL-304
Management Accounting
A study of accounting designed for management in hospitality firms and institutions. Departmentalization of Beverage, Food and Room sales and costs; budgeting; branch accounts; control of accounts receivable and accounts payable. Hotel statistics. Prerequisite HOTL-204.

HOTL-305
Advertising and Marketing Research
The purpose of the course is to teach the student how to make the most effective use of marketing research available, research organizations and agencies. As well, students will perform market research and analysis projects and consider planning for relevant forms of sales promotion.

HOTL-306
Introduction to Computers
This course is an introduction to the basic concepts of punched card and electronic data processing. Punched card data processing includes input media, unit record devices and output media. Electronic data processing includes storage concepts and devices, data representation, flow chart and programming concepts.

HOTL-308
Physical Facilities, Layout and Equipment
A basic study of commercial buildings; their design, layout, specifications as related to usage in the hospitality industry. Working drawings and blue print reading. Equipment and furnishings from the point of view of economy, design and practical requirements.

HOTL-310
Food and Beverage Service
Planning menus, purchasing, preparing and serving complete meals and beverages using specialized facilities. Prerequisite HOTL-310.

HOTL-311
Personnel
A study of work environment, motivation and morale, and their influence on productivity. An examination of procedures for employee recruitment, selection, placement, and training, job evaluation, merit rating, wage structure, and employee remuneration. Case studies allow the student to gain familiarity with contemporary programs, policies and procedures.

HOTL-401
Advanced Foods
The objective of this course is to enable the student to enrich his knowledge and skills in regard to the preparation and serving of foods including nutrition, convenience, and ethnic and gourmet foods, as well as to gain additional experience and ability in solving some of the problems encountered within the Food Service Industry. Prerequisite HOTL-310.

HOTL-402
Specialty, Group and Resource Management
This course is designed to provide the student with practical knowledge in managing various specialized operations in the hospitality industry.

HOTL-403
In-Service Training
As an option to HOTL-401 students may elect to take In-Service Training with various firms and institutions in the hospitality industry serving the community.

HOTL-404
Human Relations, Hospitality Industry
The objective of this course is to train the student to become proficient in various aspects of human relations and organizational effectiveness as these qualities pertain to the hospitality industry.

HOTL-405
Other Elective
Students may elect another subject of their own choice with equivalent or more credit hours offered within the College provided suitable scheduling can be arranged.

HOTL-407
Internal Merchandising and Design
This course is designed to familiarize students in purchasing methods for beverages, foods, and furnishings in the hospitality industry and to enable them to merchandise their products and services intelligently. Emphasis is placed on the selection and specification requirements for regular and special purchases of consumables and furnishings including merchandising techniques and design.
HOTL-408
Seminar and Field Work

An opportunity to visit, observe, investigate and report on all types and sizes of food service operations. The seminar should allow the students to draw on information and knowledge acquired to date thereby integrating all the subjects in the program.

HOTL-409
Beverage Management

Introduction to beverage control in hotels, motel and restaurants. The purpose of this course is to present the basic principles and procedures of effective beverage cost control and sufficient information to enable the student to gain a firm understanding of these principles so he can adapt them to any beverage operation. This course has been limited to the essential principles and procedures of effective beverage control.

HOTL-410
Law and Public Relations

Basic principles of law relating to contracts, negotiable instruments, partnerships, liens and evictions and bylaws together with special acts pertaining to the activities and operations of firms in the hospitality industry.

HOTL-411
Financial Management

This course is designed to introduce the student in Hotel, Motel and Restaurant Management to the art of managing the investments and the sources of funds of the firm. This course emphasizes the dynamic funds flow approach to financial management.

IATE-102
Metalwork


IATE-103
Graphic Arts

Exploring the processes and methods used in graphic communication. Areas studied relate to general layout, relief printing, gravure printing, screen printing, lithography, basic photography, and bookbinding as applied to the teaching of graphic arts related to industrial arts education.

IATE-104
Woodwork

General woodwork processes and their application to industrial arts and education, use and care of woodworking tools and machines. Design, construction, and finishing of wood projects of instructional value. A study of industrial processing of wood products and production methods, wood technology, technical reports and field trips.

IATE-105
Methods of Teaching Industrial Subjects


IATE-109
Communication Skills

This course involves reading, writing, listening and speaking. The basic purpose is to create an increased awareness of the communication process. It is designed to interest and inform, provoke and challenge. Students are presented with both theoretical and practical concepts, emphasis being placed on their application within the education structure.
Audio-Visual Education

Communication principles related to the application of audio-visual media to education. Audio-visual materials and equipment; selection, preparation, utilization, and evaluation in industrial education.

Plastics

A study of the properties and uses of common plastics, including thermoplastic and thermosetting types. Industrial fabrication processes. Use of resins, fibreglass and related materials in the construction of projects incorporating good design. Technical reports.

Electricity and Electronics

Study of the basic principles of electricity and electronics. Investigations of the generation of electricity, electrical circuits, transmission and utilization of electricity. Characteristics and applications of vacuum tubes, semi-conductors, transistors and electronic devices. Use of electrical tools, equipment, materials, and components.

Power Technology

The basic sources of energy, their transformation into useful power and application of this power to do useful work. Theory and application of internal and external combustion engines, turbines, reaction engines, direct energy converters as well as the basic principles of transmitting power by mechanical, fluid and electrical systems are investigated in a manner that is designed to provide the student with an over-all concept of energy, power and its application and control.

Laboratory Methods in Industrial Arts

Special laboratory methods of industrial arts education with emphasis on mass production, group projects, and research and experimentation. Innovative programs in general industrial education. Class participation in organizing and implementing special laboratory methods. Class discussion. Individual reports.

General Science

Study and application of scientific principles basic to each area of industrial education. Metric and international systems of measurement, use of slide rule, mechanics, properties of matter, properties and application of materials, science of computers.

Organizing Industrial Education Facilities

Principles of effective and safe planning of industrial education facilities in relation to the objectives to be fulfilled. Emphasis on location, size, shape of laboratory, and its physical requirements: specifications, purchasing and placement of required equipment and supplies.

Principles of Education

Basic philosophies of education in general and industrial education in particular. Overview of the history and development of industrial education. Role of industrial education in Canada. Federal and provincial programs. Current trends. Emphasis will be placed on vocational industrial or industrial arts education as required. Student research and reports, Seminars.

Course Construction in Industrial Education

Development of an orderly procedure for the identification of concepts and instructional units to be used in teaching. The culminating project will be a course outline involving analysis of content; instructional objectives; resource units and sample tests.

Student Teaching

A period of student involvement in actual classroom practice. Student will be assigned to an experienced teacher in the public school to observe and participate in teaching activities. Informative lectures and conferences will be arranged to prepare, support, and evaluate the student in his student teaching period.

Basic Instrumentation

Basic Electronic measuring instrument theory including correct usage of V.T.V.M., T.V.M., oscilloscope, Basic pneumatic principles including nozzle-flapper mechanism, relay amplifica-
tion, force balance and motion balance mechanisms, applications of the same in indicators, transmitters, etc. Background and correct usage of related pneumatic test equipment. Precision, potentiometric measurement techniques.

INST-204
Instrumentation Layout and Design
Graphic symbols plus Piping Systems, Industrial Electrical, Pneumatic control, Electronics, Hydraulics and control panels, printed circuit boards and blueprint reading. Standards will be used throughout.

INST-207
Electric Circuits & Machines
AC circuit analysis, power in AC circuits; magnetism; transformers; charging and discharging of RC and RL circuits; 3 phase circuits; basic electrical machines.

INST-209
Computational Techniques
(Same as ERIC-209)

INST-301
Fluid Mechanics
Properties of fluids; conversion of units; physical properties of gases; manometers; buoyancy and flotation; fundamentals of fluid flow; fluid flow in pipes; properties of steam: head flow meters - orifice, venturi, flow nozzle; calculations for sizing head flow meters; variable area flow meters; meters for measuring differential pressure; turbine flow meter; magnetic flow meter; positive displacement meters.

INST-302
Process Measurements
Art and science of measurements; calibration; accuracy; errors; instrument flow plan symbols; control instrument mechanism; motion balance; force balance. Temperature measurement; theory and practice of thermocouples; theory of null balancing systems; theory and practice of resistance thermometry; theory and practice of thermistors; filled systems; radiation pyrometry; optical pyrometry; typical applications for temperature measurement and control.

INST-305
Industrial Hydraulics
Hydraulic symbols; fluid power pumps and motors; hydraulic cylinders and rams; accumulators; reservoirs; filtration of hydraulic fluids; pressure control valves; flow control valves; directional control valves; electrical devices for hydraulic circuits; servo systems; industrial hydraulic circuits.

INST-306
Digital and Computer Control Techniques
Logical Algebra, AND, OR, NOT, NAND, NOR: Truth tables, Static logic control systems. Use of computers in control systems. A-D and D-A converters, and Process control by real time computers.

INST-307
Electrical Practices and Design

INST-309
Industrial Electronics
A comprehensive course on electronic amplifiers which discusses pre-amplifiers, power amplifiers and operational amplifiers. An insight into amplifier operation is gained by discussion of several instrumentation measurement problems.

INST-402
Process Measurements
Pressure measurement; mechanical pressure elements; strain gage pressure transducers; electrical pressure transducers; high vacuum measurement. Telemetering; frequency shift; impulse duration. Levels measurement; float type mechanisms; force balance diaphragm systems; sonic level detectors; solids level detectors. Moisture and humidity measurement; psychrometric properties of air; dry-wet bulb humidity measurement. Industrial weighers; viscosity and consistency measurement.

INST-403
Industrial Control Applications
Control system design; flow diagrams; control schematics; wiring drawings; electrical code governing installations. Control valves; control valve bodies; plug characteristics;
actuators; positioners; control valve sizing; sample calculations. Applications in industry-refinery; pulp and paper; textiles; waste disposal.

INST-404 Chemical Instrumentation

Introduction to qualitative and quantitative measurements in analysis. Features of continuous analysis and control. Divisions of analysis, gravimetric, volumetric, optical and electrical. Physical properties useful in continuous analysis. Electrochemical; optical and X-ray; thermal and nuclear and radio-chemical methods. Instrumentation and application are introduced and studied in laboratory concurrently with the theory.

INST-405 Process Analysis

Control, criteria of good control; pneumatic control mechanisms; control modes - proportional, reset, rate; resistance; capacitance; dead time; self regulation; process characteristics; transient response; system frequencies; controller adjustments; cascade control; radio control.

INST-406 Control Systems

Control of linear systems involving modern feedback control theory. Analysis of Bode diagrams, stability transfer functions, block diagrams, and control system components. Use of C.S.M.P. and the analog computer for control system analysis.

INST-409 Industrial Electronics

The following topics are discussed; DC power supplies: SCR control; oscillators; inverters; wave shaping; logic and counting circuits; electrical noise in circuits; transducers; electronic instruments and signal conditioners.

IRIC-101 Measuring Instruments

D.C. and A.C. Electrical Instruments, theory. Includes lab familiarization of VOM, V.T.V.M., Oscilloscopes, Tube testers, etc.

IRIC-102 Vacuum Tubes and Amplifiers

Basic theory of tubes and their applications including lab experimentation.

IRIC-103 Semi- Conductors

Basic theory of transistors and other semi-conductor devices including lab experimentations.

IRIC-104 Industrial Tubes and Semi-Conductor Devices

Basic theory of tubes and semi-conductor devices as they are being applied in industry today. Actual circuits used in industry are constructed and studied in the lab and classroom.

IRIC-105 Sensing Devices

Special devices that are used in industry for a vast number of industrial processes. Devices such as phototubes, gamma-detectors, proximity detectors, etc.

IRIC-106 Static Controls

Solid state unit switching modules. Functions of control systems discussed so that construction of typical industrial control systems can be duplicated in the lab.

IRIC-107 Industrial Blueprint Reading

Explanation of plans and specifications of industrial installations.

IRIC-108 A.C. and D.C. Machines and Controls

Review of D.C. and A.C. machines with emphasis on controls, magnetic and static. Development and analysis of control circuits.

IRON-101 The Gas-Filled Electron Tube

The process of ionization, comparison with vacuum tube, D.C. applications, rectifier applications.

IRON-102 The Thyatron

Theory and operation, basic circuits employing thyatrons, as a control element, amplitude and phase-shift control.

IRON-103 Phase-Shifting Circuits

Resistance, capacitance, and inductance as circuit elements. Vector analysis. Types of phase-shift control.

IRON-104 The Phototube

Light sensitive materials. Phototube
construction and operation. D.C. circuit applications. A.C. circuit applications.

IRON-105
Relays

IRON-106
Semiconductors
Basic theory and structure. The crystal diode. The transistor. Circuit configurations. Other semiconductor devices.

IRON-107
Motor Control Circuits

IRON-108
Pulse Circuits

LIBR-101
History of Libraries and Librarianship
Provides background knowledge of the development of libraries, books and printing; the place and contribution of libraries in society; and some current trends, issues and problems in the field.

LIBR-102
Library Organization and Administration
An introduction to the various types of libraries and the services they provide. Library standards, federal and provincial library legislation. Approaches to the principles of management, supervision and personnel work in libraries, including the place of the library technician. Emphasis is on public libraries.

LIBR-103
Cataloguing and Classification
The basic methods used in cataloguing and classifying library books. Students study the format and preparation of the catalogue card, including sample descriptive cataloguing. They are introduced to the Dewey Decimal Classification system, subject headings, authority files, and the filing of catalogue cards.

LIBR-105
Library Techniques and Routines
Students are introduced to library routines with special emphasis on circulation systems, shelf work, periodicals, inter-library loan work and processing.

LIBR-106
Typing
This course is designed to prepare the students with adequate typing skill to meet the needs and requirements of general library work, which would include typing of cards, book lists, bibliographies, business letters, and duplicating masters.

LIBR-107
Acquisitions of Library Materials

LIBR-201
Cataloguing and Classification
Introduction to various classification systems with emphasis on the Library of Congress system; the cataloguing of nonbook materials; commercial and cooperative cataloguing schemes; automated cataloguing techniques.

LIBR-202
Audio-Visual Techniques and Routines
Operating techniques and simple maintenance of sound and projection equipment. Operation of microfilm readers and copying machines. Preparation of simple audio-visual materials and library displays.

LIBR-203
Special Libraries
A more detailed study of the organization, materials and services of government, business, university, school, children's and young people's libraries.

LIBR-206
Business Practices
The purpose of this course is to provide training on basic business procedures which will prepare the stu-
Leaving corners. Squaring in a bond; duties performed to dents;
Bonding openings. For instruction minimum a library
and partitions.

MASN-101
Introduction, Materials and Tools
History of trade, employment conditions and opportunities, objectives
of course, masonry materials, concrete, tools, scaffolds and modern
power equipment.

MASN-102
Masonry Bonds
American, Common, English \( \frac{1}{4} \) and
\( \frac{3}{4} \) bat; Flemish \( \frac{1}{4} \) and \( \frac{3}{4} \) bat: Dutch:
English Cross; Flemish Cross; Monk;
Garden Wall; All Rowlock.

MASN-103
Definitions
Trade terms; Arris; Accelerators;
Acoustic; Adobe; Abrasives; Aggregate;
Anchor; Angle iron; D.P.C.;
Asphalt; Attic; Basement; Back filling
etc., (over 300 in all).

MASN-104
Walls
Wall types, layout out procedures,
blueprint reading, anchoring methods,
control joints, joint finishing.

MASN-105
Estimating
Quantities of bricks and concrete
blocks and all materials required on
specific projects, including concrete.

MASN-106
Practical Work
Slaking lime, gauging materials,
mixing mortar, adding additives,
mortar boards, handling brick trowel
and hand tools; slicing mortar, fur-
rowing (with hand; against hand;
overhand). Cross joints and buttering;
flushing, making storey poles and
gauge rods. Laying out or chasing
bond; squaring corners. Leaving out
for openings. Bonding connecting
walls and partitions. Picking up and
packing masonry units. Cutting mas-
sonry units. Checking levels. Plumb-
ing and levelling. Ranging corners.
Toothing. Racking back. Blocking,
placing corner line blocks, line pins,
stretching line, sighting line, setting
trigs (twig), tingle brick, setting brick
to line, perpendiculars. Chases and
indents, anchoring techniques, offsets,
corbs, setting frames, striking joints,
tooling joints, sills, copings, lintels,
cleaning masonry, clean work habits

MATH-102
Algebra and Trigonometry
Fundamental concepts, functions,
graphs and trigonometry functions.
Determinants, factors, quadratic. Log-
arithms and exponents, \( \sqrt[n]{a} \) operator,
trigonometry graphs, identities and
equations. Straight line and circle.

MATH-104
Algebra and Trigonometry

MATH-204
Intro. Calculus
Slide rule use in calculations, pow-
ers, roots, logarithms and trigono-
metric functions; algebraic work in
manipulating formulas and solving
linear and quadratic equations. Geom-
etry: graphs of functions; roots and
simult solutions. Complex numbers.
Ratio and proportion. Introduction to
descriptive statistics and calculus (us-
ing formulas and illustrations), and
computer programming.

MATH-106
Algebra and Trigonometry
Fundamental concepts, slide rule,
functions, graphs and trigonometry
functions. Determinants, factors,
quadatic. Logarithms and exponents,
trigonometry graphs, identities and
equations. Straight line and circle.

MATH-107
Algebra and Trigonometry
Elementary statistics, errors and un-
certainties in computations with
measured values; elementary algebra,
slide rule, logarithms, trigonometric
relations and identities, vectors; equa-
tion solution methods, determinants,
introduction to matrices, quadratic
and higher order equations, straight
line circle, parabola, ellipse, polar co-
ordinates.
MATH-109
Algebra and Trigonometry
Right angled triangle, trigonometric functions, $0^\circ$ to $360^\circ$ and radians. Exponents and logarithms. Linear equations, algebraic products and factoring, quadratics, roots of equations. Statistics, errors and confidence. Trigonometric identities. Straight line and circles.

MATH-202
Calculus
Differentiation of powers, products, sums, trigonometry functions, logs and exponentials. Slope, velocity, maxima and minima. Integration, definite and indefinite, area under a curve. Prerequisite Math-102.

MATH-206
Calculus
Algebra, algebraic and trigonometric equations; curve plotting; conic sections; differentiation and integration. Prerequisite MATH-106.

MATH-207
Calculus
Differential calculus and limited applications, maxima-minima, rates, related rates, differentiation of algebraic and transcendental functions, integral calculus with limited applications, the definite integral, area under a curve, methods of integration, algebraic substitutions, integration by parts, partial fractions, and the introduction to logarithms using the desk top computer. Prerequisite MATH-107.

MATH-209
Calculus
3-d geometry. Differentiation of algebraic functions, slopes, maxima, rates, derivatives. Definite and indefinite integration, areas. Use of computer, arithmetic, input and output, formats, IF, DO, DIMENSION, ED, logarithms, flow chart. Prerequisite MATH-109.

MATH-302
Calculus

MATH-303
Calculus
Fourier series, basic Laplace Transforms, basic series, matrices. Use of numerical methods and computer series and basic power series. Prerequisite MATH-202.

MATH-305
Calculus

MATH-306
Calculus
Differential and integral calculus; rates of change, maxima and minima; curve tracing; area lengths, areas, volumes, centroids, moments of inertia. Use of computers and computer languages, P101 (Desk top), PDP 8 (Basic/Focal), IBM 360 (Fortran). Prerequisite MATH-206.

MATH-307
Calculus
Applications of the calculus to chemical problems, rates, min-max, inflection, approximations, uncertainty, areas by Simpson's rule, volumes of revolution, work, heat capacity, partial differentiation and applications to thermodynamics, McLaurin, Taylor and Fourier series, introduction to differential equations, matrix algebra and basic Fortran programming. Prerequisite MATH-207.

MATH-308
Calculus
Fourier series, basic Laplace transforms, matrices, power series. Use of Numerical methods and computer languages. Prerequisite MATH-202.

MATH-309
Mathematics
Statistics: (descriptive and deductive) Frequency distributions, measures of central tendency, measures of dispersion, the standard deviation, standard variables, standard scores, probability theory, binomial, poisson and normal distributions, sampling theory, statistical decision theory, null hypotheses and significance, the chi-square test, correlation and regression.

Calculus: differentiation of transcendental functions, integration of same, integration methods: algebraic substitution, trigonometric substitution, integration by parts, expansion of functions in series, first order linear
differential equations and their application. Prerequisite MATH-209.

MATH-310
Trigonometry
The oblique triangle, computational methods and accuracy. Basic geometrical properties of parallel lines, triangles, circles and spheres. Spherical triangles, right angled, oblique types, sine law, cosine laws. Napier's analogies. Latitude and longitude as spherical co-ordinates. Area of the spherical triangle. Prerequisite MATH-209.

MATH-312
Applications of the calculus to chemical and biochemical problems, min-max, inflection, approximations, uncertainty, areas by Simpson's rule, work, heat capacity, partial differentiation, differential equations applications to kinetics and rate processes and basic Fortran programming. Prerequisite MATH-207.

MATH-402
Numerical Methods
Fortran IV and Subroutines. Multiple integration, Partial differentiation and indeterminant forms. Introduction to and use of statistics, and other selected topics. Prerequisite MATH-302.

MATH-403
Mathematics
FORTRAN programming with emphasis on applications in the Electrical Technology area. Selected topics on Advanced calculus. Introduction to descriptive and inferential statistics.

MATH-408
Numerical Methods
Laplace transforms - waveforms; complex numbers, arc lengths, volumes, attraction, multiple integration. Boolean algebra and sets, convergence of series. analogue computer, binary arithmetic. FORTRAN IV programming. Prerequisite MATH-308.

MATH-427
Statistics and Quality Control
Introduction to statistics as related to quality control; history, definition, statistical quality control training programs; frequency distributions, graphs of frequency distributions, the calculations of range, arithmetic mean, median, mode, variance, and standard deviation; probability distributions; the binomial distribution, the Poisson distribution, and the normal distribution; curve fitting; the method of least squares, inferences based on the least-squares estimators. Probability: introduction, definitions of probability, the addition and multiplication theorems. Permutations and combinations. Prerequisite MATH-306.

MATH-501
Mathematics
Whole number operations, fractions, decimals, percentages.

MATH-502
Mathematics
As 501 as well as denominate numbers, ratio and proportion and signed numbers.

MATH-503
Mathematics
As 502 as well as basic area and volumes.

MATH-504
Mathematics
As 503 as well as right triangle (sides)

MATH-505
Mathematics
As 504 as well as sine, cosine and tangent.

MATH-507
Mathematics
As 503 as well as equations, exponents and square roots.

MATH-508
Mathematics
As 504 as well as equations, special products and factoring.

MATH-509
Mathematics
Algebra, slide rule, trigonometry, vectors and logarithms.

MATH-510
Mathematics
Arithmetic, measured data, algebra, trigonometry, vectors, slide rule, binary and logic.

MATH-511
Mathematics
As 510 as well as logarithms.

MATH-512
Mathematics
As 511 as well as simultaneous equations and AC circuits.
MDRA-101
Fundamentals
Practice in the use of architectural and engineers scales, types of measurement, basic letter form, geometric and orthographic construction, sectioning and pictorial drawing.

MDRA-102
Applied Drafting
Geometric construction; multiview projection; auxiliary projection; sectioning; axonometrics; dimensioning and tolerated; fastening devices; gears and cams; projects shop drawings; mechanical systems layouts; welding and fabrication shop drawings; sheet metal layout; structural steel detail and layout; engineering graphics.

MDRA-103
Calculating Machine Operation and Material Take-off
Practice in using the divisumma 24 calculator when making material take-offs.

MDRA-104
Surveying and Topographic Drawing
Practice in the use of the transite and level, the plotting of cuts and contours, and the techniques of topographical drawing.

MEAT-101
Shop Management
Sanitation, safety, cutting test, salesmanship, equipment and tools. Trade knowledge, composition and grading of meats.

MEAT-102
Butchery of Meats, Fish and Poultry
Breaking down and preparing hinds, fronts, sides, carcasses of meats.

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

MECH-103
Manufacturing Processes
Shaping and planning, milling, broaching, boring, sawing, filing, grinding, measurement and inspection, machine shop practice, forming and time standards.

MECH-104
Mechanical 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.

MECH-105
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.

MECH-106
Management Methods
A general study of the procedures of industrial management; economic geography; business organization; finances of government; introduction to work study; contract law; analysis of bids; introduction to accounting; contracting practice.

MECH-107
Industrial Materials
A general and detailed study of the properties of the materials of industry, including water and steam, industrial gases, ceramic and organic materials, steels, non-ferrous metals.

MECH-205
Applied Mechanics
Dynamics; rectilinear and circular motion, force, motion and mass moment of inertia, work, energy and momentum, mechanisms.

MECH-206
Industrial Electronics
Fundamentals of electronics including such topics as: vacuum tubes, power supplies, amplifiers, oscillators, relays, timers, electronic measurement, fundamentals of electronic control.

MECH-207
Production Welding
A study of the basic physics of the welding processes and influence of material properties on quality. The course emphasizes MIG, TIG, submerged arc, and resistance, welding methods, welding power supplies, the use of welding positioners, effects of different shielding gases, the effects of heat in the fusion zone, heat-treating, together with destructive and non-de-
destructive testing methods, and metallurgical examination.

**MECH-208**  
**Stress Analysis**

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.

**MECH-209**  
**Industrial Fluid Mechanics**

Introductory concepts of fluid pressure, head, force, buoyancy, Bernoulli's equation, orifices, nozzle, hydrodynamics, flow of fluid in pipes. Reynold's number, viscosity, fluids.

**MECH-309**  
**Work Study**

Methods study, motion study, work sampling, work measurement, case studies, report writing, cost analysis, productivity, working conditions, network theory, project scheduling, job overlap, critical path, float, manpower allocation, schedule compression, advanced network techniques and project analysis.

**MECH-321**  
**Machine Design**

Application of strength of materials to mechanical design; simple stress analysis; materials and their properties; variable loads and stress concentrations; couplings; brakes.

**MECH-405**  
**Automation**

A course of study in the design of low-cost automation systems and simple logic devices, using electrical, pneumatic, fluidic, and hydraulic components. The integration of material handling components into such systems is included, such as conveyors, sensors, feeders, and orientors.

**MEDL-101 & MEDL-201**  
**Anatomy and Physiology**

General knowledge of the anatomy and physiology of the body with special reference to the following: Cell theory, transport mechanisms, circulatory system, digestive system, nervous system, excretory system (skin, respiratory and urinary systems), reproductive system and endocrine system.

**MEDL-102 & MEDL-202**  
**Clinical Microbiology 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.

**MEDL-103 & MEDL-203**  
**Clinical Chemistry**

Biochemical analyses of blood and other biological fluids related to diseases, e.g. Kidney function and liver function tests, enzyme studies, body fluid electrolyte balance studies. Basic instrumentation - photoelectric colorimeters, spectrophotometers, autoanalyzer, flame photometer, pH meters, microgasometer, and analytical balances.

**MEDL-104 & MEDL-204**  
**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.

**MEDL-105 & MEDL-205**  
**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, microorganisms and haemosiderin.

**MEDL-106 & MEDL-206**  
**Blood Bank Serology**

Anatomy and Physiology

Classification of bones. Bone description: upper extremity - shoulder, arm, forearm, wrist, and hand; lower extremity - thigh, leg, foot, pelvic girdle; vertebrae, cervical, thoracic lumbar, sacral, coccygeal; ribs and sternum; skull and facial bones. Description of digestive system and accessory organs; respiratory system; circulatory system; urogenital system; lymphatic system; nervous system; endocrine system. Short discussion of pathology most often occurring in each area.

Physics of Electricity and Magnetism

Elementary theory of magnets, magnetic fields, inverse square law, electrostatics, properties of conductors and insulators, electroscopes. 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.

Radiobiology & 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.

Image Recording in Radiography


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.

Related Law

An introduction to our legal system and the administration of justice, to the laws of general contracts, and to the confidences among professional practitioners, patients and employees. Emphasis is given to the importance and legal implications of concise, accurate and detailed medical records.

Medical Records Services

An introduction to the organizational structure of hospitals and medical institutions. A study of the systems and techniques in medical records which serve the interdepartmental relationships within hospitals and other medical institutions; departmental responsibility, and the medical record, contents and component parts, record retention, service assignments.

Medical Terminology and Office Practice

To develop a basic knowledge of medical terminology as required in the Medical Records and as used in transcription of medical dictation; to develop a high level of skill in accurately transcribing medical entries such as histories, reports and medical abstracts. Prerequisite CLRK 100 & STNO-225.

Medical Coding Practices

To develop knowledge of the prin-
ciples of the International Classification of Diseases. Adapted and the application of these principles in medical records. An introduction to the basic principles of other systems of coding; to understand and use the content of disease and operation indexes. Computer programs adapted to processing medical and health records data.

MREC-105
Introduction to Data Processing
Basic means by which medical and health information is processed; manually, electro-mechanically and by electronics. General computer applications relevant to medical and hospital practices. This is an intensive course which precedes MREC-104. Both courses have a common examination.

MREC-106
Seminars
One hour per week is set aside for Seminars during which the students may have special laboratory periods, or other specialized instruction through guest speakers, field trips, or supervised discussion.

NURS-101
Basic Nursing
This course enables the student to obtain knowledge and to develop skills essential for nursing activities. Areas covered include: Organization and Care of the Patient's Environment, Meeting the Basic and Special Needs of the Patient, Admission, Discharge; and Death of the Patient, Diagnostic Procedures, Therapeutic Measures, Aseptic Technique, Charting and Recording.

NURS-102
Anatomy and Physiology
A study of the normal structure and function of the human body from conception of senescence. Areas covered include a study of the following systems: skeletal, muscular, nervous, circulatory, respiratory, digestive, excretory, glandular, endocrine, special senses and the skin.

NURS-103
Medical and Surgical Nursing
This course helps the student to understand how disease and illness affect the human body; and how drugs, diet, treatment and nursing care are used to prevent and cure disease; and to alleviate suffering. A study of drug therapy and microbiology is also included. Other topics include the Surgical Patient, the Geriatric Patient, Rehabilitation and Emergency Nursing Care.

NURS-104
Personal and Vocational Relationships
This course assists the student to adjust to her personal and vocational environment. Topics include History of Nursing, Personal and Vocational Relationships and Responsibilities, The Hospital, and Community Health.

NURS-105
Mother, Newborn and Child

OPER-101
Power Plant Theory and Practice
(a) Section I — Steam Generation
Acts and codes; types of boiler; boiler and furnace construction; heat transfer; theory of combustions; draft, fuels and firing equipment, boiler fittings; pipes and pipe fittings, pumps and injectors.
(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 — Refrigeration
Theory of mechanical compression cycle of refrigeration; types and characteristics of refrigerants. Use of tables; details of evaporators, compressors, condensers; basic controls.

OPER-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.

OPER-103
Instruments and Controls
Fundamentals of temperature; pressure and flow measurement. Control valves; semi-automatic and programming flame failure protection systems;
flame rod and photo electrical cell types and applications; self-actuating controls for refrigeration systems.

OPER-108
Drafting and Blueprint Reading

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

OPER-109
Machine Shop Practice

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

OPER-201 Power Plant Theory and Practice

(a) Section I — Steam Generation

Feedwater systems, feedwater treatment; lubrication, corrosion; mechanical power transmission; fans and air compressors; plant operation; safety; log keeping; cost and efficiency calculations.

(b) Section II — Steam Use

Heating systems, return systems; traps and air venting; heat exchangers; heating in air-conditioning systems. Engine management, operation and maintenance.

(c) Section III — Refrigeration

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

OPER-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.

OPER-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.

OPER-208
Drafting

Shop sketching; orthographic, oblique and isometric sketching and drawing practice. Electrical and pipe-fitting symbols and layout drawings.

OPER-210
Welding

Students will be introduced to oxy-acetylene. The capabilities and the safe operation and proper care of welding equipment.

OSPR-506
Office Systems and Procedures

This course provides an introduction to various legal forms of business, government regulations and taxation, management and motivation of personnel, labour management relations and marketing in our economy.

PDEC-101
Introduction Safety, Study and History of Trade

Objective is to familiarize student with requirements for in-school training, conduct on job, and short history of trade.

PDEC-102
Basic Components of Paint

Pigments, extenders, vehicles, binders, thinners, driers, formulas.

PDEC-103
Preparation and Application of Coatings Interior - Exterior

Prime coats, undercoats, finish coats.

PDEC-104
Tools, Equipment and Safety

Care of brushes, rollers, spray equipment, ladders, trestles and scaffolds.

PDEC-105
Re-Painted Surfaces

Plaster, wood, concrete, brick.

PDEC-106
Paint Failures, Causes, and Remedies

Plaster surfaces, stone board, concrete, brick.

PDEC-107
Wood Finishing

Hardwood, open grain, hardwood close grain, soft woods, oil stains, spirit stains, water stains, chemical stains.

PDEC-108
Basic Color Theory and Mixing

Systems of color study, color pig-
ments, classification of color pigments, color preparation, color retention, psychological effects and color styling.

PDEC-109  
Paper Hanging and Wall Coverings  
Preparing surfaces, sizes, cutting and pasting, hanging, stair wells.

PLUM-101  
Introduction to Plumbing  
Type of work, tools, materials, equipment, safety.

PLUM-102  
Piping  
Cast iron, galvanized iron, copper, lead, plastic, glass, uses of each, methods of assembling, supporting, handling, storing, and types of tools used with each.

PLUM-103  
Regulations, Project Installations  
Interpretation of plumbing code, sizing of sewers, drains, stacks, vents, etc. drawing layouts and constructing actual installations from layouts and blueprints to simulate projects in industry and adhering to code regulations.

PLUM-104  
Sheet Lead  
Weights, methods of flashing roof terminals, making lead trays, lead burning and lead soldering.

PLUM-105  
Torches  
Gasoline, propane, acetylene and natural gas, repairing, storing, and safety precautions to be adhered at all times in handling same.

PLUM-106  
Pumps  
Types, sizing, installing and making minor repairs.

PLUM-107  
Builder's Level  
Setting up, determining bench mark, elevations and grades.

PLUM-108  
Rigging and Signalling  
Types of knots used in hoisting materials, types of signals used in hoisting.

PROD-302  
Metallurgy  
Mechanical and non-destructive tests, macro examination of metals, micro examinations, solidification of metals, phase diagrams and their interpretation, 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.

PROD-312  
Non-Destructive Testing  
Licensing of NDT technicians, flaws and their detection, zero defect programs, photography and its principles, ultrasonic flaw detection by longitudinal, shear, and surface waves, calibration of ultrasonic transducer shoes, dye penetrants and leak testing, magnafux, eddy current testing, theory and practice of radiography with tube and gamma camera.

PROD-331  
Tool Design  
Elastic and plastic bending, design for deformation in tooling, residual and fatigue stress, die sets, punches, dies, strippers and accessories for piercing, blanking, and bending, stock material layouts for presswork, presses, tolerances.

PROD-403  
Advanced Manufacturing Processes  
Induction heating methods and design of induction heating coils, machineability and the freecutting metals, tooling and production in single and multiple spindle automatic lathes, precision grinding, distortion and distortion control in heat-treating, metal cleaning, finishing, and plating, programming for numerically-controlled machine tools using word address and tab sequential tape formats and APR language, optical comparator methods, and surface roughness recording and analysis.

PROD-411  
Production Planning and Layout  
The shop and office organization of job and production work in manufacturing, including the principals and procedures of paper systems, material handling, equipment, inventory management and procurement, process planning, estimating, scheduling, plant loading, dispatching, controlling, design of unit loads, shipping and re-
ceiving, transportation, work station design, general plant layout, material flow, packaging, analysis, special handling problems, cost analysis, learning curves. Organization charts, linear programming, and economic charts.

PROD-429
Accounting

Double entry bookkeeping, adjustment of trial balances, preparation of financial and manufacturing statements. Cost accounting records; material control, labour and overhead distribution; job order, process and standard costs. Mathematics applied to business problems. Basic principles of economics including economic aims, the theory of prices and production output by business firms under various degrees of competition.

PROD-430
Management Studies

A study of industrial marketing and human relations in industry, including communication, motivation and labour relations.

PROG-101
Data Processing Programming I

An introduction to the basic concepts of data processing; punch card data processing, input media, data presentation, input devices, and various processing and output devices; electronic data processing, storage concepts and devices, data representation, flow charting and programming concepts.

Introductory concepts and operation of computers will be given using an IBM/360. Programming will be introduced by means of the IBM Basic Assembler Language.

PROG-102
Data Processing Mathematics I

The application of mathematics to practical business problems dealing with; simple interest, compound interest, installment payments; annuities, sinking funds; depreciation and present values; evaluation of stocks and bonds; number systems; and review of algebra.

PROG-201
Data Processing Programming II

A continuation of PROG-101. More advanced programs using the standard instruction set in the Assembler language will be given. The COBOL language will be studied in depth and programming techniques will be further developed. Introductory tape and disk concepts will be studied. Prerequisite PROG-101.

PROG-202
Data Processing Mathematics II

Set theory, decision making, permutations and combinations, probability, descriptive statistics, statistical inference, central tendency, variance, standard scores, hypothesis testing, confidence intervals, correlation and regression. Prerequisite PROG-102.

PROG-301
Data Processing Programming III

A continuation of PROG-201. The programming languages FORTRAN and RPG will be studied. Problems will be studied. Problems utilizing pertinent features of these two languages will be studied. Prerequisite PROG-201.

PROG-302
Data Processing Programming III

A continuation of PROG-201. The programming languages FORTRAN and RPG will be studied. Problems will be studied. Problems utilizing pertinent features of these two languages will be studied. Prerequisite PROG-201.

PROG-303
Systems Analysis and Design

The analysis and design of computer systems including the following topics: feasibility studies, documentation and analysis of existing systems, output specification, forms design, run breakdown, file organization and selection, input design, systems controls. Examples of specific systems will be covered including: accounts receivable, accounts payable, payroll, sales order processing, sales reporting, wholesale inventory control, retail inventory control. Prerequisite PROG-201.

PROG-304
Operating Systems

Topics covered include: job control, sort/merge programs, utility programs, various operating systems. Prerequisite PROG-201.

PROG-402
Data Processing Mathematics IV

Linear programming, Simplex method, Transportation method, calcu-
lus topics, Monte Carlo simulation, critical path, queuing theory, finite differences. Prerequisite PROG-302.

PROG-403
Modern Concepts in Data Processing
Topics will include data communications, realtime systems, multiprogramming, timesharing and conversational languages. Prerequisite PROG-301.

PROG-404
EDP Organization and Computer Topics
Computer topics include other manufacturers, models and languages. Prerequisite PROG-301.

PROG-405
Project and Technical Report
A technical report is required from each student on a topic approved by the Department. Prerequisite PROG-301.

PSYC-111
Psychology
This course is concerned with a thorough study of the basics of human behavior so that the knowledge gained can contribute to success in dealing with people at work and in other areas of daily life.

PSYC-212
Developmental Psychology
This course traces the psychological development of an individual from conception to death. Topics include the major internal and external aspects of the environment affecting individual personality throughout the stages of human development such as pre-natal, infancy, pre-school, early childhood, late childhood, puberty, adolescence, maturity, adulthood and old age. Prerequisite PSYC-111.

RADO-101
D.C. and A.C. Fundamentals
Electron theory, ohms laws, magnetism, DC and AC theory, motors and generators, primary and secondary cells.

RADO-102
Tubes and Transistors
Fundamentals of vacuum tubes, transistors, theory, practical resistive, capacitive, inductive circuits, rectification, power supply, amplification.

RADO-103
Oscillators
Crystal, TPTG, electron coupled, RF, AF, relaxation.

RADO-104
Receivers
TRF, superhet, bandspread, tracking, alignment, simple fault finding, RF, IF and AF amplifiers, detection, filters.

RADO-105
Test Equipment
Volt-Ohm-milliammeters, vacuum tube voltmeters, cathode ray oscillosgraphs, signal generators, (RF and AF).

RADO-106
Communication Receivers
Superhet, double conversion, band-switching, variable selectivity, circuit reading and analysis, simple fault finding, frequency modulation.

RADO-107
Communication Transmitters
Oscillators, power amplifiers, modulators, keying, parasites, circuit reading, power supplies, FM transmission, SSB transmission.

RADO-108
Programmed Senders
Circuit reading, mechanical and electrical operation, relay and switching, sequence power supply, muting systems.

RADO-109
Automatic Alarm Systems (radio)
Circuit reading, mech. and elec. operation, relay and alarm sequence, power supply.

RADIO-110
Direction Finding Systems
Circuit reading, operation, theory, antenna patterns, installation, bearing calculation, power supply.

RADO-111
Emergency Equipment
Circuit reading, operation, installation, receivers and transmitters.

RADO-112
Antenna and Propagation Fundamentals
Radiation, dipole, ant. marconi, ant.
matching, beam ant. simple radiation patterns, ground wave, sky wave and direct wave propagation.

RADO-113
Morse Code (Receiving and Sending)
Instruction and practice to enable the student to send and receive the international morse code at the rate of 20 words per minute.

RADO-114
Normal Traffic Procedure
Commercial Procedures (International) designed to ensure message traffic can be passed between transmitting and receiving stations of any nation.

RADO-115
Special Service Procedure
For procedure or administrative message traffic.

RADO-116
Toll Procedure
Calculations of message charges (tolls) which are internationally standardized.

RADO-117
Typing and Teletype
Typing with speed and accuracy necessary for messages and reports, teletype practice sufficient to ensure correct message transmission.

RESC-103
Physics
Statistics, kinematics, dynamics, energy, basic electric and magnetic principles, mechanical and thermal properties of matter.

RESC-105 & RESC-205
Physics
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, combustion, heat and work; first and second laws of thermodynamics; reversible and irreversible processes.

RESC-108
Mechanics, Heat and Electricity
Statics; kinematics; dynamics; energy; rotary motion; hydrostatics; elasticity; temperature; thermal expansion; radiation, conduction and convection; thermodynamics; basic electricity, Kirchhoff's Laws, electrical circuits, electric fields and magnetism.

RESC-203
Modern Physics
Electricity and magnetism, light, light sensitive devices, atomic structure, nuclear structure, radiation detection and devices. Prerequisite RESC-103.

RESC-204
Chemical Physics
Heat, thermodynamics, matter, electrochemistry, electromagnetism, light, modern physics, solid state, fluids. Prerequisite RESC-103.

RESC-303
Modern Physics
Wave motion, light, quantum physics, atomic theory, structure of matter and nuclear structure. Prerequisite MECH-205, MATH-206.

RESC-510
Science for Cooking and Baking
Measuring devices - Metric and Imperial, temperature and heat - ovens and heat transfer, density, acids, alkalis, and salts, low temperature, fermentation of foods, water.

RESC-511
Science for Painting and Decorating
Basic molecular theory, properties of matter, paints and their composition, abrasives, color theory and color mixing, woods - classification and structure, solvents, glues, electrical safety.

RESC-512
Science for Upholstery
Color and spectrum, textiles - natural and manufactured fibers, poly foam, upholstery springs, cleaning fluids, water, soaps and detergents, stains and stain removal.

RESC-513
Science for Sheet Metal
 Matter and energy, heat - measurement, transfer, conversion and heat loss calculations, ventilation - measurement of air flow, pressure losses in duct systems, properties of air.

RESC-514
Science for Welding
Basic principles of matter, proper-
ties of oxygen and acetylene, mechanical properties of metals: ferrous metals, nonferrous metals, basic metallurgy; heat - expansion and transmission, annealing, tempering.

RESC-515
Science for Auto Body
Corrosion, abrasives - materials, bands, and grinding wheels, the oxy-acetylene welding process, colour and spectrum - pigments and pigment mixing, paint and lacquer, cleaning fluids, basic D.C. electricity and electrical wiring, heat - expansion and conduction.

RESC-516
Science for Machine Shop Practice
Thermal expansion, basic metallurgy, friction, abrasives, mechanics - forces, stress, moments, work power, metric system, electrical safety.

RESC-517
Science for Carpentry and Woodworking
A study of wood - growth and structure, seasoning, defects, preservatives, bending and laminating; timber fasteners and withdrawal resistance; simple machines; abrasives; adhesives and glue joints; insulation - types, heat loss, condensation, ventilation; concrete - manufacture, placing, characteristics, additives, testing; basic electrical safety.

RESC-518
Science for Plumbing
Basic definitions; weights and measures; simple machines; atmospheric and liquid pressures; pump systems and system design; water treatment; corrosion.

RESC-519
Science for Automotive Mechanic Repair
Basic electricity; fluids in motion; simple machines; simple and compound gear trains, gear ratios; fluids at rest; friction and braking efficiency; basic concepts of matter; heat and thermal energy.

RESC-520
Science for Diesel Mechanics
Hydraulics; carbon steels and steel alloys; torque and work: simple machines; basic electricity; gasolines and other fuels; measurements in MKS and FPS, force and motion; gear systems; properties of matter: lubricants and greases; heat energy and temperature; venturi, Bernoulli's Principle.

RESC-521
Science for Refrigeration and Air Conditioning
Definitions pertaining to matter, energy, heat and refrigeration; temperature and thermal expansion, heat transfer, calorimetry; properties of gases; psychrometrics; psychrometric process; the Mollier diagram; basic transistor theory and servicing.

RESC-522
Science for Appliance Servicing
Definitions of work and power, matter, gas pressures and heat; units of measurement, friction and lubricants; abrasives and abrasive products; strength of materials; water, solutions, and water treatment; heat; gases; air and its properties; fluids; refrigeration; corrosion; basic semiconductor theory; plastics and ceramics.

RESC-523
Science for Basic Electronics Servicing, Radio Operating and Electronics Communications.
Structure of matter; electrical conduction in solids; electrostatics; magnetism; electromagnetic effects; motors; machines; semi-conductors; P-N junction; applications of the junction diode; heat; light.

RESC-524
Science for Architectural Drafting and Machine Drafting
Heat; stress and properties of materials; statically indeterminate members; joints and pressure vessels; statics; centroids and moment of inertia; beams; beam design.

SALE-101
Basic Salesmanship
The purpose of the course is to give the student a broad picture of the vocational field of selling then to prepare him for selling by studying: consumer behaviour; pricing and credit practices; importance of knowledge of company, products and competitors; advertising and other promotional aids including use of telephone and direct mail. Liberal use is made of class discussions on concepts, problems and cases; also visiting speakers and tours of local businesses.
SALE-102

"In-Business" Training

The objective of the "In-Business Training" is to help the student identify an industry or company in which he would like to work and make him more familiar with the business environment generally. In order to accomplish this there are two aspects to the program. First, two hours are scheduled each week for tours, guest speakers, films, etc. Second, the student spends one full week with a business firm of his own choice. During this week he participates in the application of sales, marketing and management principles by observing the company's approach to marketing and management processes. The application of the various skills learned in the program takes place through the "In-Business" Training course. The communication skills, for example, are used in planning, organizing and making contact with business. The same skills are used continuously on the job, and finally in developing a comprehensive report on the "In-Business" progress.

SALE-103

Basic Marketing

An introductory course which covers the broad field of marketing in a Canadian context. The study includes industrial and consumer marketing and emphasizes basic principles as they apply in the various marketing institutions. The student is introduced to marketing strategy and the controllable and uncontrollable factors considered in developing the marketing mix.

SALE-104

Consumer Behaviour

This course provides an introduction to the complexity of human behaviour, particularly buying behaviour. Material for the course is drawn from social sciences: psychology, sociology, social-psychology and economics. The insight provided by these subjects leads the student to a better understanding of consumer behaviour in the marketplace.

SALE-105

Accounting

A study of basic accounting principles to enable the student to interpret and use the information contained in financial statements. Also, by developing an understanding of some basic accounting principles, the future salesman will be able to produce better source documents for accounting, credit and related planning and control functions.

SALE-106

Business Mathematics

The study and practice of common mathematical applications encountered in retailing, wholesaling, banking, credit granting, industrial selling. Emphasis is on the practical application of mathematics to standard business problems dealing with discounts, margins, installment buying, interest calculations, etc.

SALE-107

Structure & Organization of Business

A study of the legal forms of business organization; in Manitoba and Canada. An investigation in depth into the internal organization of business concerns from the view of management including objectives, structure, control, finance, production, specialization and standardization, purchasing and personnel.

SALE-201

Advanced Salesmanship

This course builds on the foundation of course SALE-101 with a thorough study of the sales process including planning and delivering the sales presentation, demonstrating, handling objections, closing the sales and building goodwill for continued business. Finally, an introductory study of sales management is also pursued i.e. planning and controlling sales efforts, and selection and training of salesmen. Liberal use is made of class discussion of concepts, problems and cases; and speakers and tours of local businesses of all types. Prerequisite SALE-101.

SALE-202

Advanced "In-Business" Training

The program of "In-Business" Training in term II is designed to further familiarize the student with the business environment, and maximize his opportunity for identifying potential areas of employment. During the four hours scheduled on a weekly basis, more time is available for tours of business and industry, guest speakers, films and tapes, projects, etc. This leads up the one week on the job,
with the focus during this week on the actual sales role and the practicing of the skills acquired. Skills learned in other courses again play an important part so the integration of the various skills as applied in selling is emphasized. Prerequisite SALE-102.

SALE-203 Marketing
A managerial approach to basic marketing, this course treats marketing as a total system of business action. The emphasis is on management of marketing. The student learns to apply the planning, execution and control functions to the activities which direct the flow of goods and services to consumers and users. Product, Price, Place, and Promotion are the four elements of the contractible marketing mix developed to satisfy selected target markets. The influence of uncontrollable factors is also recognized and analyzed. The study includes a consideration of international as well as domestic market. Prerequisite SALE-103.

SALE-206 Advertising and Other Promotions
This subject presents a comprehensive study of the purposes, types, creation and control of advertising and other promotions. The course develops an understanding of the important elements of promotion and their relation to marketing. The management and planning of all forms of sales promotion is studied.

SALE-207 Structure and Organization of Business
An introduction to the principles of economics with emphasis on the social-economic problems of modern times. A comprehensive basis of economic understanding will be attained by the study of comparative systems and the development of our market economy, the theory of the firm in perfect and imperfect competition, and their realistic pricing policies, the economic forces of Supply and Demand, macro-economics and the implications of the Gross National Product and its components, the dynamics of the nations wealth and income, fiscal and monetary policies as the government exercises control over contemporary economic problems. The study concludes with Canada in an international setting.

SALE-208 Merchandising
A study of merchandising methods of retail organization: how to establish pricing policies; calculating markup required; controlling markdowns; controlling stock shortages; evaluating inventory by cost and retail methods; measuring stock turnover; analyzing sales and stock records; planning sales and expenses; factors in profit and loss, retail advertising and sales promotion.

SECR-101 & 201 Secretarial Science
This is an introductory course in general office procedures which will cover a wide variety of topics such as: filing systems; business machines; mail procedures; communication systems; equipment and supplies; typewriting production; public relations. Prerequisite SECR-101.

SECR-102 Typewriting
This course is designed to provide an intensive course in touch typewriting skill with an elementary understanding of business correspondence, manuscripts, tabulation, and business forms. The desired goal is 30 wpm. 65% accuracy required to pass.

SECR-103 Basic Shorthand
The basic theory of Pitman Shorthand. Speeds attained: 60 wpm on unprepared work, 80 wpm on prepared work. 75% accuracy required to pass.

SECR-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.

SECR-105 Statistics
An elementary study of statistics including statistical methods; nature and interpretation of data; measures of location and variation; index numbers; statistical investigation; sampling; tabular and graphic presentations.

SECR-202 Intermediate Typing
This course is designed to further the students' typewriting skills both in
speed and office production work. Manual typewriters are used, and the desired speed goal is 45 wpm. 70% accuracy required to pass. Prerequisite SECR-102.

SECR-203
Basic Shorthand and Transcription
The development of speed in writing (to 100 wpm on prepared work and to 80 wpm on unprepared work) and transcribing shorthand material on manual typewriters. 80% accuracy required to pass. Prerequisite SECR-103.

SECR-301 & 401
Business Law
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.

SECR-302 & 304
Advanced Typewriting
This course is designed to further increase speed to a desired goal of at least 65 wpm with a high degree of accuracy. Production work is similar to that encountered at an executive secretarial level with great emphasis on students planning and carrying out assignments on their own. 80% accuracy required to pass. Prerequisite SECR-202.

SECR-303 & 403
Advanced Shorthand and Transcription
This course is designed to increase dictation speed to at least 120 wpm with a high level of transcription accuracy. 85% to 90% accuracy required to pass. Prerequisite SECR-203.

SECR-307
Personal Finance
The objective is to increase the student's skill in administering her own financial affairs. It will do this by increasing her awareness of the alternatives available to satisfy particular financial goals. Individual library research will play an important part in the method of instruction. Topics of study include Budgeting, Insurance, Pensions, Mortgages, Investments, Wills.

SECR-309 & 409
Secretarial Science and Personal Development
The training of an efficient secretary, her role in human and public relations; office procedures, protocol and responsibilities; reminder systems and calendars; letters that the secretary writes; helping the employer with speeches (briefing articles, maintaining an information file); arranging meetings and conferences; using reference sources; making travel arrangements; typing reports; dictation to and transcription from dictation machines.

SECR-417
Business Mathematics
The application of mathematics to practical business problems dealing with: simple interest; compound interest; installment payments; annuities; sinking funds; depreciation and present values; evaluation of stocks and bonds.

SHOP-102
General Operation and Control of Machine Tools
Care and maintenance and basic operation of the lathe, drill, shaper, planer, milling machine, grinders, and power saws.

SHOP-201
Measuring Devices
Metrology devices such as surface roughness (Brush) indicators, optical comparators, optical flats, etc., dial indicators, garage blocks.

SHOP-202
Power Saws
Contour sawing, band filing and band polishing, saw band welding, internal and external sawing.

SHOP-203
Lathe Operation
Screw thread standards, calculating change gears, multiple thread cutting turret lathes and automatics, operating the geared head lathe.

SHOP-204
Milling Machine Operation
Generation of contours, milling of special shapes, production of internal diameters, gear generation, gear formula, cam generation direct, plain and differential indexing, spiral milling.

SHOP-205
Jig Borer Operation
Mounting accessories, work holding
methods, setting-up work, production of internal diameters and forms.

SHOP-206
Horizontal Boring Mills
Work holding methods, facing, drilling and reaming techniques, boring and threading practice, measuring devices.

SHOP-207
Grinding Machine Operation
Belt grinding, honing machines, surface grinding, cylindrical grinding, cutter grinding.

SHOP-208
Heat Treatment
Metallurgical physics, general procedures and equipment, hardening and tempering practice; surface hardening practice, annealing practice, techniques of hardness testing.

SMET-101
Sheet Metal Hand Tools
Teaching lessons on recognition, use, care and adjustment of the many hand tools of the trade; Practice to acquire skill in the use of these, and a clear understanding of where-to and where-not-to apply the tool use. Respect for ones own tools of the trade.

SMET-102
Hand Operated Sheet Metal Machines
There are many Bench and Floor machines falling in this category - they permit the many steps in the product. The Student will be taught how to properly operate them, care for them, adjust them, to recognize their limitations if any, and to understand the many operations of each which will enable him to become proficient as a skilled mechanic.

SMET-103
Power Hand Tools
Advancing technology necessitates the continual addition of hand-held power tools; it is vitally important that the new mechanic understand thoroughly the advantages of these, and the definite need to be proficient in their use. Power cutting, nibbling, hammering, riveting, drilling, spot welding, are a few of the techniques to be mastered. The care and safety which must be exercised; the setting and adjusting, and various power supplies available will be thoroughly covered in this course.

SMET-104
Power Operated Machines
Like Power Hand Equipment, Power Machinery is an essential part of today’s Sheet Metal Practice. Recognition, use, care, adjustment, operation and other techniques applying to such machines as the - Hydraulic Press Brake; Air operated Gap Shear; Mass production metal cutting Band Saw; Drill Press; Power operated Punch, and etc. These machines encompass the practices of Cutting, Bending; Forming, Drilling and Punching - all necessary skills required by the competent Sheet Metal Mechanic. Well chosen projects fabricated throughout the duration of the course necessitate the repetitive and safe use of these machines, and all tools of the trade.

SMET-105
Sheet Metal Sciences and Techniques
In the early weeks of the Course, the Student will receive lectures and practice on Linear Measure and Scale Reading; Micrometer Reading; Standard Gauge practices; Metals, (their properties, ductility, strength, selection, storage); Use of the Protractor; Figuring Mitre Rise; Locks, Seams and Edges; Riveting and other fasteners; Soldering Science, practice, selection of equipment, various fluxes; Safety practices involved with all.

SMET-106
Soldering
An extremely important part of a skilled Sheet Metal Mechanics’ talent. The subject is thoroughly covered through all phases; Simple layout; Parallel Line Development; Radial Line Development; Triangulation. During a large part of the Course the Student will be required to develop his own patterns and then to fabricate them in sheet metal - necessitating constant use of the drafting equipment, tools and machines.

SMET-107
Pattern Development
An extremely important part of a skilled Sheet Metal Mechanics’ talent. The subject is thoroughly covered through all phases; Simple layout; Parallel Line Development; Radial Line Development; Triangulation. During a large part of the Course the Student will be required to develop his
own patterns and then to fabricate them in sheet metal - necessitating constant use of the drafting equipment, tools and machines.

SSER-155
Economics
A brief examination of basic economics including examination of the firm, national income analysis, international trade and money and banking with specific reference to the Canadian scene. Other topics include alternate economic systems, economic growth, and the relationship between economic policies and social services in Canada.

SSER-156
Orientation to the Social Services
An introduction to the philosophies and principles with emphasis on recognized values of a democratic society relative to the social services. The purpose of this course is to develop attitudes and examine values of the student contemplating a social service career.

SSER-255
Community Resources
This course deals with the modern expression of social responsibility in community services with specific reference to the Canadian scene. Federal, provincial and municipal government social services including co-operative plans will be considered as well as those under private sponsorship.

SSER-256
Law
A brief introduction to Canadian law with particular emphasis on those aspects relating to the social services. To be considered are: family and domestic law, criminal and civil law and acts pertaining to human rights, children, mental defectives, etc.

SSER-257
Contemporary Social Service Practice
The development of knowledge, skills and techniques required to bring agency - worker - client together in a meaningful relationship: developing ones ability to deal with human behavior in its complexity; developing some knowledge of the various social work processes, primary and secondary i.e., casework, group work, supervision, processing and research. Emphasis will be on the helping role.

SSER-258
Public Administration
This course deals with the organization and function of bureaucracies in the contemporary social service areas. Treatment will be given to such areas of concern as the deployment of social service personnel and their tasks and functions; the structure of agencies and the social purposes they serve; the financing of agencies and institutions.

SOCL-103
Sociology (Social Forces)
An introduction to sociology and an examination of the social forces in the community. Basic sociological concepts - culture, society, social stratifications, social institutions, social organizations, can have on the individual, his life and his work. In class discussions and group seminars, special emphasis is placed upon the study of the Canadian scene.

SOCL-106 & 206
Self Understanding and Social Feeling
Psychology and sociology centered around the student understanding herself, why she may be this way, how she relates to others and how others relate to her. As much as possible the "whole" picture, with the student selecting and integrating viewpoints or interpretations best suited to her own needs.

SOCL-304
Social and Health Problems
This subject provides a broad humanistic orientation to sociological concepts, functions and problems and medical care in our society. Wholistic method of investigation will be employed to analyze issues of interest and concern. The major units of instruction are the hospital as an institution, the hospital as a society, societal health care problems and the cross-cultural concepts of health care. Pre-requisite SOCL-103.

SOSC-121
Human Behavior for Salesmen
A multidisciplinary approach to human behavior with particular focus on those aspects of behavior which are of primary interest to the salesman. Emphasis will be placed on social science techniques which can be used to solve sales problems. Some
topics which will be dealt with in detail are human needs, power in social relations, attitude change, decision making, etc.

SOSC-131
Introduction to Social Sciences

The fundamentals of human behavior is examined on the basis of a multi-disciplinary approach, drawing relevant material from more than one of the social science disciplines. The objective of the course is to illustrate the roots of human behavior from a psychosocial point of view. Topics include the self-concept, emotions, socialization, adaptive behavior, personality, frustration, conflict, motivation, maturation, role.

SOSC-151
Introductory Psychology

This course is a developmental approach to the basics of human behavior and will deal with such topics as motivation, emotion, sensation, perception, learning, thinking, adjustment, maladjustment and personality.

SOSC-152
Introductory Sociology

An introductory analysis of the nature of society including such topics as culture, society, social stratification, social institutions and social organization.

SOSC-153
Political Science

This course presents a survey of the structure, function and problems of federal, provincial and municipal government: legislative, judicial, executive process; federalism, metropolitan government, community power structures, social legislation and political parties. The emphasis will be on the Canadian political scene.

SOSC-221
Behavioral Science for Salesman

The objectives of this course will be to analyse the cultural and social factors which are critical to our contemporary society. The focus will be on those trends in the present which will provide a means of assessing future trends in Canadian Society on both the macro and micro level. These forecast trends will be utilized to orient the student toward adapting to the accelerating changes inherent in our conglomerate society.

SOSC-231
Human Behavior in Organizations

The psychological principles and sociological concepts of human behavior in formal and informal organized groups. The emphasis of the course will be upon the main aspects of individual behavior and group behavior in the organized or purposeful group setting. Topics will include group relationships, types of groups, task orientation, group structure, communication, leadership, group performance, psychological climate, human needs in organizations, status, social roles.

SOSC-251
Human Relations

This course is designed for students who, having some familiarity with the basic principles of human behavior, are capable of dealing with the deliberate attempts people make to change the attitudes, beliefs, values and actions of those around them. Topics will include behavior modification, coping mechanisms and adaptive behavior and failures of adjustment.

SOSC-252
Regional Sociology

Regional application of basic sociological principles with particular reference to the Manitoba scene. Special emphasis is placed upon minority groups such as the rural community, the ethnic sub-cultures, aspects of pluralism and the urban shift.

SOSC-334
Political Science

The course will entail a general introduction to the processes and procedures of government at all levels, municipal, city, provincial, and national as they pertain to Canada. This will include an introduction to Canadian politics, authority, leadership, elites, ideologies. If time permits a special section will cover social movements and their influence on government policies. The emphasis will be on the Canadian scene.

SOSC-421
Exceptional Children

The description, reasons for, and treatment of exceptional children at a survey level to prepare students to identify and refer them when the students encounter exceptional children.
SOSC-431
Contemporary Issues in Canadian Society

The objective of this course is to gain insight into the most relevant or "critical" issues of contemporary Canadian society. Part of the instruction will be on a seminar-discussion basis and major topics will include issues of population, social environment, minority groups, biculturism, Canadian identity, justice, ecology, physical environment.

STNO-120
Shorthand Theory

Theory of Pitman Shorthand; acquisition of basic principles of system; emphasis on accurate writing skill; speed-building on familiar and unfamiliar material from dictators and tape systems; ability to read and write with fluency.

STNO-122
Basic Typewriting

Topics studied are: parts of the typewriter, basic manipulation of the keyboard, horizontal and vertical centering, block and spread centering corrective techniques, ribbon changing and typewriter maintenance, skill building, block letters, semi-block letters, tables, one-page reports, enumerations, outlines, bibliography, correspondence postal cards, envelopes, introduction to carbon copies, attention and subject lines, company signature, folding letters, inter-office memos, invoices, telegrams, rough drafts.

STNO-123 & 223
Business Communications

Study of the framework of effective communication involving grammar, sentence structure, punctuation, capitalization, abbreviations, the use of figures. Intensive study of vocabulary including the use of the dictionary, spelling and words in context. Prerequisite STNO-123.

Introduction to writing craftsmanship and the art of communicating in business; format of common business letters, reports, and minutes; composing various types of effective business letters, social-business letters, and employment letters; writing research essays; the stenographer's responsibility for correspondence.

STNO-126
Basic Bookkeeping

A thorough working knowledge of double-entry bookkeeping; use of accounts; analyzing business transactions; recording changes in asset, liability and capital accounts of a proprietorship in the service industry; completion of accounting cycle, trial balance, classified financial statements and year-end closing procedures. Banking activities, preparation of cash proof, bank reconciliations: use and maintenance of petty cash book; processing cash receipts and cash payments with journals; payrolls with deductions.

STNO-127
Business Mathematics

The fundamentals of arithmetic as applied to business calculations; quotient parts; percentage; trade discounts; retail selling; payroll, interest; bank discount; mathematics applied to business problems.

STNO-220
Shorthand Transcription

Review of the fundamentals of Pitman shorthand words, phrases and shortforms; speed building from oral dictation and the stenolab to develop accurate writing skills and high shorthand speeds; practice at transcribing varied correspondence on the typewriter within prescribed time limits; oriented to practical applications in the business community. Prerequisite STNO-120.

STNO-222
Intermediate Typewriting

Topics included are: Tables: ruled, boxed, braced, manuscript variation, news releases, book manuscripts, Letter styles; semi, full, indented, simplified, punctuation, two-page letters and memos. Letter variations: hanging indented, display blocked, Billing Forms; stock requisitions, purchase requisitions, purchase order, invoices, credit memos, Payroll Forms: payroll register, voucher cheques, earning record, income tax form, promissory notes, acknowledgement cards. Display Manuscripts: programs, menu, itinerary, committee reports, display, personal data sheets, job applications. Prerequisite STNO-122.

STNO-224
Advanced Typewriting

Topics included are: Two-page letters and memorandums, various stationeries and letterheads. Financial
Statements: tables with leaders and letters with tables. Legal Documents: resolution, minutes of meetings, letters with carbon copies and blind carbon copies, filling of blanks on forms, complete bound manuscript, statistical typing, tables, interoffice memos, news releases, telegrams, tables, information tests. Prerequisite STNO-222.

STNO-225
Office Procedures
Duties and responsibilities of a secretary; development of grooming and good work habits through self-evaluation and self-improvement; the importance of good human relationships in the business office; sources of information; filing systems and procedures; modern communication systems; postal services; banking services; transportation of goods; purchasing and sales routines; travel arrangements; applying for work. Strong emphasis on practical work, including term projects, filing, and the opportunity to work in a Model Office, designed to promote active student participation and interest.

STNO-226
Machine Transcription
Transcribing pre-recorded material for manuscripts, letters, telegrams, interoffice memoranda.

STRL-306
Reinforced Concrete Design
General properties of cements and reinforced concrete; basic design theory; design and review of simple beams, T-beams and slabs; design of columns.

STRL-307
Structural Steel Design
Design of the individual components of buildings based on CSA Standard S16, 1969 using the C.I.S.C. handbooks; design of rolled tension members, built-up tension members and sag rods; axially loaded columns; plate welded columns, hollow structural sections column base plates and columns subject to combined axial and bending stress; simple beams, continuous beams, plate girders, lintels, and beams subject to biaxial loading; bolted and welded building connections.

STRL-308
Theory of Structures
Shear and bending moment diagrams for beams and frames, the three moment equation, truss analysis by the method of shears, approximate analysis of indeterminate structures, structural loads and procedures, fundamentals of moment distribution. Prerequisite CIVL-202 CIVL-205, MATH-209.

STRL-311
Timber Design and Formwork
Design of the individual components of buildings based on CSA standard 086 using the CITC handbook to include design of sawn timber beams, glulam beams, joists, rafters, decking; design of simple sawn columns, single glulam columns, spaced columns and columns subject to combined axial and bending stress; design of timber fasteners including connectors and bolts; Plywood design including stressed skin panels, stiffened panels and plywood beams.

Design of formwork and to consist of basic theory including load and pressures, design procedures from available tables. Complete design of wall forms, slab forms, column forms, beam forms, shoring and scaffolding, and lateral bracing of forms. Prerequisite CIVL-205.

STRL-317
Soil Mechanics

STRL-406
Reinforced Concrete Design
A continuation of “BLDG-306 Concrete Construction”. Ultimate De-

STRL-410 Foundations
Stress distribution beneath loaded areas, bearing capacity evaluation; design of footings (square, rectangular, combined) and raft foundations. End bearing and friction pile design. Evaluation of lateral pressure, analysis of retaining walls, sheet piling and anchor block. Methods of dewatering excavations. Foundation layout. Prerequisite CIVL-202, STRL-317.

STRL-412 Structural Steel Design
Design of the individual components of buildings based on CSA Standard S16, 1969 using the C.I.S.C. handbooks; design of rolled tension members, built up tension members and sag rods axially loaded columns three plated welded columns, hollow structural sections, column base plates and columns subject to combined axial and bending stress, simple beams, continuous beams, plate girders, lintels, and beams subject to biaxial loading; bolted and welded building connections. Design procedure to include both plastic and elastic methods where applicable. Prerequisite CIVL-205.

STRL-414 Bridge Design
Bridge design consideration as based on A.A.S.H.O. specifications; hydrology, hydraulics and soil considerations; culvert design, selection and installation; reinforced concrete bridge, composite steel and concrete bridge, bridge surveys and inspection correlated with the design, detailing and drawing of plans for a complete bridge. Prerequisite CIVL-205.

STRL-415 Estimating
Pre-Tendering investigation; specification, working and shop drawing interpretation; quantity take off; direct and indirect costing, cost accounting cycles and keys.

Contract Management; analysis of actual to estimated costs; subtrade bidding & tendering practices.

Filing and information retrieval systems. Prerequisite BLDG-302.

STRL-422 Design of Structures
Moment distribution for frames, closed conduct, sidesway, nonprismatic frames, and wind loads, applied design of building frames, use of computer programs, deflection in beams and frames, deflection methods of structural analysis, determine arches, three dimensional space frames, shear walls, influence line diagrams. Prerequisite STRL-308.

SURV-204 Theory of Instruments
A study of the propagation of light - geometrical and physical optics - as related to applications in surveying.

A study of modern survey instruments, conventional and optical distance measuring - the tape, subtense bar, self-leveling levels, geodimeter, distomat, tachometer and the principle of standard measurements. The field testing and adjustments of the dumpy level and the engineer's transit. Prerequisite CIVL-103.

SURV-205 Drafting
Methods of plotting survey information from field notes, the National Topographic Map System symbols, topographic maps. Determination of volumes of borrow pits, stockpiles and reservoirs with the polar planimeter; and by pick and scale. Plotting profiles and cross-sections and determination of volumes. Plotting of preliminary and location plans for route surveys. Plan and profile of sewer and water facilities. Site plans for building construction. All plans and maps drafted on linen and India ink where applicable. Prerequisite CIVL-103, CIVL-106, CIVL-203.

SURV-213 Job Control and Costing
Critical path method of planning and scheduling network theory; project scheduling; resource allocations; project analysis; Special projects in costing of materials and manpower related to surveying.
SURV-215
Survey Camp — 80 hours

The purpose of this field school is to acquaint the students with basic survey techniques and party-chief responsibilities.

The field work to include a closed traverse, a closed level circuit, the peg test, reciprocal leveling, angle by repetition and construction surveys.

Emphasis is on clear, neat, concise field notes. Prerequisites: CIVL-203

SURV-204, MATH-109.

SURV-302
Terrain Classification

Air photo recognition of the major land forms of the following origins - Glacial, Fluvial, Colluvial, Marine, Lacustrine and Aeolian. Background data on the major rock types, Igneous, sedimentary and metamorphic, the work of water, wind and glaciation. The formation of organic and permafrosted organic land forms. Recognition of the more common types of softwoods and hardwoods, found on the Canadian shield.

SURV-303
Advance Surveying

Hydrographic surveying, determination of shore line, obstruction surveys, and hydrographic maps. Field layout and control for bridges, buildings and municipal utilities. Underground and mine surveying. Mensuration, special curve problems, intersection of a curve with a straight line, intersection of two curved right of ways, and replacing spirals with terminal curves. Advance problems in open and closed traverses. Emphasis on compiling and use of clear, neat, concise field notes. Prerequisite CIVL-205.

SURV-304
Theory and Use of Instruments

A continuation of course SURV-204. The main emphasis will be on extensive field practice in the use of modern survey instruments, including the Tachometer, distomat, telhrometer, gyrotheodolite, and the investigation of their capabilities, limitations and precision. Prerequisite SURV-204.

SURV-305
Drafting

Drafting of plans under the Manitoba Land Surveying Acts such as right of way, mineral claims, legal plans, certificates for mortgage purposes. Plotting survey plans using angle and distance and rectangular coordinates. All plans to be drafted on linen in India ink where applicable. Prerequisite CIVL-203, SURV-205.

SURV-307
Route Surveys


SURV-316
Photogrammetry

Determination of Air Base. The parallax bar and parallax bar constant. Height determination by parallax bar. Correction graphs. Profiles and contours by parallax bar. Tilt analysis determination of swing, tilt and exact flying height. Theory of anaglyphic stereo plotters. Interior, Relative and absolute orientation of the Multiplex and Kelsh plotters. Laboratory work is designed to give maximum experience with manipulation of the floating dot.

SURV-403
Control Surveys

Principles, equipment and methods of geodetic surveying covering triangulation, trilateration, traverses and leveling. Theory and use of a first order directional theodolite, geodetic level and invar rods, intervisibility of tower sights to establish first order control stations. Precise distance measurements, corrected for curvature and reduced to sea level. Conversion of geographic co-ordinates to plane co-ordinates, theory of errors and adjustment of measurements. Strength of figures and reliability of results. Reduction of observations and balancing angles in triangulation nets. Solution of problems illustrating the application of least squares to the adjustment of observations. Empirical con-
stants and formula. Emphasis on compiling and use of clear, neat, concise field notes. Prerequisite SURV-303.

SURV-406
Legal Surveying


SURV-407
Town Planning


SURV-408
Astronomy


Emphasis on compiling and use of clear, neat, concise field notes. Prerequisite MATH-310, SURV-304.

SURV-409
Computer Application


SURV-415
Survey Camp — 2 weeks

The purpose of this camp is to acquaint the students with advanced and practical survey techniques.

The field work to include retracement surveys, closed level circuits, astronomical observation for azimuth, construction surveys and geodetic surveys in trigonometric leveling and second order methods of triangulation and trilateration.

Emphasis is on clear, neat, concise field notes. Prerequisites: SURV-403 Control Surveys, SURV-406 Legal Surveying, SURV-408 Astronomy, SURV-307 Route Surveys.

SURV-416
Photogrammetry and Cartography

Photogrammetry will consist of 40 hours of plotting using the Kelsh plottter. Cartography will consist of map projections positive and negative scribing, peel coat methods and reproduction methods. Cartography will include 40 hours of scribing using manuscripts from the Kelsh plotters.

SURV-424
Hydrology

Hydraulics - Bernoulli’s and continuity equation - flow measurements with weirs and flumes. Open channel flow, Manning equation. Backwater curves.

Hydrology - Collection and presentation of precipitation data and run-off data, measuring discharge, stream gauging and graphical presentation of run-off data. Peak discharge and flood runoff, drainage design, flood protection. Sediment action sampling and methods of soundings. Prerequisite MATH-209.

TRIC-101
Direct Current Fundamentals

Voltage-current relation in an electric circuit. The electric current and the magnetic field. Effects of
changing magnetic fields. Measuring instruments.

TRIC-102
Residential Blueprint Reading

TRIC-103
Direct Current Machines and Controls
Series-shunt-compound generators and motors principles of operation and characteristics.

TRIC-151
Residential Wiring
To practise the methods and techniques as they apply to house wiring.

TRIC-152
Electrical Lab. (D.C.)
To connect electrical equipment to D.C. source to determine their behaviour and characteristics.

TRIC-201
Alternating Current Fundamentals
Voltage-current relations in A.C. circuits containing resistance, inductance and capacitance.

TRIC-202
Phase Systems and Transformers
Voltages and currents relations in three-phase systems. Principle of operation of transformers in single- and three-phase systems.

TRIC-203
Alternating Current Machines and Controls
The operating principles of alternators and motors, in single- and three-phase systems and their control.

TRIC-204
Electric Motor Repair
Theory of operation of common single phase motors. Procedure for analyzing motor faults, stripping motors and rewinding.

TRIC-205
Commercial Blueprint Reading
Explanations of plans and specifications of commercial buildings. Code calculations.

TRIC-251
Commercial Wiring
To practise the methods and techniques as they apply to commercial buildings.

TRIC-252
Electrical Lab. (A.C.)
To connect electrical equipment to an A.C. source to determine their behaviour and characteristics.

TRIC-253
Electrical Motor Repair
Analyzing motor faults, stripping of motors and rewinding, testing.

TRON-101
Direct Current Fundamentals
Structure of atoms, conductors and insulators, electric charges, units of measurement, Ohm's Law, circuit measurements and calculations, magnetism, capacity and inductance, time - constants.

TRON-102
Alternating Current Fundamentals
Sine Waves, frequency spectrum, reactance, impedance, calculations, resonance, phase relationships, practical considerations.

TRON-103
Power Supplies
Transformers, AC/DC supplies, half and full wave rectifiers, voltage doublers, bridge rectifiers, battery eliminators, filters, voltage regulation.

TRON-104
Tubes and Transistors
Tube structure, characteristics, operating parameters, semiconductor physics, alpha and beta gain, types of transistors, handling techniques.

TRON-105
Audio Frequency Amplifiers
Loudspeakers, amplifier requirements, coupling methods, stage gain, speaker matching, transistor stabilization.

TRON-106
Osillators
Requirements, common types of RC and LC oscillators, modulation, systems of amplitude modulation.

TRON-107
Tuned Radio Frequency Receivers
Detection, frequency response, sensitivity, selectivity, interference, RF amplifiers, trouble shooting procedure.
TRON-108  
Superheterodyne  
Mixers and converters, oscillator tracking, image and beat interference, alignment procedures, AVC circuits, design considerations, vacuum tube and transistor servicing techniques.

TRON-109  
Amplifiers  
Distortion, tone controls, negative feedback, push-pull circuits, power transistors, complementary - symmetry, power levels.

TRON-110  
Transmitters (AM & FM)  
Amplitude modulated transmitters, carrier and sideband power, bandwidths, antennas, frequency modulated transmitters, modulation index, deviation ratio, DOC regulations.

TRON-111  
FM and Stereo Receivers  
Discriminator, ratio detectors, automatic frequency control, transistorized receivers, composite signal, multiplexing, sound separation, servicing procedures.

TRON-112  
Test Equipment  
Volt-Ohm-Milliammeter, vacuum tube and transistor voltmeters, tube testers, transistor analyser, AM & FM signal generators, capacity and impedance bridges, power supplies, signal tracers, oscilloscopes.

TRON-113  
Special Equipment  
Use of service manuals, record player servicing, record changers, tape recorders, cassettes, car radios, intercoms, citizen-band transceivers.

TVES-101  
Television Standards  

TVES-102  
Television Transmitters  
Amplitude modulation and the visual transmitter. Frequency modulation and the aural transmitter. Single sideband and suppressed carrier and the transmission of color, Vidicon and image orthicon cameras. RCA twenty-one kilowatt visual and aural transmitters. Antennas and transmission lines. The vestigial sideband filter and the diplexer.

TVES-103  
The Signal Circuit  
Wideband amplifiers, RF, VIF and VF amplifiers. Alignment of RF and VIF amplifiers; measuring response of VF amplifiers. The cathode ray tube and brightness circuits. Intercarrier sound, FM detectors and alignment of sound circuits. Troubleshooting the signal circuits.

TVES-104  
The Deflection Circuits  
The blocking oscillators and multivibrators. Synchronode, synchronoloe guide and phase detector AFC systems. Vertical and horizontal output systems. High voltage and boosted power supplies. Troubleshooting the deflection systems.

TVES-105  
The Auxiliary Circuits  
SYNC, AGC and Power Supplies: The sync separator. Noise cancelling and gated sync separators. Simple and gated AGC. Full waves, half wave, half wave voltage doubling and bridge supplies. Troubleshooting the circuits.

TVES-106  
Solid State Television  

TVES-107  
Colored Television  
TVES-108
Closed Circuit Television
Applications for CCTV. Vidicon cameras. Sync and deflection generators. Lens systems, switching units and remote control units. Monitors and slave receivers. Sound systems.

TVES-109
Test Equipment
Circuits, specifications and application of the basic instruments, required for television servicing: the vacuum tube voltmeter, oscilloscope, and sweep and marker generators. Instruments required for color: the keyed rainbow, cross hatch and dot generator. Other instruments to facilitate servicing, tube testers, capacity analyzers, flyback and yoke testers.

TVES-110
Shop Planning and Management
Equipping and planning a Television shop. Service calls and charging for service work. Bench service and charges for bench service. Customer relations.

TVES-111
Safety

UPHO-102
Basic Tools and Equipment
Use of various hand tools, cushion machine, picking machine, sewing machines, electric shears, foam cutting machine.

UPHO-103
Spring Construction
Webbing, slatted seats, fastening springs, no-sag springs, unit springs, spring edges, typng springs.

UPHO-104
Burlap & Stuffing Up
Attaching burlap, sewing burlap, lining on open frame, edge rolls, single stuffing, double stuffing, stitching up, shaping.

UPHO-105
Trimmings
Making and fitting panels, attaching outside covers, blind tacking, hand sewing, applying leather and mercerized gimp, spacing furniture nails - attaching skirts.

UPHO-106
General Upholstery
The actual upholstering and reupholstering of chesterfield suites, foot stools, occasional chairs, etc.

UPHO-206
Advanced General Upholstery
Advanced upholstering including tufting and channeling on chesterfields and chairs, etc.

UPHO-207
Coverings
Measuring projects, laying out plans, material layout, cutting material to size. Fitting covers, cutting and pleating, putting on covers, making cushions, sewing material together.

UPHO-208
Foam Rubber Applications
Cutting and shaping of foam rubber, fabricating and cementing. Applying tack strips.

UPHO-209
Woodworking
Simple woodworking principles: Operation of basic woodworking machines, hand tools, practical projects.

UPHO-217
On-Job-Training
Gives an opportunity to experience working in a custom and production shop.

VITE-101
Trade Theory and Practice
Direct professional experience for the Vocational Industrial student, who will be assigned to an experienced instructor at the R.R.C.C. in the particular area of concentration of student. Technical reports and assignments.

VITE-102
Drawing Interpretation
Drafting fundamentals. Drawing interpretation common to all major trades. Application of drafting principles through individual projects related to specific trade areas.
WACH-101
Basic Exercises
Projects designed to develop finger dexterity and a high degree of coordination between eye, mind and hands.

WACH-102
Balance Wheels
Staking 17 ligne and 10½ ligne balance staffs, true and poise the balance wheels. Removal of balance staff; making balance staff with and without sample to a working watch.

WACH-103
Hairsprings
Preparing 17 ligne and 10½ ligne hairsprings for service by colletting, truing, overcoiling and vibrating.

WACH-104
Fundamental Construction of Watches
Types of mainsprings and mainspring barrels. Trains and their ratios, winding and setting mechanisms. Repairing and adjusting of escapement, jewelling, friction and shock system.

WACH-105
Repairing Watches
The greatest proportion of the course will be devoted to the repair and conditioning of watches under similar conditions found in the industry. The object of the course will be the development of skill and speech.

WELD-101
General Principles of The Oxy-Acetylene Process
Historical development, oxygen and acetylene, flame characteristics, equipment, set-up and operation of equipment, general precautions, identifying metals, preparation for welding, expansion and contraction.

WELD-102
Oxy-Acetylene Cutting
Principles of oxygen cutting, various flame cutting applications, cutting steels, cast iron corrosion resistant steels, machine flame cutting, edge preparation, cutting heavy sections, gouging.

WELD-103
Miscellaneous Applications, Inspection and Management
Theory pertaining to miscellaneous applications, silver brazing, hard fac-
ing, rebuild worn parts, flame harden, heating and flame treating processes, aluminum die cast, case hardening, basic pipe welding, inspecting testing welds, basic repair of equipment.

WELD-151
Oxy-Acetylene Welding of Ferrous Alloys
Common ferrous alloys, steel metallurgy, fusion welding mild steel, principles of sheet metal jiggling, welding in all positions, braze welding steel, braze welding cast iron, fusion welding cast iron, procedure control.

WELD-201
Safety Precautions in Arc Welding
Introduction, care and repair of accessories, protective equipment, welding empty containers, arc flashes, burns, toxic fumes.

WELD-202
Arc Welding Theory
Circuit, arc, machines, electrodes, polarity, arc blow, effects of welding heat on metals, welding definitions, amount of current for the job, types and positions of welded joints.

WELD-205
Miscellaneous Welding Theory

WELD-251
Basic Welding Procedures
Strike and establish an arc, bead welding, restart a continuous bead, weaving, whipping, building a pad.

WELD-252
General Arc Welding Techniques
Welding in all positions; flat horizontal, vertical - up, vertical - down, overhead.

WELD-253
Light Gauge (Sheet Metal) Welding
Welding in all positions: flat, horizontal, vertical-down, overhead.

WELD-254
Semi-Automatic (M.I.G.) Welding
Welding in all positions on sheet metal and plate.

WELD-255
Miscellaneous Welding and Application
Miscellaneous welding theory, code, testing basic welding of aluminum, cast iron, stainless steel, arcar gouging, cutting with the electrode, basic pipe welding, field trips, projects.
WOOD-101
Hand Tools
Measuring tools, layout tools, testing tools, sawing tools, bench and special planes, edge cutting tools, boring tools, fasteners: Nails, screws and others, smoothing tools.

WOOD-102
Woodworking Machines
General safety rules, operations and maintenance of the following: Table saw, radial arm saw, bandsaw, jigsaw, jointer, planer, shaper, mortiser, tenoner, wood lathe, sanding machines, portable power tools, powder actuated tools.

WOOD-103
Concrete Form Construction
Footings, foundation walls for single and multiple dwelling units, concrete slabs, sidewalk steps, piles, columns, beams, ceilings and the stripping of forms.

WOOD-104
General Framing
Basic principles of framing procedures: One storey house, balloon framing, procedures for framing opening for doors, windows, stairs, etc., basic principles involving wooden members in masonry building, insulation, building papers, vapour barriers.

WOOD-105
Equal Pitch Roofing
Types of roofs: flat roofs, gable roofs, equal pitch hip roof, equal pitch intersecting hip roofs.

WOOD-106
Stair Building
Basic types of stairs, mathematical terms and calculations, building code requirements, simple, straight stairs, mitered and housed stringers, handrails.

WOOD-107
Finishing
Application of siding, cornices, door and window trim, inside and outside doors, closets, baseboards, feature walls, tile ceilings, etc.

WOOD-108
Cabinet Work
Shop layouts, billing of material, kitchen cabinets, bookshelves, vanity sets, furniture, wood bending, veneering, wood finishing and history of furniture.

WOOD-109
Unequal Pitch Roofing
Intersecting roofs of unequal pitch.

WOOD-110
Surveying
Familiarization with the builders' level and transit to check elevations and to layout building lines.

WOOD-111
Estimating
Take off quantities of material, cost of material and labour, subtrades, simple business procedures.