Foreward

The following listing of subjects offered at Red River Community College has been compiled from courses offered as of July 1979.

They are grouped by Departments, within their respective Divisions; in Alphabetical order of subjects, i.e., all Departments in the Applied Arts and Business Division are allotted numbers with the "B" prefix, those in Health Sciences are within the "H" prefix, and so on, as follows:

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Subjects may be dropped or replaced within courses, as the need arises. When sufficient changes occur, replacement pages may be issued.
ADVERTISING ART DEPARTMENT

B01-A101 Basics of Form Study of the elements of design; point, line, plane, texture and spatial relationships are investigated.

B01-A102 Principles of Drawing Students work from still life compositions, models, natural and man-made environments. The program will develop a basic understanding of contour line, gesture drawing, form, tone, and spatial relationships. Students will enlarge their powers of perception through drawing from direct observation.

B01-A104 Interpersonal Communications The course will develop the process of self-facilitation in the areas of communication skills, sensory awareness, trust building, fantasy and group process. The methods employed will be drawn from transactional analysis, gestalt awareness and values classification.

B01-A105 Art and Design History Introduction to the nature of fine arts, primarily painting, drawing, sculpture and the related visual areas. Emphasis will be on the elements within a work of art, the creative process and the sociological importance of art throughout the history of mankind.

B01-A108 Reproduction Methods and Materials Comprehensive study of typesetting principles, operations and equipment. Includes history and development of typesetting, hand-set, and phototypesetting.

B01-A131 Audio-Visual Materials Production An introduction to the use and production of audio and visual materials such as transparencies, slides, audiotapes, videotapes, posters and display boards.

B01-A201 Analysis of Form The process of creation, the analysis of concrete and abstract concepts. The mechanics and understanding of the aesthetic value of a work of art.

B01-A202 Life Drawing Techniques involving the drawing of the human form from life, both as an anatomical study and as a basis for future sketching in such areas as illustration and design. A variety of poses, quick sketches and rendering techniques are involved together with the use of a variety of media.

B01-A206 Advertising Design An exploration of the production of Advertising Art and Design in relation to the needs and requirements of the industry.

B01-A207 Graphic Design An introduction to designing using tonal relationships and colour. Emphasis is placed on the understanding of colour theory, mixing and application.

B01-A208 Reproduction Methods and Materials A comprehensive study of photomechanical and direct printing procedures. Areas covered are: photoengraving, letterpress, gravure and offset printing, screen processes and multicolour printing.

B01-A231 Audio-Visual Materials Production Continues the theory and practice of audio-visual materials production introduced in B01-A131.

B01-A306 Advertising Design Elements of design related to problems in two and three dimensional applications. Practical study of acceptable layout and design techniques enabling visual expression of ideas.

B01-A307 Graphic Design An introduction to type as a fundamental element of design. The history of the development of the letterform as a means of communication and exercises using type as the main design element, form the basis of this course.

B01-A308 Reproduction Methods and Materials The development of proper techniques for the preparation of mechanical art for reproduction. Emphasis is placed on ruling, masking, windows and the preparation of overlays for colour printing.

B01-A310 Sketching for Illustration Sketching techniques, methods and materials used in illustration.

B01-A406 Advertising Design The student will be presented with up-to-date practical assignments in design for print media formats. The instructor will act as art director and will give specific instructions on how a problem is to be approached. The student will be asked to solve illustration problems in a variety of styles and mediums. All illustrations will include layout and typographic problems to achieve a total visual concept.

B01-A411 Rendering Techniques Techniques, methods and materials used for rendering in layouts.

B01-A413 Advertising Production Advanced reproduction problems. Assignments include the preparation of full-colour artwork through mechanical and reflective means, preparation of specifications and proofing.

B01-A506 Advertising Design Furthering design problems, and an exploration of new applications. Joint assignments and specialized projects.

B01-A507 Graphic Design A study of the approach to and development of a graphic symbol. Corporate image and the formulation of identities, corporate image and the formulation of design reports.

B01-A509 Advertising Illustration Continuation of previous term with emphasis placed on illustration for advertising. Particular attention is paid to various media and their appropriate techniques.

B01-A510 Fashion Illustration Illustration geared to the fashion market with art produced for reproduction.

B01-A513 Television Production Fundamentals of television production with particular emphasis on design and production of artwork for television.

B01-A515 Audio Visual Production Production of visual aids. Communications theory and basic AV techniques involving photography and prepared graphics in the production of Av presentations.

B01-A606 Advanced Advertising Design Advanced techniques in a variety of applications. To involve the student in as many design areas as possible. Professional standards are adhered to.

B01-A609 Advanced Advertising Illustration Continuation of previous term with emphasis on editorial and storybook illustration.
BO1-A611 Advanced Rendering Techniques Emphasis on specific techniques for specialized requirements. Practical experimentation with a variety of media applied to assignments.

BO1-A613 Television Production Basic ad production and script work for TV.

BO1-A614 Portfolio Each student is required to complete a major term project under the direction of a staff advisor selected by the student. Special co-operative assignments will be undertaken with other disciplines within the college and/or agencies and studios in the industry. Students will be required to present a portfolio of work which will exhibit the level of achievement reached with emphasis on specialized skills developed throughout the preceding terms. The portfolio presented will reflect ability and a direction of personal ambition.

BO1-A615 Audio Visual Production An exploration of animation, achieved by both drawing directly on film and with cells. Particular attention is paid to the mechanics of animation and its place in the advertising industry.
PHOTOGRAPHIC TECHNICIAN DEPARTMENT

B02-P111 Manufacture Materials and Processes Study of the manufacture, production and quality control of black and white materials negative and positive.

B02-P112 Technical Camera and Optical Applications The study of light is applied to photography, image formation by lenses, their types and characteristics. Consideration of lens operations and practical applications in the form of camera assignments, involving commercial, architectural and audio portraiture study of optical considerations involving enlargers.

B02-P113 Camera, Design and Applications Consideration of camera design as applied to professional cameras, and those using roll, sheet and miniature film camera components, systems and accessories are examined. Camera suitability for a variety of working situations is examined.

B02-P114 Laboratory Techniques, Film Processing and Retouching Theory and practice of film processing and negative evaluation. Evaluation of negative faults and enhancement procedures involving retouching techniques.

B02-P115 Laboratory Technique, Black and White Print Production Practical black and white print production by contact and projection, using a variety of techniques and equipment. The control of paper grades and multiple production printing are examined and printing techniques are finally completed by the drymounting and finishing processes.

B02-P116 Basic Studio Techniques Practical studio production to assignment, involving a variety of equipment and lighting. Studio lighting and photography are applied to a variety of areas involving specialized techniques in commercial, portrait, industrial and technical areas.

B02-P117 Sensitometry and Exposure of Materials This course co-relates exposure and development processes. It enables the student to perform tests intelligently and to apply the results of such tests in everyday work production.

B02-P118 Introduction to Fundamentals of Photography Introduction to photographic fundamentals for advertising art students. Theory and practice of photography as a medium of expression.

B02-P120 Advertising Photography II Photography related directly to the advertising field. Primarily studio based, students prepare, and work to layouts involving current design problems.

B02-P211 Color Photography Materials and Processes Theory and practice of color positive - negative materials. Manufacture and characteristics of color material. Examination of integral tri pack, analysis of color materials and processing. Color quality control in practice is related to materials used.

B02-P212 Small Format Techniques Specialized techniques involved in the processing, printing and production from roll film and miniature cameras consideration of specialized processing, and emphasis on quality production.

B02-P213 Color Material Techniques I Practical color processing and print production. This is a practical lab course involving the complete production process from camera to finished print.

B02-P214 Photographic Chemistry A comprehensive study of photographic processing and control techniques involving chemical principles. The student is encouraged to take a scientific approach to photographic problems.

B02-P215 Laboratory Techniques — Retouching This course relates to techniques which are both remedial and forms of enhancement. A study of chemical and physical treatment of the negative and print is involved.

B02-P217 Fundamentals of Photography Continuing the applications of photography students progress via a series of studio and outside assignments using roll film cameras.

B02-P218 Photo Formation Students will work independently on a series of assignments involving photography applied to specific situations.

B02-P220 Advertising Photography I Photography applied to advertising both in the studio and on location. Product photography.

B02-P311 Color Materials and Processes II Study of positive colour materials; their uses and handling. Students will progress through a series of practical assignments to apply the theoretical consideration within this area.

B02-P312 Historical and Experimental Process Students will study the history and development of photography from early simple beginnings through to its position as an art form today.

B02-P313 Advanced Large Format Techniques The technical camera is used to explore as many diversified techniques as possible; keeping in mind the everyday usage and demand for versatility in photography.

B02-P314 Advanced Small Format Techniques Production of both slides and prints using small format cameras for a series of progressive assignments involving a variety of subjects.

B02-P315 Color Materials Techniques II Lab processing and production of color transparencies slides and prints. Finishing, mounting and presentation of color materials.

B02-P316 Photographic Display and Portfolio Practical preparation and production of a photographic portfolio which is intended to show the versatility and professional standing of the final graduate.

B02-P317 Business Principles for Photographers An introductory course in business principles and practices, with an emphasis on photographic enterprises. Topics for consideration include: legal forms, licenses, taxation, financial management and marketing practices. Evaluation is by written examination.

B02-P318 Advanced Photojournalism Practical applications of photojournalism and print production.
GRAPHIC ART DEPARTMENT

B03-G102 Photocomposition The students will learn the principles of operation and maintenance of phototype setting equipment consisting of punched paper tape and magnetic floppy disk systems. Practical application of mark-up and typesetting will be accomplished by a series of exercises very similar to commercial and newspaper situations. This includes font changing, main memory and width table loading, tabular, and correction terminal experiences. Also, theoretical analysis of paper processors, VDT, OCR, WP, and advanced keyboard techniques will be emphasized.

B03-G103 Design & Layout The students will learn to apply the principles of display, creative use of typography which includes typeface identification and lettering techniques, and production of finished working layouts for advertisements, social stationery, book design, commercial job design, and newspaper layouts. Use of black and white, and color will be encouraged in the design and layout.

B03-G104 Type Composition The student will learn basic printing principles in theory and practical application as applied to composition, Ludlow, and Intertype typesetting. Copy preparation, proofreading, copyfitting, estimating, and related mathematics will be applied in practical exercises. Also, the students are required to take related English and typing.

B03-G107 Platen and Cylinder Press Press mechanisms; makeready; operating adjustments; anti-offset sprays; characteristics of paper and ink; lockup and imposition.

B03-G108 Paste Make-Up Various techniques to assemble type, art, photographs and other material into cameraready mechanicals for printing of business forms, posters, brochures and newspapers.

B03-G109 Camera and Darkroom Students will study the theory and produce practical projects on the following topics. Light and illumination; lenses and refraction; various types of copy; densitometry; photo materials and their properties; contacting procedures; line and halftone techniques; duotones, posterizing, and special effect screens.

B03-G110 Offset Imposition and Platemaking Imposition layouts; negative stripping; screen tints; step and repeat forms; chemistry of platemaking; types of press plates.

B03-G111 Offset Press Principles of lithography; press feeders, deliveries; chemistry of lithography; checking press register; running a single colour press; printing multi-colour and process colour work.

B03-G112 Bindery Operations Cutting, folding, drilling, perforating and stitching paper and booklets; manufacture and specifications of various types of paper.
HAIRDRESSING DEPARTMENT

B06-H102 History of Hairdressing A survey from early times to the present. This program includes a comparison of hairstyles and clothes and how they are changed by the economic and political structure of the era. Some practical training for costume and theatrical work. 20 hours of theory and practical work.

B06-H103 Visual Poise The subject introduces the student to the physical and structural environment of the hairdressing department. It outlines the duties of the receptionist, the cash float and the booking of appointments. It also stresses the importance of the appearance and grooming of the student hairdresser. 25 hours of theory and practical.

B06-H105 Personal Hygiene The importance of personal hygiene in the industry. Uses of deodorants, diphtheries, make up and hairstyle for the working hairdresser. Hands and cleanliness of instruments. 40 hours of theory and practical.

B06-H111 Bacteriology, Sterilization, Sanitation This subject comprises 20 practical hours plus 15 theory hours. Emphasis will be placed on the importance of practicing sterilization and sanitation in the school and salon. The nature and causes of infections spread by unhygienic practices.

B06-H113 Shampoos, Rinses This subject consists of 85 hours of demonstration and practice plus 20 theory hours. The procedures of shampooing and rinsing, the various types of shampoos, Acid and alkaline testing. Special and lecmetric shampoos. Temporary colour rinses and conditioners of all kinds, their applications and results.

B06-H114 Hair and Scalp Treatments This subject consists of 60 hours of demonstration and 20 theory hours. The analysis of hair and scalp will be stressed to better understand various problems that may be encountered. Problems that can be connected in the salon and those that must be referred to a physician. Different types of scalp treatments for various problems will be covered.

B06-H115 Hair Styling 50 theory hours and 330 practical hours of training. Upon completion, the student will be able to design hairstyles to suit the individual needs of the patron, and successfully complete the Provincial and school examinations. Emphasis will be placed on the latest styling techniques and trends, through demonstrations and visual aids. Whenever possible guest artists will be drawn from the industry.

B06-H116 Hair Shaping Consists of 30 theory hours and 180 practical hours. On completion the student must be successful in passing this phase of the provincial exam. Emphasis will be placed on the latest cutting techniques through demonstrations and audio-visual aids. Various guest artists will be drawn from the local industry. The student will be able to understand all aspects of hair shaping and be able to adjust to shifting trends.

B06-H117 Cold Waving Consists of 100 hours of demonstration and practice plus 40 hours of theory. Emphasis will be placed on recent cold waving techniques through demonstrations and visual aids. Comparisons of acid and alkaline cold waves, their good and bad points. Wrapping and timing techniques plus correct choice of cold wave rods for various hairstyles and hair types.

B06-H118 Manicurling 60 hours of demonstration and practice plus 10 theory hours. The preparation of the manicure table, application of creams, cuticle oils and polish and the proper hygienic techniques of all types of manicures are covered.

B06-H119 Tinting and Bleaching This subject consists of 135 hours of practice plus 40 hours of theory. A thorough study of the various types of permanent and semi-permanent colours. Their application and removal and the chemical changes they induce are all covered.

B06-H120 Skin and Facials 50 hours of demonstration and practice plus 20 theory hours. The methods of cleansing the skin, massages and the application of various styles of make up are studied. Upon completion the student will also have an understanding of the structure and function of the skin and recognize its diseases and disorders.

B06-H121 Personal Hygiene Learn to adapt a personal grooming program to your particular needs and activities. Also keeping equipment and stations sanitary.

B06-H122 Shampoo & Rinse Drape and seat the patron properly at shampoo bowl and use of shampoo hose. Also to become familiar with the proper procedure for adjusting water temperature and for rinsing shampoo from the hair. Also learn how to use special rinses and become familiar with all safety precautions for shampooing and rinsing the hair.

B06-H123 Hair and Scalp Treatments Five basic massage movements explained in detail. Also the importance of hair and scalp conditioning treatment and become familiar with various procedures used in salons.
BARBERING DEPARTMENT

B07-B101 Hygiene and Sanitation Personal, public and 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; Board of Health, barber examining board; duties of barbering inspector, importance of sanitation, sanitary rules.

B07-B102 Barber Implements and Shaving Straight razors, regular shears, tapering shears, clippers, hones, strops, Weck and Magic shapers, the technique of honing and stropping, the fundamentals of face shaving, positions and stroke in shaving the face and neck, the shaving of moustaches and beards, special problems encountered in shaving.

B07-B103 Conventional Hair Cutting Basic fundamentals applied to men’s conventional or standard haircuts (S.C. Thorpe). Advanced fundamentals applied to conventional or standard haircuts (Sherman L. Trusty).

B07-B104 Men’s Hairstyling — Mod Trends Basic fundamentals used in men’s hairstyling (M’Lord techniques, Encyclopedia of Haircutting); special and modern techniques used in advanced men’s hairstyling (Seminars, barber show, invited guest artists).

B07-B105 Cold Waving & Hairpieces Cold waving and body waving of men’s hair for facilitating styling; the straightening of curly hair; the measuring and fitting of hairpieces.

B07-B106 Skin & Hair — Disorders & Treatments The microscopic study of skin and hair; disorders or diseases related to skin and hair; shampoos; scalp treatments; facial treatments; hair conditioning and reconstructing treatments.

B07-B107 Shop Management & Sales — Barber’s Act Good ethics in the barber shop; bad ethics in the barber shop; functions of the shop; types of ownership; selecting the right location; equipping the shop; advertising the barber shop; salesmanship in the barber shop; records; operating expenses; first aid; business law; modern trends in barbering; barbering regulations; point by point review of regulations under the Barber’s Act.

B07-B108 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.

B07-B109 Final Review & Practical Testing 20 hours of supervised final theory review for school and government final theory exams. 30 hours devoted to practical testing at 3 different levels.
HOTEL RESTAURANT ADMINISTRATION DEPARTMENT

B09-H110 Aspects of Catering This subject is designed to present some of the practical aspects of the hospitality industry. How to set up tables, serve foods and acquire the skills necessary for this.

B09-H112 Front Office Procedures A basic introduction to the workings of a front office, its functions and the equipment used.

B09-H113 Introduction to Food and Beverage This subject consists of lectures, demonstrations and practical work pertaining to Foods and Beverages as commonly encountered in the industry.

B09-H213 Food and Beverage Controls A study of the receiving, storing, portioning and serving of food and beverage. In this course the control systems at all stages of the food and beverage service chain are examined. Food cost percentages, portioning, accounting controls, inventories and sales records are all studied and discussed.

B09-H214 Design and Physical Layout This subject is designed to expose the student to various aspects of Hotel, Restaurant, and Food facility design. Emphasis will be placed on good design and how it affects the maintenance of satisfactory cost percentages for food, labour and other operating expenses.

B09-H215 Housekeeping This unit of the course is intended to instruct and acquaint the student with the theory and mechanics of the Institutional Housekeeping field. Though the unit is primarily designed towards hotel housekeeping it equally applies to College resident halls, clubs with sleeping facilities and the large retirement residences. Virtually every system and principle covered in this unit is applicable to all types of lodging facilities.

B09-H230 Co-operative Education Work Experience In the first co-operative education work experience term the student will be employed in a hotel, restaurant or food services department. Training will follow a schedule or plan arranged with the employer prior to employment. Contact with the college will be maintained through regular on-the-job visits by the cooperative education coordinator.

B09-H416 Purchasing The purchasing unit of the course is designed to acquaint the students with basic criteria for institutional purchasing. The principal areas covered are market functions, specifications requirements for various products, and the basic principles of purchasing.

B09-H423 Building and Equipment Maintenance The study of a basic structure and its support services. Blueprinting, electrical, plumbing, heating and refrigeration systems are covered. The student will acquire a basic understanding of the terminology used in the maintenance department of hotel as well as its working procedures.

B09-H431 Tourism This unit explores the major concepts of tourism, what makes tourism possible and how tourism can become a major factor in the wealth of any nation. Canada's tourism is analyzed and Manitoba's in detail.

B09-H450 Co-operative Education Work Experience-Second Round In the second co-operative education work experience term, the student will again be employed in a hotel, restaurant or food services department. Training will aim at expanded job responsibilities and exposure to employment areas not covered in the first period. Contact with the college will be maintained through regular on-the-job visits by the cooperative education coordinator.

B09-H613 Beverage Management The methods of production of wines and liquors, their handling, storage and service are all studied. The course also covers the fundamentals of mixology and bar service.

B09-H614 Personnel This course covers the hiring, training, motivating and promotion of employees. Staff scheduling and payroll control is also studied.

B09-H615 Hotel Management Seminar This course is performance oriented in that the students are formed into groups and given a major project to develop. For example, the project could involve the opening of a new restaurant, capital requirements, finding a location, developing themes, menus, uniforms, etc.; planning the ordering of furniture, equipment and supplies, advertising and promotion and the first year's operating budget.

B09-H616 Hospitality Sales and Advertising The subject in "Hospitality Sales" is designed to enable the student to understand the importance, functions and objectives of a Sales department in a hotel or restaurant. Emphasis will be placed on the Sales department's responsibility of profitable developing room, food, beverage and internal Sales, from both individuals and groups, and properly servicing such business when obtained.

B09-H617 Decision Making The principles involved in making a decision are outlined at the start of this course. Much of the course is then given over to case studies and a simulated company exercise.

B09-H661 Gourmet Preparation This subject consists of the preparation and cooking of both classical and contemporary dishes which are usually considered gourmet items.

B09-H662 Bartending Practicum This subject is a sequel to Bartending and Beverage Management. Each student, while taking Gourmet Dining, spends one evening operating the bar. They learn how to open wine, how to serve wine, plan a bar, mix drinks, ordering procedures, inventory and precheck controls.

B09-H663 Dining Room Service The Dining Room Service subject is a practical training course and will cover such areas as Cash Control and N.C.R. pre-check systems, courtesy and guest handling, modified French, Russian and American service, flambé service and cooking as well as a brief look at the duties of a maitre d'Hotel.
WATCH REPAIR DEPARTMENT

B08-W101 Basic Exercises Projects designed to develop finger dexterity and a high degree of co-ordination between eye, mind and hands.

B08-W102 Balance Wheels Staking 17 ligne and 10 ½ ligne balance staffs, true and poise the balance wheels. Removal of balance staff; making balance staff with and without sample to a working watch.

B08-W103 Hairsprings Preparing 17 ligne and 10½ ligne hairsprings for service by colleting, truing, overcoiling and vibrating.

B08-W104 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.

B08-W105 Repairing Watches The greatest proportion of the course will be devoted to the repair and conditioning under conditions found in the industry. The object of the course will be the development of skill and speed.
B10-C109 Introduction to Advertising This subject is designed to develop a full awareness of the advertising business. Special emphasis is on the purposes and kinds of advertising, the part played by social sciences, and the organization of ad agencies and departments. 2 hours per week.

B10-C121 Creative Writing The students will develop their creative imagination by doing exercises related to the writing of the short story. Assignments in characterization, setting, mood, plotting, and viewpoint lead the student to the writing of a completed short story.

B10-C122 Introduction of Journalism The students will be introduced to the basic principles of journalism. They will learn to gather facts for news stories and how to write these stories in acceptable style for the various news media.

B10-C123 Introduction to Marketing and Advertising The fundamentals of marketing and advertising research are analyzed in relation to their role as the spring board to all good advertising.

B10-C124 English and Composition A refresher in English grammar, spelling, effective organization of sentences and paragraphs.

B10-C125 Oral Communications A participatory program designed to promote the degree of skill in oral communication and interviewing that is required by the writer to function in industry.

B10-C209 Introduction to Advertising — Ad Art Continues the general survey of advertising principles and procedures. Relationship of copy to art, with major attention given to copywriting, its functions, and the various kinds.

B10-C221 Creative Writing In Creative Writing the student is encouraged to develop the creative imagination through writing exercises in dramatic writing. The student will have practice in writing for the stage, radio and television.

B10-C222 Journalism Students will be involved in the practical aspect of journalism. They will receive practice in writing factual news in proper news style.

B10-C224 Advertising Students will receive instruction in the basic principles of marketing, and the role of advertising in marketing. The student will begin developing skill in copywriting for all media.

B10-C225 Oral Communications Continuation of oral communication activities in term 1 with special emphasis on oral presentation.

B10-C228 Introduction to Television The student is introduced to the television industry. The student will become familiar with the organization of commercial network and local television. The student will receive instruction in the television process and become familiar with the television equipment in the studio.

B10-C309 Introduction to Advertising — Ad Art Concludes the general survey of advertising principles and procedures. This term covers the relative merits of all advertising media, as well as sales promotion techniques.

B10-C321 Creative Writing The student will receive instruction in the writing of non fiction. There will be exercises in such forms as the informal essay, magazine articles, opinion pieces and reviews.

B10-C322 Journalism Students will deal with more complex news assignments with emphasis on the various styles acceptable in modern journalism.

B10-C324 Advertising Students will deal with the various aspects of advertising strategy. Emphasis will be given to the importance of research in planning and writing advertising copy.

B10-C332 Introduction to Public Relations The student will be introduced to aims and structure of the Public Relations industry. The student will receive practice in such public relations techniques as the Press release, press kits, brochures preparation.

B10-C338 Television Workshop Through practical experience in the television studio the student will become familiar with the television process. The students will be involved in the production of basic television shows.

B10-C422 Journalism To introduce the students to more developed phases of journalism and widen their skills accordingly. This will include magazine writing, interpretative reporting, and broadcast newswriting.
Instruction in job-search. Students will experience actual job situations during on-the-job training.

B10-C566 Journalism Option Provide detailed and extensive practical experience for students interested in a career in Journalism.

B10-C577 Advertising Option To provide practical experience in all aspects of advertising for students planning a career in Advertising.

B10-C588 Broadcast Option To provide practical experience in Radio and TV writing and production for those interested in a career in broadcasting.

B10-C590 Public Relations Workshop The students, working in groups, will undertake the full development of various Public Relation projects.

B10-C593 Free Lance Writing Students will receive advice in the preparation of scripts for the commercial market. The writing markets will be examined and students will write for and attempt to sell to these markets.

B10-C594 Mass Media and Society An exploration of the history and effect of the mass media in influencing society.

B10-C611 Film-making Option A film project — producing a 28 minute film on the City of Winnipeg — will constitute final term content. Students will write scripts for the film, participate in principal photography, editing, titling, sound mixing and writing the complementary narration.

B10-C636 Broadcast: Radio The broadcast radio course is an indepth practical workshop designed to allow the students to actualize their radio scripts by producing broadcast quality programs. This course continues developing production skills from fifth term.

B10-C639 Broadcast: Television An indepth practical workshop designed to allow the students to actualize their television script by producing broadcast quality programs. This course continues developing production skills from fifth term.

B10-C640 Advanced Writing Projects This will be a continuation of the project started in the fifth term.

B10-C666 Journalism Option The journalism option course will provide students who have chosen journalism as a career with concentrated practical experience in print, radio & TV journalism.

B10-C677 Advertising Option The advertising option will provide practical experience in developing complete advertising campaigns for all media for students planning a career in advertising.

B10-C688 Broadcasting Students planning for a career in radio or TV will receive concentrated practical experience in both mediums. Emphasis will be on production techniques for the writer.

B10-C690 Public Relations Workshop Students will continue with projects undertaken in term five.

B10-C693 Free Lance Writing Students will continue with projects undertaken in term five.

B10-C694 Mass Media and Society An examination of the mass media will be undertaken by the students with particular emphasis on the responsibility of the media to society.

B10-C695 Public Relations — Hotel This subject is designed to provide the Hotel student with a basic understanding of the significance of public relations in the hospitality industry. Function, history and development are examined, with emphasis on application of the four-part Public Relations process in problem solving and publicity.
ACCOUNTING DEPARTMENT

B11-A103 Business Mathematics BUAC Review of basic fundamentals; application of percentage; profit and loss; trade discounts; retail selling; mark up; inventory turnover; banking; discounting note; collection charges; installment buying; partnership; compound interest; statistics and graphs; annuities; amortization; sales tax; insurance, finance and depreciation.

B11-A121 Introductory Accounting - HRM To acquaint the student with the accumulation of accounting data, accounting financial statements, concepts and principles, mechanics of double entry bookkeeping, adjusting the accounts, work sheets, closing entries cash and the accrual basic accounting, cost of goods sold, internal control, bank reconciliation, bad debts and petty cash.

B11-A161 Financial Accounting A A thorough working knowledge of double entry bookkeeping; adjustments and work sheets for preparation of financial statement; financial statements pertaining to sole proprietorships and partnerships; special journals; subsidiary ledgers and controlling accounts; cash and accounts receivable; inventories internal control procedures.

B11-A191 Introductory Accounting A Double entry bookkeeping routine; adjustments and work sheet for preparation of financial statements; financial statements pertaining to sole proprietorships; special journals; subsidiary ledgers and controlling accounts; control procedures for cash and receivables payrolls.

B11-A204 Cost Accounting A An introduction to the procedures and techniques utilized in accounting for a manufacturing concern; preparation of cost of foods manufactured and sold statement; work flow and cost flow through a job order cost system; preparing and following the paper work for the recording and controlling of new materials, direct labour, manufacturing overhead department overhead cost and setting overhead rates.

B11-A218 Accounting CHEF This course is designed for the student to give a broad understanding of the accumulation and the use of accounting data. It covers a wide range of topics including the basic accounting equation, balance sheet, income statement, debits and credits, recording of transactions, adjusting transactions, and the worksheet.

B11-A219 Office Systems & Procedures MAST An introduction to various legal forms of business, government regulations and taxation, management and motivation of personnel, labour management relations, basic accounting, business planning and oral and written communications.

B11-A251 Accounting for the Small Business This course is designed to give the student an understanding of the accumulation and use of accounting data. It covers such areas as the basic accounting equation, the balance sheet and income statement preparation using the synoptic payroll accounting and bank reconciliations and cash control.

B11-A261 Financial Accounting B Application of accounting principles; procedures and techniques as they apply to plant and equipment; intangible assets; partners accounting; formation of corporations; share capital and retained earnings; payroll accounting; accounting principles and concepts.

B11-A291 Introductory Accounting B Accounting for inventories; plant and equipment; basic accounting principles; departmental control.

B11-A304 Cost Accounting B An introduction to the procedures and techniques utilized in accounting for a manufacturing concern. Areas covered include financial statement, presentation, following the flow of material, labour and overhead through the job order and process cost systems, setting and applying overhead rates; costing for by products and joint products and financial budgets.


B11-A391 Introductory Accounting C Accounting procedures, methods and techniques as they apply to partnerships; formation of limited companies; share capital and retained earnings; long-term liabilities and investments.

B11-A392 Introductory Accounting C-CAP Accounting procedures, methods and techniques as they apply to partnerships; formation of limited companies; share capital and retained earnings; long-term liabilities and investments.

B11-A421 Cost Controls To introduce the student to management accounting for the hospitality service industries - financial statements preparation and uses; price level changes; ratio analysis (calculation and uses); tools for comparison and analysis; information systems; internal control; cost control and analysis; cost-volume profit analysis; and cost accounting.

B11-A439 Introductory Accounting A-CCS Application of accounting techniques, methods and procedures in a single proprietorship. Items covered include the balance sheet, income statement, simple work sheet, subsidiary ledgers, synoptic journal and multi-journal systems.

B11-A441 Advanced Accounting SS Principles of internal and external industries-financial statements preparation and uses; price accounting techniques, methods and procedures in a single level changes; ratio analysis (calculation and uses); tools for comparison and analysis; information systems; internal ledgers, synoptic journal and multi-journal systems.

B11-A491 Intermediate Accounting A Involves ac control inventory accounting, accounting for partnerships; corporation accounting receivables and bad debts budgeting.

B11-A501 Intermediate Accounting A Involves accounting information that is useful to management in the decision making process. It begins with a complete review of accounting information processing cycles, the reporting process and financial statements. The course continues with an in-depth study of principles and techniques as applied to cash, temporary investments, receivables and tangible fixed assets.

B11-A505 Cost Accounting A This course is an introduction to the problems involved in accounting for a manufacturing concern. Topics covered are financial statements, the manufacturing accounting cycle, job order cost system, analysis of variances in factory overhead, labour and material costs, and simple process cost of products reports.

B11-A539 Introductory Accounting B-CCS Further application of accounting techniques such as cash and banking activities, payroll accounting, adjustments for financial statements and complete worksheets.

B11-A551 Intermediate Accounting B This term involves an in-depth study of accounting principles and techniques as applied to long term investments, inventories, general problems flow, matching and estimating procedures and intangible assets. The second phase deals with an in-depth study of accounting for corporations.

B11-A605 Cost Accounting B This is a continuation of Cost Accounting A beginning with more advanced applications of process costing - other topics included are an in-depth study of budget preparation and of standard costing procedures.
B11-A621 Financial Management - HRM To acquaint the student with food and beverage cost control; payroll accounting; pricing decisions; responsibility accounting, budgeting, profit planning; budget controls; sources and uses of funds; working capital management; and capital budgeting.

B11-A639 Introductory Accounting - CCS Completion of the accounting cycle with adjusting entries, closing entries and reversing entries. Also preparation of classified balance sheets and income statements with strong emphasis on service business.

B11-A681 Managerial Accounting CAP This course is an introduction to management uses of the end product of accounting analysis for effective management decision making. The course stresses acquisition of a broad knowledge pertaining to management functions of planning and control and increasing the student's intellectual skill in problem solving by means of cost information.

B11-A691 Intermediate Accounting - C This involves accounting for bonds as long-term investments and long-term liabilities, changes in accounting methods, estimating errors, incomplete records, statements of change in financial position comparative statements and ratio analysis.
B12-E171 Economic Principles BA 1 An introduction to the central economic problems facing all societies, followed by a brief study of modern political economic systems designed to provide solutions to the economic problems. The workings of the mixed, free enterprise economy will be studied in depth, with particular emphasis on the role of the price system and its misfunctions under less than perfect competition.

B12-E181 Economic Principles HRA 1 An introduction to the central economic problems facing all societies which includes a study of modern political economic systems as they seek solutions to contemporary economic problems. The study provides insight into the workings of the price system in our economic system, the function of government and their stabilization policies, their efforts to control the business cycle, to deal with persistent unemployment and inflation and allocate dwindling non-renewable resources. The subject concludes with a study of Canada's economic growth, its environmental problems, and finally, its place in an international scene.

B12-E272 Economic Principles BA 2 A study of macroeconomic principles, beginning with a survey of national economic goals, followed by a study of the determinants of national income, business cycles, creation of our money supply, and monetary stabilization policies.

B12-E276 Economic Principles I This course is an introduction to the principles of micro-economics including production possibility analysis, theory of the market and price determination, supply and demand analysis, and theory of the firm.

B12-E282 Economics This introductory course is concerned with Canada's economic problems and their solutions. The emphasis is on providing a sound basis in economic principles which are then applied in the form of economic reasoning. In addition to supply, demand, elasticity and firms in various types of competition (micro section), the following macro topics are also covered: National income, taxation, monetary and fiscal policy and international trade.

B12-E375 Economics An introduction to the central economic problems facing all societies which includes a study of modern political-economic systems as they seek solutions to contemporary economic problems. The study provides insight into the workings of the price system in our economic system, the functions of governments and their stabilization policies, their efforts to control the business cycle, to deal with persistent unemployment and inflation, and allocate dwindling non-renewable resources. The subject concludes with a study of Canada's economic growth, its environmental problems, and finally, its place in the international scene.

B12-E377 Economic Principles II This is a course in macro economic principles. Studies will include national income and its determination, the monetary system, inflation and unemployment, with special emphasis on monetary and fiscal policy.

B12-E401 Economics A course designed to give the student the basic tools required to discuss contemporary economic problems in Canada. An understanding of these problems will help the student to evaluate the solutions that have been acted on and proposed by our political parties and other groups.

B12-E470 Economics I This is the first part of a two-part introductory course in economic principles. The emphasis is on providing a solid foundation in micro-economics principles with demonstrations of the application of economic reasoning to the problems facing Canada today. Demand, supply, and elasticity, as well as firms in various types of competition, and analysis of their costs. Concluding this coverage are laws and government policies to regulate non-competitive industries and assure workable competition in the world of business.

B12-E471 Economic Issues in Canada This course allows the student to use acquired economic tools to study and analyze important current events with economic and political implications as there are: the urban crisis, inflation and unemployment, income distribution, the energy crisis and pollution, and others.

B12-E472 International Economics & Business Canada's exports equal about 25% of its total production of goods and services — the study of international trade and business is therefore important and essential for the student of business. The subject matter includes exports and imports, foreign exchange, international monetary arrangements, the business of multinational corporations, and Canada's relation to economic trading blocks with special influence to the European Economic Community.

B12-E571 Economics II This subject covers macroeconomic principles with the study of National Income, Monetary and Fiscal policies, and other stabilization measures to control the business cycle. The subject concludes with studies of modern economic problems, like economic growth, the energy situation, and unemployment and inflation.

B12-E580 Labour Economics & 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 unemployment. The course examines the history and development of Canadian unions with particular emphasis on current problems in industrial relations. Important issues are augmented by the case method.

B12-G868 General Studies This subject is a designation of credit awarded for relevant subject material obtained at RRCC or other educational institution.

B12-I491 Risk and Insurance The course provides an introduction to and an analysis of the concept of risk (the chance of losses) and its effects both on the business and personal levels. Risk management and 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.

B12-L159 Business Law I Business Law I is an introductory course emphasizing application of the elements of Business Law. The topics covered in order of presentation will be: The Machinery of Justice; The Law of Torts; Contracts specifically, Offer and Acceptance, Consideration, Capacity, Legality of Object. The remaining elements of contract will be completed in Business Law II.

B12-L260 Law 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.
B12-L289 Business Law This course provides an introduction to our legal system and the administration of justice, to the law of tort, to the laws of contract and sale of goods.

B12-L360 Business Law This course provides an introduction to our legal system and the administration of justice, to the law of tort, to the laws of contract and sale of goods.

B12-L367 Legal Aspects of Medical Records An introduction to the legal system with emphasis on the importance of medical records as a legal document and the proper release of information from medical records and the legal procedures involved in court disclosure of medical records.

B12-L400 Business Law I This course provides an introduction to our legal system, to the administration of justice, to the law of tort, and to the basic elements of contract law.

B12-L466 Business Law II This course will constitute a study and application of business law in the areas of insurance, guarantee, bailments, principal and agent, contract of employment, negotiable instruments and the enforcement of rights thereunder, partnerships, management and operation of corporations, and credit transactions and creditor's rights.

B12-L561 Business Law II This course provides an introduction to the vitiating elements associated with contracts, to the discharge and breach of contracts, and to the nature and effect of sale of goods contracts, their enforcement and the rights of the parties thereto.

B12-0333 Principles of Organization & Management Functions of the Canadian economy; forms of Canadian business organization; the role of government in Canadian business; the finance activity; labor relations; production cycle; purchasing; inventory control; marketing; administrative organization.
B13-M602 Management  The objective of this course is to give the student practice in integrating and applying the knowledge gained in previous courses towards the recognition and solution of business problems. The medium used is major case studies for which the student must prepare a written solution. The theory sections deal with the role of the manager from the point of view of strategy, tactics, and decision making. The student is also exposed to some of the major concepts presented by Drucker, Odiorne, Mintzberg and Reddin. The case studies used assume a previous knowledge of break-even analysis, financial statement analysis, report writing, statistics and the management applications of computer systems.


B13-M611 Introduction to Business  A broad analysis of business concepts, functional internal characteristics of a business and the interrelationships among business, government, and the consumer.

B13-M612 Introduction to Business  See B13-M611.

B13-M613 Personnel Studies  The objective of the course is to give the student exposure to current management practices and principles. The theory section will deal with the role of the manager as a decision maker. Quantitative methods of management as they apply to business will be covered.

B13-M614 Canadian Real Estate  This subject explores all aspects of real estate as an investment with particular emphasis in Manitoba. As well as private home purchasing, interest is focused on commercial properties and land speculation. This course integrates the students' knowledge gained in law, economics, business finance and accounting.

B13-M615 Business Seminar I  A study of the administrative process itself; the formulation of business policy and the translation of policy into action. Student 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 program.

B13-M616 Business Seminar II  See B13-M615.

B13-M618 Credit Management  A subject designed to familiarize the student with credit authorization and collections. Credit management will be analyzed in terms of profitability, efficiency, effectiveness, and operations. Credit relationships between retailer and consumer, bank and consumer, and company will be studied.

B13-M619 Supervision  Presented in this subject is a blend of theory and practice for those who will soon have supervisory responsibilities. The material presented attempts to show the many forces acting on the supervisor and by awareness thereof reduce the trauma of the first supervisory posting.

B13-M620 Applied Management Practice  The material for this subject is drawn from that part of management science which is concerned with tasks, results, performance objectives and the concept of situational effectiveness. The subject matter is practical as opposed to theoretical and concerns methods and techniques for controlling office costs, paper workflow, space design, interviewing techniques, analysis of situational demand indicators, etc.

B13-R701 Production Management  Topics include work study, production standards, plant and work station layout, quality control, critical path analysis, and equipment investment analysis.

B13-R703 Financial Mathematics  The application of mathematics to practical business problems dealing with compound interest, installment payments, annuities, sinking funds, present values, evaluation of bonds.

B13-R704 Statistics for Medical Record Technicians  The objective is to focus on the principles of statistics as they apply and are applied to the medical sciences. Statistics and Health sciences go together very well: "statistical diagnosing" is much like "medical diagnosing" both requiring (1) identifying the problem and (2) deciding on a course of action. Medical Records form a part of the first step — data collection. The technician can assist medical research staff and administration in their efforts to evaluate, research and plan. The intent is to provide a basic knowledge of statistics for this purpose.

B13-R705 Quantitative Methods  This course builds on statistics and provides an indepth examination of various statistical tools of management decision making. Topics include: decision making under uncertainty, linear programming, transportation method, and sales forecasting. This course will be of particular interest and use to those who intend to pursue a professional accounting designation.

B13-R706 Statistics I  This course is an introduction to economic and business statistics. Topics include: charts and graphs, frequency distributions, measures of central tendency, measures of dispersion, index numbers and probability theory.

B13-R707 Statistics II  This course continues the study of statistics into the "inference" area. Topics include: probability distributions, the normal curve, estimation, hypothesis testing, quality control, statistical simulation and least squares analysis.

B13-R708 Business Finance  A subject to develop skill in planning and controlling the investment in each of the asset accounts and the methods of financing the firm. Particular emphasis will be placed on the analysis and interpretation of financial data.

B13-R709 Securities Investment  The objective of this course is to introduce the student to the various types of securities available for investment. Special emphasis is placed on evaluation of securities as investment alternatives.

B13-R710 Business Mathematics I  A review of the basic arithmetic and algebraic operations required for courses in the Business Administration program.

B13-R711 Business Mathematics II  Application of ratio, proportion, and percent to business problems, including trade and cash discounts, commissions and fees, taxes, markups and income statement analysis.

B13-R712 Business Mathematics III  An introduction to financial mathematics including simple interest and discount, bank discount, equivalent payment, and negotiable instruments.

B13-S106 Interpersonal Relations  This subject focuses upon human behavior in general, and upon human behavior as experienced in the helping professions in particular. Emphasis is placed upon individual personal growth and self-knowledge, and upon behavior of the
individual in groups. Methods of learning include lectures, discussions, planned experiences and role-playing, with the major focus on experiential learning. The student is expected to take a major responsibility for his or her own learning, with the instructor acting as a facilitator.

B13-S107 Human Behavior for Salesmen (C&I) This course will improve the student's understanding of self and others by applying the major concept of Transactional Analysis and discovering and validating as much as possible about human behavior from their own experiences and from those of the others through various exercises and group activities.

B13-S201 Introduction to Sociology This subject is concerned with the presentation of an historical, theoretical and cross cultural perspective of society in a time of rapid social change. Special emphasis is placed upon the study of the Canadian scene, whenever possible. The student is encouraged to maintain this emphasis in the assigned term paper or project.

B13-S302 Social and Health Problems (DNR) This course is designed to broaden the student's knowledge and awareness of current trends and problems in society. Emphasis is placed on social and health problems in Canada and the world, and upon current events and trends which are not labelled as problems, but which have some significance for society.

B13-S501 Introduction to Social Sciences (BA) The aim of part I of this course is to present sociology to students in an interesting way by combining sociological concepts and theories to social reality. The aims of part II of this course are: to give the student an introduction to the major concepts of Transactional Analysis; to allow the student through various exercises and group participation to discover and validate as much as possible from their own insights and experiences and from those of others.


B13-S503 Introduction to Social Sciences This subject is concerned with the basic principles of personality integration. Students are given the opportunity through exercises and group participation to discover and validate as much as possible from their own insights and experiences and from their observations of other's behavior. They will be encouraged to use their awareness to integrate the many patterns of personality into a fully functioning person.

B13-S504 Humanistic Psychology (MRT) An introduction to humanistic psychology allows the student through various exercises and group participation to use his own insights and experiences to discover and validate these introductory concepts. The application of humanistic psychology to personal, interpersonal, and organizational behavior.

B13-S505 Humanistic Psychology (CAP) See B13-S504.


B13-S508 Psychology of Selling (C&I) This course will provide the prospective salesman with systematic insight into customer behavior. It will teach the student how to gain flexibility so as to sell all kinds of customers; how to use persuasive communication strategies to create customer commitment; how to uncover customers needs and prove customer benefits by showing that your products or service will satisfy those needs; how to motivate customers so as to close sales and get repeat business.

B13-S510 Self Understanding & Social Feeling I A humanistic interdisciplinary approach to an understanding of human behavior. This course leads the student to an understanding of behavior considering some ideas about who man is, how man experiences himself, how man experiences others, and how man constructs systems in which to experience his being. Every attempt will be made to involve the student, and to have him consider who he is, how he relates to others, and how others relate to him.

B13-S511 Self Understanding & Social Feeling II See B13-S510.


B13-S513 Human Behavior in Organization This course is concerned with the study of individual and group behavior in organized or purposeful group settings. Its major goals are, to communicate some knowledge of general psychological principles, and to develop skill in applying that knowledge to social and organizational situations.

B13-S514 Human Behavior in Organizations See B13-S513.

B13-S515 Contemporary Issues in Canadian Society A course designed to broaden the students' awareness and knowledge of current trends and problems in today's society. Emphasis is placed upon social problems in Canada and the world, and upon current events and trends which are not labelled as problems, but which have some significance for society.

B13-S516 Contemporary Issues in Canadian Society See B13-S515.

B13-S517 Introduction to Political Science An introduction to politics, including an analysis of the four core areas of any political system: creation of a common identity, power, legitimacy, and production and distribution of goods and services. Using this as a framework of reference, the course then covers the major political systems and ideologies. Canadian politics is analyzed from an historical and a current perspective, involving structures, processes, and personalities, to provide an understanding of how it works.

B13-S518 Introduction to Political Science See B13-S517.

B13-S519 Introduction to Sociology The basic attraction of the study of sociology is that it provides the means which a person can use to understand the world he/she lives in. This course is concerned with the presentation of an historical, theoretical and cross-cultural perspective of society in a time of rapid social change. Special emphasis is placed on the study of the Canadian scene and the student is encouraged to maintain this emphasis in the term work.

B13-S520 Introduction to Psychology This course covers an introduction to basic sociology, including the concepts of culture, society stratification, institutions, organizations, exploration will be made how these forces operate to produce and change our society. In class discussions and seminars special emphasis is placed upon the Canadian scene.

B13-S521 Humanistic Psychology An introductory course supplemented by various exercises and group participation in an attempt to validate the introduced concepts. Some application of learning to personal, interpersonal, and organizational situations.

B13-S522 Canada and the World A study of the principal historical and domestic considerations of Canadian foreign affairs, the options and issues in Canada's relations with
the United States, Europe and other parts of the world and an assessment of present policies.

B113-8531 Humanistic Psychology - Part 2 Students are expected to learn basic principles in psychology and how these principles apply to their own behavior and the behavior of others. Humanistic psychology allows the student through exercises and group participation to use his/her own insights and experiences to discover and validate psychological concepts.
B14-A115 Accounting This subject is coordinated with Business Math in that it is sequential to the B116 subject. It consists of a study of basic accounting principles, enabling the student to interpret and use the information contained in financial statements. The concept for the subject within the program is that salesmen should develop an understanding of the basic accounting principles. This facilitates his better understanding of client problems and helps him produce better source documents for accounting, credit and related planning and control functions.

B14-A501 Advertising A practical course in advertising with emphasis on advertising in Canada. Advertising is viewed as an important part of the total marketing mix of a company or other institution. The role of advertising in society is reviewed. A study is made of creative strategy and execution as well as media strategy and execution. In addition the various elements of print and broadcast advertising are analyzed as are the functions of the advertising agency.

B14-A502 Retail Accounting and Financial Management This course deals with mathematics and accounting for retail operation; financial statement analysis; accounting for the management of departmental and branch operation consolidations; accounting for receivables and inventories, preparation of merchandise budgets; internal auditing programs. Retail budgeting and expense control are covered in detail.

B14-B116 Business Mathematics This subject is coordinated with the accounting in A115 and precedes it in a course sequence. It focuses on 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.

B14-C114 Consumer Behavior An introductory course into the complexity of human behavior, particularly as it applies to buying behavior on the part of the final consumers. Material for the course is drawn from the social sciences: sociology, psychology, social psychology and economics. The insight provided leads to a better understanding of consumer behavior in the marketplace, a vital element in the external environment of a business system.

B14-C401 Consumer Behavior This course provides an introduction to the complexity of human behavior, particularly as it applies to buying behavior on the part of the final consumers. Material for the course is drawn from the social sciences: sociology, psychology, social psychology and economics. This insight provided leads to a better understanding of consumer behavior in the market place.

B14-D300 Marketing Decision Simulation This subject provides the student with an opportunity to apply his learned marketing skills in a dynamic and competitive simulated marketing situation. As a company marketing executive in a simulated business environment, the student makes marketing decisions as a member of a team. He or she works with other members of the firm which is competing with other companies in an industry.

B14-I117 Introduction to Business A practical course which provides an overview of the world of business and its role in the free enterprise system. The course provides the basis for specialization in specific areas of business which other subjects are concerned with. Part one deals with business and its environment, part two - establishing a business, the legal and financial aspects; part three - operating a business; part four - managing a business; part five - opportunities in business.

B14-M101 Basic Marketing A study of industrial and consumer marketing with emphasis on marketing institutions and principles. The vital role of marketing in society is presented from the perspective of the modern marketing concept. The student develops and learns to apply an understanding of marketing strategy involving selection of target markets and development of marketing mixes.

B14-M113 Basic Marketing and Buying Behavior An introductory course in basic marketing. The focus is on buying behavior at both the final consumer and intermediate customer levels. The vital role of marketing in the economic system is considered from both a macro and micro viewpoint. The various marketing institutions and the functions they perform are analyzed on the basis of a modern marketing concept approach.

B14-M142 Marketing for Refrigeration Servicing An introductory marketing course of 40 hours duration. The emphasis is on the application of marketing principles to servicing customers in the appliance field. The marketing concept is introduced and the functions and institutions of marketing are briefly outlined. A special focus in this marketing course is placed on consumer behavior and the communications process.

B14-M202 Basic Marketing Basic marketing builds on the principles developed in 1st term. This course provides a more in depth analysis of the four elements in the marketing mix - product, place, promotion and price. In addition the student examines in more detail the various marketing institutions; is introduced to marketing research and finally learns to develop integrated marketing strategy.

B14-M213 Advanced 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. This subject lies closely with the simulation exercise in T218 where the business game focuses on marketing strategies in a competitive environment.

B14-M231 Basic Marketing An introduction to basic marketing, with emphasis on the application of marketing principles in Advertising Art. The course includes an introduction to the marketing concept, the functions of marketing, markets, marketing mix, and the marketing institutions.

B14-M313 Marketing Management A managerial approach to marketing which builds on the 2nd term M213. Marketing is treated as a total system of business action. The emphasis is on the management of marketing in a firm. Additional focus is placed on the price element in the marketing mix, the management job of developing and selecting among alternative marketing strategies; and evaluating strategies. Training is provided by the simulation technique using an advanced marketing strategy game.

B14-M601 Merchandising A study of merchandising methods and retail organization, retailing today, management of retailing, the retail store, the retail organization, merchandising management as it pertains to buying, handling, controlling and pricing, sales promotion and customer services, merchandising, accounting controls, coordination and retailing management.

B14-P319 Advertising and Promotion This subject presents a comprehensive study of the purposes, types, creation and control of advertising and other promotions. It develops an understanding of the important elements of advertising and other promotion tools and their relation to marketing. As a practical project students organize in teams to develop and present a complete promotion package in a competitive situation.
B14-R312 Merchandising: A study of merchandising methods and retail organization, retail planning and policies, retail organization, pricing strategy, mark up and mark down calculation, planning sales, stock, purchases and profits, retail budgeting and control, retail advertising, display, store layout and site selection. As a practical application of theory, students organize into management teams to develop a proposal for a retail operation in a selected location.

B14-R602 Marketing Research: This subject focuses on the use of information in the planning of marketing strategies and the execution and control of marketing functions. Particular attention is given to the identification and solution of marketing problems through the systematic collection, analysis, and interpretation of data. The course consists of two parts: a) deals with theory through the lecture and case study methods; b) an actual research project is undertaken by students working in groups.

B14-S211 Basic Salesmanship: The purpose of this subject is to prepare the student for the field of selling at a basic level, such as order taking or support sales work. The subject presents a broad picture of the field of selling. Basic skills are studied and discussed and role play situations are developed for skill practice. The theory involved includes review of a variety of elements that are important to selling, consumer behavior, pricing and credit practices, knowledge of company and competitors, product knowledge, promotional aids, telephone selling.

B14-S511 Advanced Salesmanship: This subject builds on the foundation of S211 in the 2nd term. It presents a thorough review of the sales process, all the way from the planning stage to closing the sale and follow up. The study and practice of skills includes: features, advantages, benefits analysis, prospecting, opening the sale, presentation and demonstration, handling objections, proofs and supporting statements, probing, recognizing customer attitudes, closing the sale. Students undertake a number of role play sessions to develop skills in practice situations.

B14-S401 Personal Selling: A practical course in personal selling, designed for students who endeavor a career in sales. The course takes a practical approach in that the emphasis is on the development of specific sales skills such as prospecting, demonstration, handling objections, proving, opening and closing sales etc. While sales theory provides a framework, skills are developed through application using the techniques of role play, case studies and features - benefit analysis.

B14-T112 "In Business" Training: This subject is included in the course to provide the student with exposure to the real business world. It is closely related to introductory business. Business tours, guest lecturers from business, discussions with past grads, and the relevant films and tape recordings are all used as a means of giving students a closer and more practical view of the business environment.

B14-T118 "In Business" Training: No description available.

B14-T218 Advanced "In Business" Training: This course provides more exposure to the business world and its problems. In addition to tours and speakers, the student works one week in the field with a sponsoring company, also he deals with business problems through simulation as he participates, as a member of a business team, in a competitive business game throughout the term. The student is identifying potential areas for future sales careers.

B14-T318 "In Business" Sales Training: This course is designed to further familiarize the student with a business environment. There is a more direct focus on sales careers as an attempt is made to narrow down the field of choice by exposure to various alternatives. One week is spent in a sales oriented capacity with a sponsoring firm. Additional knowledge and skills are developed through the simulation techniques in a more advanced competitive business game, conducted in coordination with the marketing subject.
B15-C101 Data Processing I The objective of this course is to introduce students to the basic concepts of commercial data processing. To introduce terms such as field, record file, accounts receivable, inventory control, etc., unit record concepts and devices are used. To introduce basic programming concepts IBM DOS ASSEMBLER is used. Students are required to complete a number of programming assignments on the College’s IBM 370 System.

B15-C201 Data Processing II This is a continuation of the work begun in Data Processing I Programming. Further programming concepts such as table handling, tape and disk processing, etc. are examined. At approximately mid-term students are introduced to COBOL. Concepts such as the balance line are covered at this time.

B15-C301 Data Processing III This is a continuation of Data Processing II; the concepts covered are Direct Access Programming, Variable Lenth Records, Indexed Sequential Files, and the Sort and Search Verbs in Cobol. Structured programming techniques are used.

B15-C303 Operating Systems Theory and history of operating systems. Use of system libraries. Job Control Language for DOS. System utility programs. Introduction to OS.

B15-C307 Systems Analysis and Design I The objective of the two systems courses is to provide the student with an understanding of the duties of the systems analyst together with an understanding of the specific methods and techniques for conducting a systems project. The first course covers the following areas: Phase I — Initiation and Preliminary Investigation (Feasibility Study); Phase II — Detailed Investigation/Analysis; Phase III — Systems Design (Output and Input). A case study is used to supplement the lecture material and to expose the student to a "realistic" systems project.

B15-C401 Fortran Fortran (WATFIV) is introduced and shown how it can be used in business. The students are required to write five programs, utilizing the basic features of Fortran and the structured features of Watfiv.

B15-C402 Report Program Generator A An introduction to RPG II is given in the last seven weeks of term 4. Three very basic card to printer programs are written by the students.

B15-C403 Disk File Concepts Physical and logical disk Organizations. Functions and attributes of Sequential, Indexed Sequential, Direct and VSAM files, MACRO ASSEMBLER.

B15-C407 Systems Analysis and Design II This is a continuation of the Systems I course and covers the following topics: Phase III — Systems Design (Files, Processing, Controls, Management Presentations); Phase IV — Development (Project Management, Standards, Testing, Documentation); Phase V — Systems Implementation and Evaluation (Conversion and Post-Implementation Audit).

B15-C501 Report Program Generator B This is a continuation of RPG. This portion of the course deals with files, indexed, sequential and addordo. Tables and arrays are introduced. Multi-file processing is introduced.

B15-C503 Data Structures File organizations used in Data Base Systems. Includes pointers and list-structures, inverted files, tree and network structures.

B15-C505 Computer Topics I This course deals with a variety of computers with emphasis on the 370 series. Topics associated with other than delayed time programming are discussed, particularly Data Communication and Time-Sharing utilizing the BASIC language on the PDP-11 Computer. The aim of this course is to develop an awareness in the student of the broad scope of the Computer field and to acquaint them with present and predicted trends in the industry and to maintain programming efficiency.

B15-C506 Co-operative Project In Industry I Students are divided up into teams of 3 or 4 each. A different computer project from industry is assigned to each team. The objective is to apply the knowledge gained from the course to a real-life system. The project will cover the full range of systems, programming, documentation and implementation. The benefit to industry is that useable systems are developed for them. The students work on the projects part-time through the fifth and sixth terms.

B15-C507 Business Applications The purpose of this course is to provide the student with an understanding of the most common business computer applications. The following applications are covered: Accounting — Payroll, A/P, Cash Receipts, A/P, Fixed Assets, G/L, Financial Statements Sales/Marketing — Invoicing, Order Filling, Sales Analysis, and Market Penetration Inventory Control — inventory Forecasting and Control, Purchasing and Receiving Manufacturing — Work-in-Process and Scheduling, Labour Distribution and Job Costing.

B15-C605 Computer Topics II This course is a continuation of Computer Topics I and therefore shares the same or very similar aims. Topics include further applications of Data Communications with emphasis on Real-Time Systems. Other languages introduced are PL/1 and APL. Concepts of Virtual Storage are also introduced.

B15-C606 Co-operative Project In Industry II See B15-C506.

B15-C607 Data Base The purpose of this course is to introduce the student to the following software products: Retrieval Systems — Extracto, File Management Systems — Mark IV, Database Management Systems — IMS, TOTAL, IDMS, ADABAS, SYSTEM 200.

B15-M102 Math of Finance The first section of the course deals with binary and hexadecimal number systems as applied to data processing, converting conversions to and from the decimal number system and addition and subtraction in hexadecimal and binary. The second deals with mathematics of finance covering problems in trade and cash discount, simple interest, compound interest, annuities, debt repayment, bonds, perpetuity, capitalization and mortgages.

B15-M301 Statistics The course deals with statistics as applied to business management and research; covering summarizing data, frequency distributions, statistical descriptions, summarizing data; probability, decision making, probability distributions, sampling distributions, estimation and hypothesis testing.

B15-M501 Quantitative Methods I PERT/CPM, Forecasting methods, statistical methods, correlation and regression, Finite Differences.

B15-M601 Quantitative Methods II Optimum sampling theory, Iteration Methods, Linear Programming, Simplex Method, Transportation Method, Calculus topics, Monte Carlo Simulation.

B15-S102 Introduction to Data Processing Introduction to Data Processing provides a general overview of the history and development of data processing dealing with fields, records and files as related to manual, unitary records and computer data processing. It covers the operation and
function of a computer system, the application of computers to solving business related problems using flowcharting techniques and the Fortran programming language.

**B15-S103 Introduction to Data Processing** This subject is designed to introduce library technician students to basic electronic data processing concepts.

**B15-S105 Introduction to Data Processing** This course provides a basic introduction to data processing as it would apply to the Medical Records field. The first part of the term deals primarily with basic concepts and terminology. The punched card and unit record hardware are used to achieve this end. Computer concepts and programming are introduced in the second part of the term. The students are asked to write a series of FORTRAN programs and to test these programs using the College’s computing facilities.

**B15-S106 Introduction to Data Processing** This is a first course in Business Data Processing. The first part of the term deals mainly with terminology and basic concepts. The punched card and unit record equipment are used to achieve this end. Computer concepts are then discussed including the central processing unit and the variety of associated peripheral equipment. Finally the Fortran Language is introduced and the students are required to code and test several programs using the College’s computing facilities.

**B15-S203 Introduction to Data Processing** See B15-S102.

**B15-S206 Data Processing II** This is the second of two courses in data processing and is divided into two sections. 1) Introduction to COBOL — this section provides the student with a working knowledge of COBOL. The student is required to write a number of business related programs in the language. 2) Computer Augmented Accounting — This section introduces the student to the problem solving capability of the computer. This student submits accounting data and the pre-written programs process the data and produce output in the form of balance sheets, trial balances, etc.

**B15-S207 Data Processing** Basic concepts and terminology of Data Processing, components of a computer system, flowcharts, input — output media. Some commercial applications as applied to the Hotel and Restaurant Management such as reservations, purchasing, production forecasting and menu planning, cost control, inventory control and payroll.

**B15-S301 Introduction to Data Processing** See B15-S102.

**B15-S404 Introduction to Data Processing** This course provides a basic introduction to Business Data Processing. The first part of the term deals primarily with basic concepts and terminology. The punched card and unit record hardware are used to achieve this end. In the latter part of the term computer concepts and programming are introduced and the student is asked to write a series of FORTRAN programs and to test these programs using the computing facilities at the college.

**B15-S501 Computer Application in Business** This is a second course in Business Data Processing and begins by examining some of the batch-oriented accounting applications such as accounts receivable and payable, payroll, sales order processing and inventory control. In the second half of the term attention is drawn to applications involving data communications time-sharing is demonstrated by hands-on experience on the DEC 11/70 computer using the BASIC language. Other current real-time applications are discussed such as the supermarket application and on-line banking and some applications of the future.

**B15-S601 Cobol Programming** The general objective of this course is to give the student a better understanding of the uses and capabilities of computers through the use of COBOL programming language. The more common instructions are covered in detail and the student will be required to write programs working with these instructions.
COMMUNICATIONS DEPARTMENT

B16-E102 Study Skills A twenty hour course in which individualized aid is given to students in the fully equipped Study Skill Centre. The objective is increased reading speed and comprehension and to develop effective study skills.

B16-E103 Sales Communication This subject is designed to develop the potential salesman's communication skills. The specific skills emphasized are speaking, listening, reading and writing. Special programs, designed to develop these skills through practice and repetition, are an integrated part of this subject.

B16-E105 English This subject of eighty hour duration, is designed to help students to know the working principles of the English language, to develop facility with words and other skills necessary to the printer and proofreader.

B16-E107 Communications for Photo Technicians Review of grammar, punctuation, abbreviations, capitalization, word division, business letter writing, research techniques, report writing, expository and persuasive writing, interpersonal communication, listening skills, interviewing techniques, problem solving through discussion and formal presentation speeches.

B16-E108 Communication 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 communications. The course is tailored to fill the needs of the students and the requirements of the advisory boards.

B16-E121 Oral Communications This course is designed to increase the student's ability to listen and speak well. Three hours each week has been scheduled for lectures and workshops. It is essential that the student attend regularly to contribute as speaker and listener.

B16-E123 Sales Communications The objective is to develop the potential salesman's communication skills. These skills are speaking, listening, reading, and writing. The environment for the development of these skills is a marketing/sales setting. The course aims at continual development of all four skills throughout the term.

B16-E129 Communications 1 This subject provides instruction and practice in the writing of business letters, memos, and short reports. The oral portion incorporates basic principles of effective speaking and applies them to interviews and presentations.

B16-E151 American Literature This is a survey course designed to familiarize students with outstanding American writers and novelists from approximately 1915-1965. The objective is to help the student understand the significance of the literary work as well as achieve thought of his/her personal convictions in relationship to it and to help the student understand what relevance the literary work had in its particular time, as well as today, and to appreciate its wisdom, form and structure.

B16-E161 Business Communications This is an advanced subject in the effective use of language with special emphasis on the preparation, writing and editing of all types of business correspondence including letters, memorandums and short reports. The emphasis is on business letters with a human relations approach.

B16-E164 Oral Communications (Hotel) Designed to increase the self-confidence of the hotel student as a speaker, particularly in relation to the conducting of interviews, meetings, and presentations.

B16-E202 Advanced Sales Communications This subject develops communication skills to a more advanced level. Skills are developed through practice so that they may be used in role play settings, case studies and group discussions.

B16-E215 Graphic Arts English — Intermediate The course is designed to help students to develop facility with words and other skills necessary to the printer and proofreader. Emphasis is on grammar, spelling, punctuation and composition.

B16-E221 Basic Business Communications The fundamentals of business communications are covered: techniques of business letters, promotional writing, answering complaints, collecting material and writing reports. Basic grammar will be incorporated to the depth indicated by the individual's need.

B16-E228 Introduction to Literature for Children This course should give the student an overview of the history and development of children's literature. Included in the study, besides myth, fable, folklore, and fairytales, will be the consideration of the influence of some of the better known writers, illustrators and critics of literature for preschool children. The art of story-telling is an integral part of this course.

B16-E251 English Literature Through the study of representative novels, students will acquire a background relevant to historic and contemporary themes in the novels of Great Britain.

B16-E252 Canadian Awareness The student will undertake to examine Canadian institutions, history and current events to develop the essential background for a writer working in Canada.

B16-E255 Dramatic Literature An introduction to representative modern plays using both an analytical and practical approach. All discussions of the plays will include theatrical concepts and techniques. American, Canadian and British plays will be considered.

B16-E289 Advanced Communication Advanced communication reviews principles of effective communication, speaking and writing. Emphasis is placed on developing new skills in report writing (including research techniques) and in presenting reports orally. Further training and practice is given in business letters. Oral communication skills are developed through practical exercises in impromptu speaking, interviewing and working in groups.

B16-E311 Report Writing — Sec. Science This subject emphasizes research techniques, formal report writing and oral presentation of technical information. Also covered: instructional and descriptive writing, letters of application, employment interviews.

B16-E312 Report Writing — Bus. Admin. The course is designed to familiarize the student with the variety of report formats in use today. Concise, correct and clear usage is stressed, as is the proper development of report themes, conclusions and recommendations. The course involves three hours per week, one lecture and two workshop periods. During the workshop periods, students are expected to conduct primary and secondary research, in addition to a certain amount of in-class supervised writing. These work shop periods make up the bulk of the course; it is essential that students make full use of them in order to develop basic report writing skills.

B16-E315 Graphic Arts English — Advanced This course is designed to help students to know the working principles of the English language and the skills necessary to the printer and proofreader. Emphasis is on letter and report mechanics, spelling and composition.

B16-E328 Literature for Children This course will consist of contemporary literature and poetry for pre-school children as well as the influence of literature through the media. Special emphasis will be given to Canadian writers and their works. The practicum includes story-telling and puppetry. Prerequisite: B16-E22.
B16-E351 Canadian Literature Students will study the work of various Canadian authors. Emphasis will be given to the techniques used by these authors to present the Canadian idea.

B16-E428 Introduction to Theatre The objectives are: to train students in sound creative leadership; to emphasize the teaching philosophy of guiding children in experiences which will foster their personality growth and development; to learn the techniques of the art of creative dramatics; to help the student become aware of their creativity so they will understand the creative processes; to help the student become aware of the concepts and methods of movement for young children.

B16-E451 Manitoba Literature The objective is to develop the student’s understanding of the literature native to this province and an appreciation of his cultural heritage. The fiction of six representative authors will be studied, commencing with the 1920's and continuing up to the present day.


B16-E553 Theatre Arts Students will be introduced to theatre techniques of to-day’s theatre. Emphasis will be given to the creative actor in developing an expressive “living theatre”.

E16-E556 Work with Children & Young Adults This course is designed to give the student a discriminating knowledge of children’s literature which would aid them in the choice and recommendation of books for children. The practicum includes story-telling and puppetry as well as leading the children in discussion and interpretation of the literature.

E16-E612 Report Writing This course covers the use and importance of reports, organizing and setting up formal and informal reports, use of subject headings and graphic aids, and the inclusion of preliminary and supplementary sections in reports. Assignments will be oriented toward the practical application of report writing skills in a realistic job situation.

B16-E652 Children’s Literature The students will examine the historical tradition of children’s literature and the trends to-day. Emphasis will be given to the technique of writing for children.

B16-E653 Theatre Arts Continuation of B16-E553.

B16-E656 Children’s Literature This subject expands on the content of B16-E556 with special emphasis on contemporary children’s literature and Canadian writers. Also gives an overview of children’s literature as influenced by the media. The practicum includes story-telling and puppetry.

B16-E556 Children’s Literature This subject is designed to cover the many aspects of children’s literature to aid the student in the choice and recommendation of books for children. The practicum includes story-telling as well as leading children in discussion and interpretation of the literature.
BUSINESS EDUCATION PRACTICES DEPARTMENT

B17-A254 Business Communication Principles of internal control, inventory accounting, accounting for partnerships, corporation accounting, receivables and bad debts, basic concepts of budgeting, recording costs and depreciation of plant and equipment.

B17-A301 Accounting To provide students with a working knowledge of the accounting cycle of both trading and non-trading organizations including adjustments, worksheets, financial statements closing entries, bank reconciliations and petty cash.

B17-A302 Accounting To provide students with a working knowledge of special journals, payroll, adjustments, one write accounting systems, inventories, depreciation and partnerships.

B17-A303 Accounting To provide students with a working knowledge of corporations, plant and equipment, intangible assets, voucher system, departmental and manufacturing accounting, job costing and budgeting.

B17-A451 Introductory Accounting An indepth study of basic accounting principles as applied to posting, financial statements, adjustments, pettycash and bank reconciliation.

B17-A452 Introductory Accounting The preparation of the worksheet, synoptic journal, special journal, merchandising, and inventory control.

B17-E151 Bus. Communications This subject is designed to provide a foundation in the fundamentals of grammar and vocabulary development.

B17-E152 Bus. Communications This course is designed to provide a foundation in the fundamentals of spelling, punctuation, use of capitals, abbreviations, and figures; proper writing of sentences, paragraphs, precs, and proper organization of bibliographies and footnotes.

B17-E153 Business Communications This course is designed to familiarize students with the varied purposes served by business letters and with the skills of writing letters that most effectively meet these purposes.

B17-E351 Business Communications This subject is designed to provide a foundation in the fundamentals of grammar and vocabulary enrichment.

B17-E352 Bus. Communication This subject is designed to provide a foundation in the fundamentals of spelling, punctuation, use of capitals, abbreviations, and figures; proper sentence and paragraph writing; proper summarizing of material; and proper organization of footnotes and bibliographies.

B17-E353 Business Communications The course is designed to familiarize students with the varied purposes served by business letters and with the skill of writing letters that most effectively meet these purposes.

B17-E451 Business Communications This subject is designed to provide a foundation in the fundamentals of grammar and vocabulary enrichment.

B17-E452 Business Communications This course is designed to provide a foundation in the fundamentals of punctuation, use of capitals, abbreviations and figures, proper sentence and paragraph writing and effective job applications.

B17-E551 Business Communications This course is designed to provide a foundation in the fundamentals of grammar, vocabulary enrichment and spelling.

B17-E552 Business Communications This course is designed to provide a foundation in the fundamentals of punctuation, use of capitals, abbreviations and figures, proper sentence paragraph writing, effective job applications, and the proper organization and presentation of research materials in report form. It will also provide further spelling and vocabulary enrichment.

B17-E841 Business Communications This course is designed to provide a foundation in the fundamentals of grammar and vocabulary enrichment.

E17-E843 Business Communications This course is designed to provide a foundation in the fundamentals for punctuation, use of capitals, abbreviations, figures, further vocabulary enrichment, proper sentence and paragraph writing, proper organization and presentation of research materials in report form, and effective job applications.

B17-E852 Business Communications This course is designed to provide the student with the skills of writing various types of business letters and of composing basic business reports.

B17-H641 Math Horology A review of the fundamentals of arithmetic including whole numbers, fractions, decimals, simple equations, percents, markup, discounts, ratio, and proportion, denominate numbers, square root and consumer math.

B17-K551 Keypunch Upon completion of the keypunch course a student will be able to operate a keypunch and verifier at a level acceptable to industry and government (approximately 12,000 keystrokes per hour)

B17-M352 Math/Machines Mathematics applied to business problems in the areas of depreciation, pricing, bank discounts, installment buying, fire and life insurance, partnership distributions, real estate taxes and income tax.


B17-M452 Math/Machines Mathematics applied to business problems such as discounts, sales tax, invoices, interest, payrolls recordkeeping and income tax. The student will use an electronic printing calculator.

B17-M551 Math/Machines A review of the fundamentals of arithmetic while developing skill in the operation of an electronic calculator. Emphasis on mathematics begins with decimals and percents and their use in business computations. Mathematics applied to business operations deals with such topics as discounts, sales taxes, invoices, interest and payrolls.

B17-R421 Recordkeeping A brief overview of a one-write accounting system including accounts receivable and payable, handling of cheques, cash, invoices and related documents.
BUSINESS EDUCATION SKILLS DEPARTMENT

B18-C224 Oral Communications This course is designed, through student participation, to enhance one's ability to communicate verbally on a one-to-one basis and in group situations. Emphasis will be placed on vocabulary development, listening skills, small group discussions as well as extemporaneous and prepared speeches.

B18-D533 Machine Transcription Prerequisites: Type 35 wpm, facility with spelling and punctuation, knowledge of letter and report arrangement. Through ear-finger-toe coordination, this course is designed to develop speed and accuracy in transcribing material directly from records/tapes into final typed mailable form.

B18-F131 Filing This subject is designed to provide training in theory and practical application of four filing systems — alphabetic, geographic, numeric and subject. It includes instruction in indexing, coding, and storing of correspondence as well as charge out, follow up, cross-reference and retrieval procedures.

B18-G641 Graphic Arts Typing An introductory course, designed to provide the student with basic typewriting skills which could be adapted to the Graphic Arts discipline. Desired speed is 25 wpm.

B18-G642 Graphic Arts Typing Continuation of B18-G641. Desired speed is 35 wpm.

B18-G643 Graphic Arts Typing Continuation of B18-G641. Desired speed is 40 wpm.

B18-L254 Legal Office Procedures This subject familiarizes the student the legal terms and gives a basic understanding of their meanings and when they may be used. Practice is given in legal shorthand transcription and in setting up typewritten legal work and completing some printed legal forms.

B18-L641 Library Technician Typing The student will learn how to type between 35-40 words a minute; and will produce catalogue cards, order forms, bibliographies and other materials related to Library Technician work. (This is the first part of a subject which runs through terms 1, 2, and 3; the subject description is the same for all parts.)

B18-L642 Library Technician Typing The student will learn how to type between 35-40 words a minute; and will produce catalogue cards, order forms, bibliographies and other materials related to Library Technician work. (This is the second part of a subject which runs through terms 1, 2 and 3; the subject description is the same for all parts.)

B18-L643 Library Technician Typing Continues B18-L642, with emphasis on improving typing speed.

B18-M254 Medical Terminology I An introduction to the technical language of medical science through the study of combining forms, roots, stems, prefixes, suffixes, derivatives, synonyms, homonyms, common disease terms and specialty classifications.

B18-M255 Medical Terminology II Prerequisite B18-M254. A continuation of the study of word elements, medical abbreviations, diseases relevant to each body system, drugs and drug classifications. Practical application through the transcription of medical and surgical reports to develop skill, accuracy and speed.

B18-O235 Secretarial Procedures I The training of an efficient secretary, her role in human and public relations, office procedures, protocol and responsibilities, advanced dicta-typing, making travel arrangements, preparing financial records (expense accounts, petty cash, banking, etc.) and preparing income tax forms.

B18-O236 Secretarial Procedures II A continuation of B18-O235. The training of an efficient secretary, and her role in the office as a supervising secretary, planning in-service seminars, preparing and organizing meetings including the taking of minutes, and preparing material for audio-visual presentations, interview techniques and employee testing.

B18-O531 Office Procedures The student is involved in learning the duties and responsibilities of a secretary, and developing good grooming and good working habits. Topics include the importance of good human relationships in the business office; sources of information; modern communication systems; postal services; banking services; and job search skills. Strong emphasis is placed on practical work, including the opportunity to work in a Model Office. This subject is designed to promote active student participation and interest.

B18-O553 Dimensions in Personal Development This course is designed to encourage self-development. It includes grooming, nutrition, visual poise, exercise, personal relations and self-awareness. It affords the opportunity for students to express their opinions and ideas on these topics. Students must be prepared to play an active role in the program through oral presentation and classroom participation.

B18-P101 Shorthand (Program 21) A Pitmanic system of shorthand comprised entirely of symbols. Students learn the theory and upon completion should be able to take familiar dictation at 50 words a minute and read the shorthand.

B18-P102 Shorthand (Program 21) This course is designed to build speed in reading, writing and transcribing shorthand dictation. Upon completion the student should have a minimum of 60 words a minute in transcription and dictation.

B18-P103 Shorthand (Program 21) A continuation of B18-P102. Upon completion the student should have a minimum of 60 words a minute.

B18-R632 Senior Radio Operator Typing A continuation of B18-R631. Required speed is 40 wpm.

B18-R651 Junior Radio Operator Typing An introductory course designed to provide the student with basic skills in touch typewriting.

B18-S101 Shorthand (Forkner) A system of shorthand that combines symbols and alphabet. Students learn the theory and upon completion should be able to take familiar dictation at 60 words a minute and read the shorthand.

B18-S102 Shorthand (Forkner) This course is designed to build speed in reading, writing and transcribing shorthand dictation. Upon completion the student should have a minimum of 60 words a minute in transcription and dictation.
B18-S103 Shorthand (Forkner) A continuation of B18-S102. Upon completion the student should have a minimum of 60 words a minute.

B18-S234 Advanced Shorthand Speed I Advanced shorthand is a continuation of shorthand training with an emphasis on speed development and transcription skill. Students will become proficient in transcribing materials of varying degrees of complexity throughout terms 4, 5 and 6. A speed of 100 wpm is to be achieved.

B18-S235 Advanced Shorthand Speed II This course is a continuation of B18-S234. A speed of 110 wpm is to be achieved.

B18-S246 Shorthand Specialties This course is a continuation of B18-S235. A speed of 120 wpm is to be achieved.

B18-T102 Typewriting-Intermediate Prerequisite B18-T401 or B18-T501. Designed to develop typewriting speed and accuracy; and to develop typewriting skill in and an understanding of the production of business correspondence, reports and manuscripts, tables, forms, etc. Speed is developed to at least 45 wpm.

B18-T234 Executive Typewriting I Prerequisite 50 wpm. This course is a continuation of typewriting training with an emphasis on improving speed and accuracy. Students will become proficient in producing typewritten projects — for example, letters, tables, manuscripts, fill-in forms — with increasing degrees of complexity throughout terms 4, 5 and 6. Required speed is 55 wpm, 7-minute timing.

B18-T235 Executive Typewriting II Continuation of B18-T234. Required speed is 60 wpm, 7-minute timing.

B18-T246 Specialized Typewriting Continuation of B18-T235. Required speed is 65 wpm, 7-minute timing.

B18-T352 Typewriting-Intermediate The first half of B18-T102. Prerequisite B18-T401 or B18-T501.

B18-T353 Typewriting-Intermediate Prerequisite B18-T352. The second half of B18-T102. A speed of 40 wpm is to be achieved.

B18-T401 Typewriting-Basic The course is designed to enable the student to become proficient in the use of the typewriter, to build speed skill through emphasis of touch typewriting techniques, and be able to type 35 w.p.m. The student will learn to produce simple business correspondence and tables, with an introduction to business forms.


B18-T501 Typewriting-Basic See B18-T401.

B18-T503 Typewriting-Advanced Prerequisite B18-T102 or B18-T402 or B18-T353. Designed to continue development of speed and accuracy; to build production ability, including financial statements, minutes of meetings, legal documents, etc.; to develop skill in organizing tasks, coordinating information, and decision-making through in-basket type projects. A speed of 50 wpm is to be achieved.

B18-T551 Telecommunications Typing An intensive course in touch typing skills. Desired speed is 40 wpm. The student will learn to produce business letters, memos and letter of application.

B18-W206 Co-operative Work Experience Co-operative work experience is a 2-week period in the sixth semester wherein students are assigned secretarial work projects with progressive business offices in the community. This program is designed to be an on-the-job learning experience and is followed up by oral and written presentations. Evaluation of student performance is a co-operative effort on the part of participating businesses and the co-ordinating instructor.

B18-W525 Word Processing-Theory This course is designed to introduce the student to the concepts of word processing. Topics included are: input, output, reprographics, distribution, systems, career paths.

B18-W535 Word Processing-Practical This course is designed to familiarize the student with the basic operations of a screen-based word processor. Students will be given some "hands-on" time on the equipment.
MEDICAL RECORDS DEPARTMENT

B19-C761 Medical Coding A course designed to develop knowledge of a proficiency in the systems of classifying diseases and operations with specific emphasis on ICD-9CM; value and contents of indices and registers; abstracting of medical information.

B19-E751 Communications This course is designed to provide a foundation in the fundamentals of grammar, vocabulary enrichments, and spelling.

B19-E752 Communications This course is designed to provide a foundation in the fundamentals of punctuation; the use of capitals, abbreviations, and figures; proper sentence and paragraph writing; effective job applications; and the proper organization and preparation of research materials in report form. It will also provide further spelling and vocabulary enrichment.

B19-M751 Medical Terminology An introduction to the technical language of medical science through the study of combining forms, roots, stems, prefixes, suffixes, derivatives, synonyms, homonyms, common disease terms and specialty classifications.

B19-M752 Medical Terminology A continuation of the study of medical work elements, medical abbreviations, laboratory and x-ray tests, drugs and drug classifications, eponyms, and diseases relevant to each body system.

B19-N702 Medical Transcription A continuation of B19-N751 to further develop transcription skills with special emphasis on actual hospital reports and advanced medical and surgical tapes.

B19-N751 Medical Transcription A course designed to develop the practical skills necessary for accuracy and speed in the transcription of dictated medical and surgical reports and to gain knowledge of the format and procedures utilized in health care facilities.

B19-P303 Hospital Practicum This is a three to four week in-hospital training program designed to provide the student with an opportunity to apply the knowledge gained during the course of study and in so doing, prepare the student for active participation in the health care field. The practicum is spent in accredited institutions (in rural Manitoba and in Winnipeg) supervised by qualified health record practitioners.

B19-R741 Medical Records Science I An introduction to the development of health records field and study of the fundamental standards for health records, numbering and filing systems, analysis and maintenance of health records, indices and retrieval of records, microfilming, retention of health records. Emphasis of the professional organizations in health records, especially the CCHRA AND CHRA and the Code of Practice for health records personnel.

B19-R752 Medical Records Science II The compilation of health statistics and computation of ratios; emphasis on confidentiality and legal aspects of medical records; the Problem oriented Medical Record; medical audit.

B19-T751 Typing A course designed to provide the Health Record Technician student with the preparatory skills essential for accurate medical transcription, the completion of typing duties relevant to health record procedures, and the preparation of research and statistical data for use by medical staff, administration, and allied paramedical personnel. The student is required to attain a minimum typing speed of 50 wpm.
BUSINESS TEACHER EDUCATION DEPARTMENT

B22-B110 Shorthand I A course introducing elementary principles and practices in Pitman Shorthand with daily instruction in recording, writing, and transcription.

B22-B111 Shorthand II A continuation of Shorthand I with emphasis on speed building and transcription practices and further study on advance Shorthand material. Speed ranges from 80-100 w.p.m.

B22-B112 Typewriting I Basic fundamentals and techniques in keyboard learning are stressed and speed in straight copy ranges from 30-40 w.p.m. Production of letters, tables, and manuscripts in basic styles is required at specific speeds.

B22-B113 Typewriting II Skill building in straight copy is continued as well as further instruction in more complicated styles in letter, tables, and manuscripts. Speed requirements in both areas are increased and straight copy speed is increased to 50 w.p.m. Prerequisite: B22-B112.

B22-B116 Fundamentals of Accounting A course in double entry bookkeeping routine including special journals, subsidiary ledgers and control accounts, adjustments for and preparation of financial statements.

B22-B204 Financial Mathematics Basic fundamentals of mathematics will be reviewed and practical applications to business problems in insurance, interest, installment buying, annuities and business finance will be studied.

B22-B207 Shorthand Transcription and Typewriting Emphasis on efficient techniques of taking dictation, proper methods of transcribing, and business vocabulary. Speed range 100-120 w.p.m. Prerequisites: B22-B110, B22-B111.

B22-B208 Business Organization and the Consumer A broad analysis of business concepts, functional internal characteristics of business, an interrelationship of business, government and consumers and discussion of consumer decision making.

B22-B210 Intermediate Accounting II Includes an in-depth study of accounting principles and techniques as applied to long term investments, inventories, general problems of flow, matching and estimating procedures and intangible assets. The course also deals with accounting for corporations.

B22-E203 Course Development in Business Education Development of an orderly procedure for the identification of concepts and instruction 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.

B22-E204 Educational Testing and Evaluation Construction, administration and evaluation of tests. Methods of evaluation of student progress during the school year. Mastery of the statistical analysis necessary for testing and evaluation.

B22-E206 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.

B22-E207 Methods of Teaching Shorthand The preparation for the prospective teacher to instruct effectively in the skill development in shorthand.

B22-E209 Methods of Teaching Marketing Education An introduction to the principles and practices of directing learning in marketing education. Examination and assessment of various methods and techniques used in marketing education. Examination and evaluation of various marketing education programs.

B22-E210 Classroom Counseling This course is designed to help student teachers to gain the fundamentals of knowledge and guidance skills in human understanding and show sensitivity to the hidden messages of students. Explanations of what counseling is and the definition of the role of the school counselor would help the classroom teacher to understand this essential resource of the school. The participants also learn about student concerns and problems and how to deal with them more effectively. Teacher counseling is portrayed as an enrichment of the teaching function which remains the teacher's prime responsibility. Case materials, role playing, and referral techniques provide explicit and substantial information for discussion and development of guiding principles.

B22-E211 Methods of Teaching Accounting and Business Math Preparation to teaching accounting and business math. Evaluation of various methods and resources and subjects development procedures will form the major part of this course.

B22-E212 Teaching Typewriting and Office Systems Management Preparation for instruction in typewriting with emphasis on development of resources, evaluation in relation to psychomotor domain. Research will be conducted on office systems and its implication for classroom teaching procedures.

B22-E213 Methods of Teaching Basic Business Preparation to teach basic business, economics and law. Evaluation of various methods, teaching aids and objectives. Microteaching is also a part of this subject.

B22-M102 Marketing This subject is designed to give students an introduction to the fundamentals of marketing. It will serve two types of students. The first group will be those students who are marketing majors who will use the course as a foundation upon which further study can be based. The second group will be the accounting majors for whom this will probably be the only marketing subject they will take.

B22-M205 Retail Management Analysis of the operations of retail institutions with respect to organization, buying, promotion and internal control. Special attention will be given to these concepts and their application to the retailing program in the public school.

B22-T111 Seminar and School Experience 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 conferences will be arranged to assist and evaluate the student in his student teaching period.

B22-T211 Student Teaching A continuation of B22-T111 with less emphasis on observation and more emphasis on actual teaching. The program will also require greater overall teaching responsibilities including planning, classroom management, evaluation, and extra curricular activities.

B22-T212 Teaching Typewriting and Office Systems Management Preparation for instruction in typewriting with emphasis on development of resources, evaluation in relation to psychomotor domain. Research will be conducted on office systems and its implication for classroom teaching procedures.
INDUSTRIAL TEACHER EDUCATION DEPARTMENT

B23-C102 Construction - Introduction Introduction to construction will include a number of construction trades with a great deal of emphasis placed on tools, equipment and safety. Basic building practices will be dealt with, both in laboratory and classroom. Prerequisite: B23-C102.

B23-C202 Construction - Advanced The study of building principles, including materials, and building codes. Laboratory activities will include floor and wall construction, basic roof design, interior and exterior finishing. Prerequisite: B23-C102.

B23-E102 Microteaching Presentation of micro lessons, with emphasis on the following types: exposition, demonstrations, questioning and discussions. Discussion and evaluation of lesson presentations. Operation of video tape recording equipment.

B23-E103 Audio-Visual Education Communication principles related to the application of audio visual media to education. Audio visual materials and equipment; their selection, preparation, utilization, and evaluation in industrial education.

B23-E104 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.


B23-E201 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.


B23-E203 Course Development 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.

B23-E205 General Teaching Methods II Emphasis on teaching methods not covered previously. Additional areas of study include: class organization and management, public relations, professionalism, and research related to teaching methods in industrial education.

B23-E301 Independent Study Designed to provide the student meeting the prerequisites with an opportunity to engage in independent research and/or problem solving directly related to industrial arts education. Approval of the Chairman Teacher Education Section, must be obtained to undertake this course. A student qualifying for independent study will be required to select and work in consultation with a staff advisor.

B23-E302 Independent Study Same as B23-E301 except the independent study will be based on a different topic or conducted at a more advanced level.

B23-G102 Graphic Communications - Introduction Exploring the processes and methods used in graphic communications. Areas studied relate to communication theory, general layout and design, drafting, screen process printing, basic photography and relief printing as applied to the teaching of graphic communications related to industrial arts education.

B23-G202 Graphic Communications - Advanced Continuation of exploring the processes and methods used in graphic communications. Areas studied relate to lithography, office duplicating, graphic careers, microfilm, and binding, finishing and packaging as applied to the teaching of graphic communication as related to industrial arts education. Prerequisite: B23-G102.

B23-M102 Manufacturing - Introduction Exploration of the wood, metal and plastics fields, including tools, materials and processes, to determine to what extent these materials, tools and processes should be applied at the public school level, in Industrial Arts classes. Also included in the course is a short period of instruction on mass production systems, and some hands on experience for the students in the production of inter-changeable parts.

B23-M202 Manufacturing - Advanced An indepth study of the tools, materials and processes of the wood, metal and plastics fields with special emphasis on quality control within a manufacturing system. Also to include the business structure as well as the production structures. Each student will be involved in top management, middle management, sales, production and labor levels of a manufacturing system. Prerequisite: B23-M102.

B23-P102 Power and Energy - Introductory A theoretical and practical study of the basic principles of mechanical, fluid and electrical power, covering such topics as Internal Combustion Engines, pneumatics and hydraulics, electron theory, series and parallel circuits, power supplies, motors and generators.

B23-P202 Power and Energy - Advanced An indepth theoretical and practical study of mechanical power, electrical power and fluid power, covering such topics as engine tune-up, engine analysis, superheterodyne receiver, amplification, hydraulic and pneumatic experimentation and digital electronics. Prerequisite: B23-P102.

B23-T102 Seminar and School Experience 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 conferences will be arranged to assist and evaluate the student in his student teaching period.

B23-T202 Student Teaching A continuation of B23-T102 with less emphasis on observation and more emphasis on actual teaching. The program will also require greater overall teaching responsibilities including planning, classroom management, evaluation, and extra curricular activities.

B23-V102 Trade and Theory and Practice Practical and professional experience for vocational industrial students in their trade areas. The students will be placed with experienced instructors in the school system and/or with supervisors in an appropriate industry. The purpose of the experience will be to update students in their area of specialization and/or to provide additional teaching experience. Reports on the program may be required.
B23-W102 Cooperative Business/Industrial Education A special program designed to provide educational experiences relevant to Industrial Arts/Business Teacher Education student in an industrial/business environment. The experience will involve as many aspects of the concerned industry/business as possible. The program will be individualized according to a student's background and according to the nature of the concerned firm. A final project summarizing the student activities will be a major requirement.
CHEF TRAINING DEPARTMENT

B30-A301 Kitchen Management This course consists of menu planning, costing of food and labour, scheduling aspects of supervision and common management practices.

B30-A302 Garde Manger This course consists of the planning and the preparation of a variety of buffet items.

B30-A303 Patisserie This course consists of the making of a variety of pastries, cakes and desserts.

B30-A304 Practitioner This course consists of a period of on-the-job training and practical work with emphasis placed upon the students' desire to be able to supervise a variety of menus.

B30-A305 Nutrition Basic Nutritional requirements and consideration of nutritional factors as they pertain to menu planning and the application of diet foods on commercial menus.
COMMERCIAL BAKING DEPARTMENT

B31-B111 Commercial Baking On-The-Job Training On-the-job training period of the course.

B31-B112 Breads, Rolls, Sweet Dough Practicum Preparation and baking of a basic variety of breads, rolls and sweet dough items.

B31-B113 Breads, Rolls, Sweet Dough Theory This subject covers all the relevant theory applied to the Breads, Rolls, and Sweet Pastry.

B31-B114 Plain and Sweet Pastry Practicum This subject pertains to the necessary preparation and baking of a variety of plain and sweet pastry.

B31-B115 Plain and Sweet Pastry Theory This subject pertains to the necessary theory associated with plain and sweet pastry.

B31-B116 Danish and Puff Pastry Practicum The preparation and baking of danish and puff pastry.

B31-B117 Danish and Puff Pastry Theory The theory associated with the production of danish and puff pastry.

B31-B118 Introduction to Sanitation, Safety, Equipment Usage and Ingredients Knowledge This subject includes the sanitation, safety and equipment factors relevant to baking. It includes the type of ingredients used, their uses and application as well as some aspect of business practices pertaining to the industry.

B31-B119 Cookies and Short Breads Practicum This subject includes the preparation and baking of a variety of cookies and short breads.

B31-B120 Cookies and Short Breads Theory The relevant theory pertaining to cookies and short breads.

B31-B121 Cake Making Practicum This subject covers the practical making of cakes.

B31-B122 Cake Making Theory This subject covers the applicable theory to the making of cakes.
COMMERCIAL COOKING DEPARTMENT

B32-C103 Aspects of Kitchen Management An introduction to safety, sanitation and the measuring of foods as applicable to the industry. Aspects of menu planning, the costing, purchasing, storing, and receiving of foods.

B32-C104 Basic Cooking Theory This subject covers the relevant theory pertaining to stocks, soups, sauces, cooking methods and vegetable cookery.

B32-C105 Basic Cooking Practicum This subject covers the practical aspects of basic cooking. Includes the preparation and uses of stocks, soups, sauces, vegetables and the cooking methods employed.

B32-C205 Gardemanger Theory This subject covers the theoretical aspects of sandwiches, salads, appetizers, meat cutting and buffet work.

B32-C206 On-the-Job Training The student will spend one block of 8 weeks duration in the employment of a restaurant or hotel as arranged by the College on a co-operative education basis. This will be monitored by the co-op co-ordinator.

B32-C207 On-the-Job Training The student will spend a second block of 8 weeks duration in the employment of a restaurant or hotel as arranged by the College on a co-operative education basis.

B32-C209 Restaurant Cooking This subject covers the theory as it pertains to breakfast cookery, fountain work and beverage making.

B32-C210 Restaurant Cooking This subject consists of the preparation and production of a variety of dishes as outlined by a series of menus.

B32-C211 Gardemanger Practicum This subject deals with the preparation of sandwiches, salads, appetizers, buffets and the cutting of a variety of meats, fish and poultry.

B32-C212 Pastry Shop Theory This subject covers the theoretical aspects of breads, pastries, pies, cakes and cookies.

B32-C213 Pastry Shop Practicum The preparation and making of a variety of breads, pies, pastries, cakes and cookies.

B32-C213 Salads & Dressings The preparing and baking of Danish pastry and variations thereof. The preparation and baking of Puff Pastry, Sweet pastry, Choux pastry and pie making.

B32-C313 Hot & Cold Buffets Preparation of basic cold and hot items commonly associated with buffets.

B32-C314 Meat Cutting for Restaurants and Hotels The grading, storage and costing of meats. The boning and cutting of a variety of meats, fish and poultry.

B32-C800 Orientation — Human Relations This section provides students with an overview of the industry and the kinds of skills required. Skills dealing with people, working situations and for the examination of one's relationship with others. Techniques for obtaining a job.

B32-C801 Waiter and Waitress Training This section provides students with basic skills as required to function as a waitress or waiter and the theory necessary to comprehend relationships.

B32-C803 Waiter Waitress On-The-Job This section consists of an on-the-job training session designed to strengthen the skills learned and to apply them in a realistic setting.

B32-C804 Basic Cooking Skills This subject provides for the practice of a variety of basic cooking skills and for the necessary theory to assist in the development of those skills.

B32-C805 On-the-Job Skills This subject consists of an on-the-job training period designed to strengthen the skills learned and to apply them in a realistic setting.

B32-N507 Nutrition Introduction to aspects of nutrition as they pertain to the hospitality industry.
MEAT CUTTING DEPARTMENT

B33-M105 Introduction and Orientation This subject provides for the necessary instructions pertaining to the uses and proper handling of tools and equipment; the rules pertaining to safety and sanitation and the information about course content and general procedures.

B33-M106 Shop Management This subject concerns itself with the aspects of managing a shop, ordering, receiving, storing and recording of goods. Profit and loss and cutting tests.

B33-M107 Quality of Meats This subject consists of information pertaining to the structure and composition of meats, storing, aging and the regulations which govern the quality of meats.

B33-M108 Hinds of Beef Practicum This subject provides for the study and practical experience in breaking down hind quarters into wholesale, primal and retail cuts.

B33-M109 Hinds of Beef Theory This subject provides for the relevant theory pertaining to hind quarters of beef.

B33-M110 Front Quarter of Beef Practicum This subject provides for the students to obtain the practical experience in breaking down front quarters of beef into the various cuts using a variety of methods.

B33-M111 Front Quarters of Beef Theory This subject concerns itself with providing the theory necessary to identify cuts, bone structure and the terminology involved.

B33-M112 Sides of Pork Practicum This subject provides for the student the practical experience necessary in order to efficiently break down sides of pork into the various wholesale and retail cuts.

B33-M113 Sides of Pork Theory This subject pertains to the theory associated, the grading, terminology and specific regulations pertaining to pork.

B33-M114 Sides of Veal Practicum This subject will cover the practical experience for the student in order to efficiently break down sides of veal into the various wholesale primal and retail cuts.

B33-M115 Sides of Veal Theory This subject concerns itself with the relevant theory pertaining to sides of veal.

B33-M116 Carcasses of Lamb Theory This subject pertains to the grading structure and terminology associated with lamb.

B33-M117 Carcasses of Lamb Practicum This subject provides for the practical experience necessary to allow students to break down lamb carcasses into acceptable wholesale and retail cuts.

B33-M118 In-Store Training This subject consists of a two-week in-store-training session.
B35-1203 Recordkeeping A brief overview of a one-write accounting system including accounts receivable and payable, handling of cheques, cash, invoices and related documents.

B35-1302 Consumer Education This course gives an introduction to consumer information including: Advertising, finances, budgeting, real estate buying and selling, mortgages, liens, women's role as a consumer, plus a familiarization with legal terms and definitions. Practice is also given in setting up legal work and completing legal forms.

B35-1303 Maths/Machines A review of the fundamentals of arithmetic with emphasis on decimals and percents and their use in business computations. Mathematics applied to business problems in the areas of discounts, sales tax, invoices, interest, depreciation, pricing, bank discounts, installment buying, fire and life insurance, partnership distributions, real estate taxes and income tax. Also the operation of an electronic printing calculator in computing these problems.

B35-1304 Office Procedures – Advanced Provides training in clerical routines, machine operation (duplicating and transcribing) instruction in business techniques and development of employable work habits — personality improvement and character building. Includes topics such as postal services, transportation of goods, purchasing and sales routine, travel arrangements, itineraries, minutes and meetings, transparency construction, case studies, and practical work at both Model Office and out in business.

B35-1402 Machine Transcription Prior to commencing this subject, the student must be able to type 35 wpm and have facility with spelling, punctuation, and letter and report arrangement. Students transcribe material from a variety of areas. It is designed to enable the student to transcribe with speed and accuracy material from records directly into final typed usable form through the skill and proficiency gained from the dictaphone machine operation of ear-finger-toe coordination.

B35-1404 Shorthand Theory (Program 21) A palmanic system of shorthand (i.e. entirely of symbols). Students learn the theory and should upon completion be able to take familiar dictation at 60 wpm. The student should also be able to read shorthand.

B35-1414 Business Communications This course is a continuation of the fundamental of grammar, vocabulary enrichment and spelling, plus a foundation in the fundamentals of punctuation, use of capitals, abbreviations and figures in business correspondence. Third trimester of this course includes composition of acceptable sentences, paragraphs, letters, memos, and organization and presentation of a research paper.

B35-1504 Terminology This is an introduction to the language of Medical Science through the study of common medical terms, eponyms, suffixes, prefixes and symbols and abbreviations. This course is composed of spelling of medical terms, tracing of meanings, and an introduction to the transcription of medical dictation from tapes.

B35-1514 Key Punch Upon completion of the keypunch course the student will be able to operate a keypunch and verifier at a level acceptable to industry and government.

B35-1524 Introductory Accounting Includes journalizing, posting, financial statements, closing the ledger, banking activities, cash receipts and payments journal, and payroll accounting for a sole proprietorship and partnership.

B35-1534 Advanced Typing Typing of very complex uninstructed and unarranged copy of previous learned material. Typing of legal forms, special size stationery, financial statements, preparation of minutes of a meeting, personal data sheet and ten-minutes timings.

B35-1603 Intermediate Typing Typing of complex correspondence with various types of punctuation, blind carbon copies, second page letters, tabulations, ruled and boxed tables, tables with leaders, and business forms when given in rough draft, unarranged copy.

B35-1802 Introductory Typing Thorough knowledge of key board, machine parts and correct touch typing techniques. Typing of correspondence, complex tabulations, manuscripts, invoices, and interoffice memorandums when given in rough draft, unarranged copy.

B35-P101 Typewriting — Keyboarding Introduction to the key board, machine parts and correct touch technique.

B35-P401 Filing Instruction and practical application to categorizing, indexing and filing using various systems. Charge out, follow up, cross-referencing and retrieval of material is also learned.

B35-P501 Business Communications This course is designed to provide a foundation in the fundamentals of grammar, vocabulary enrichment and spelling.

B35-R031 Office Procedures This subject presents all the major phases of office procedures such as filing types of communications, data processing, the handling of mail etc., as well as the personal qualities necessary to function effectively as a member of the office team. The subject also includes instruction and practice in the typing of business correspondence from a transcribing machine and practice as the typing of business correspondence from a transcribing machine.

B35-R051 Business Mathematics The subject provides a review of addition, subtraction, multiplication, division as well as fractions, percent and decimals. The subject also teaches the operation of a calculator with emphasis on speed and accuracy of operations and the automatic function of the machine.

B35-R101 Typing This subject is designed to provide refresher training to students who have been out of the clerical work force for some time but who have had previous formal training on typing. Students are expected to achieve a minimum typing speed of 40 wpm and to review all phases of production.

B35-R501 Business English The subject reviews the elements of grammar, punctuation, spelling word usage and writing style as they apply to modern business communication.
STUDENT SERVICES DEPARTMENT

F101-B001 Physical Education Physical education credit classes provide instruction in archery, badminton, golf, gymnasium, swimming, tennis, trampolining, volleyball, etc., with emphasis on basic skills. Advanced classes are also available for the more skilled. These classes provide an in-depth study of strategy in theory and practical. Extensive use of video-tape will be made in the advanced classes.

F101-C003 Activity for Life The course is designed to acquaint the nurse-in-training with fitness and activity as they apply to the nurse and the patient. Students will develop a personal fitness program. They will also participate in one or two chosen activities during the term. Written and practical tests will be used in evaluating the students' understanding and ability.
DIPLOMA NURSING DEPARTMENT

H01-L102 Clinical Microbiology Principles and practice techniques; the isolation and identification of common medical bacteria, parasites and fungi. Preparation of stains, media and the operation of equipment used. Basic principles of immunology.

H01-N102 Basic Science This subject is an introduction to the study of the structure and function of the human body. It is also an introduction to the study of micro-organisms, their relationship to man, and methods used to control them. Throughout the subject, application to nursing is stressed.

H01-N103 Nursing Fundamentals This subject presents the knowledge and the skills which provide a basis for nursing actions. The focus is on the promotion of health by facilitating the fulfillment of basic human needs. The concept of the health-illness continuum is introduced. The theory of adaptation is used as a basis for understanding an individual's position on the continuum. The nursing process is introduced as a systematic method of organizing nursing care. Emphasis will be on the first and second step of the process: data gathering and assessment.

H01-N104 Nursing Practice This subject provides the student with the opportunity to apply the knowledge gained and to practice the skills attained in H01-N103.

H01-N201 The Growing Family This subject focuses on understanding the health needs originating in the child-bearing period of family life. It illustrates the way in which some of these needs are met within the family group. It provides the student with the knowledge and the skills necessary to assist the family during the maternity cycle. Prerequisite: H01-N103; H01-N104.

H01-N202 Basic Science This subject, a sequel to H01-N102, is a study of human anatomy and physiology, with the emphasis on physiology as it applies to nursing. Prerequisite: H01-N102.

H01-N203 Introduction to Nursing of Adults and Children This subject focuses on an understanding of the major homeostatic imbalances. And the adaptation measures utilized to correct them. Provision is made in this subject for the student to enhance his/her ability to utilize the nursing process in assisting individuals to adapt to homeostatic imbalances. Prerequisite: H01-N103; H01-N104.

H01-N204 Nursing Practice This subject provides the student with the opportunity to apply and to become skillful in implementing the knowledge and skills obtained in H01-N201, and in H01-N203. Prerequisite: Term 1.

H01-N302 Nursing In Mental Health This subject focuses on the assessment and interpretation of behavioral patterns which result when children and adults cope ineffectively with psychological stress. Provision is made in this subject for the students to utilize the nursing process when assisting individuals and their significant others return to a state of psychological homeostasis. Prerequisite: H01-N201; H01-N203; H01-N204.

H01-N303 Nursing of Adults & Children This subject focuses on the nursing care of people with various pathological processes and the behavior which may occur when an individual is confronted with the stresses associated with a moderately complex illness. The nursing process is utilized as the method by which nursing acts to supplement or support the individual to cope with stress. Prerequisite: H01-N201; H01-N203; H01-N204.

H01-N304 Nursing Practice This subject is designed to permit the student to apply the knowledge gained in the theory subjects of this term to the care of individuals demonstrating some form of moderate illness. The application of the nursing process will serve as the basis for the evaluation of the student's ability to implement nursing actions to meet the needs of assigned individuals. Prerequisite: Term 2.

H01-N305 Community Health This subject is designed to assist the student in understanding the organization and delivery of health care in the community. It will emphasize the importance of the continuity of care. The student will assess the needs of individuals in their homes and may initiate activities to facilitate healthful living. Prerequisite: H01-N201; H01-N203; H01-N204.

H01-N402 Nursing In Mental Health This subject focuses on assessment and interpretation of behavioral patterns which result when individuals are confronted with crisis situation. It discusses therapies utilized to assist individuals to cope with psychological stress. It includes an overview of a community mental health approach to the prevention and care of individuals experiencing emotional stress. Prerequisite: H01-N302.

H01-N403 Nursing of Adults & Children II This subject focuses on assessment and interpretation of behavioral patterns which occur when children and adults are confronted with acute, life-threatening physiological crises. It indicates ways in which individuals may be assisted in coping with crises in which adaptive mechanisms are inadequate. The nursing process is the method used to assist individuals. Prerequisite: H01-N303; H01-N304.

H01-N404 Nursing Practice This subject focuses on developing organization and leadership skills in patient care when assigned to individuals who are experiencing varying states of adaptation. The student will be active participants of the health team and will experience situations involving increased collaboration with members of the health team. Prerequisite: Term 3.

H01-N405 Community Health See H01-N305.

H01-N406 Trends In Health Care This subject is designed to facilitate the role transition from student to graduate nurse. It will consider systems of health care delivery in the context of current practices and future trends. It will serve as an introduction to the role and function of the organized nursing profession. The historical development of nursing will be considered in relation to current issues and trends in the delivery of health care. Prerequisite: H01-N303.

H01-S101 Psychology This course is concerned with a thorough study of the basics of human behavior so that the knowledge gained can contribute to the success in dealing with people at work and in other areas of daily life.

H01-S102 Human Relations To be determined.

H01-S201 Developmental Psychology This course traces the psychological development of the individual from conception to death. Psycho-sociological consideration of personality development will be emphasized in an attempt to portray an accurate picture of normal human development throughout the life cycle, as well as certain aspects of abnormalities. Prerequisite: H01-S101.

H01-S317 Community and Social Services 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 his/her care.

H01-S527 Family Influences The effect on the child of child rearing practices, poverty, a single parent, sibling and minority status. The dynamics of family relations in which the child develops his personality.
HO1-S627 Family Systems 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.

HO1-Z102 First Aid This subject is designed to create an acute awareness of the cause and effect of accidents, making those who take care at more safety conscious and less accident prone. It teaches the fundamental techniques necessary to provide effective treatment at the scene of an accident.

HO1-Z111 Physical Care of the Child The course will provide the student with an understanding of the basic principles of health, 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.
PRACTICAL NURSING DEPARTMENT

H01-N101 Basic Nursing This subject enables the student to obtain knowledge and to develop skills essential for nursing activities.

H01-N102 Anatomy & Physiology This subject assists the student to understand the normal structure and function of the body.

H01-N103 Medical & Surgical Nursing This subject describes the knowledge and develops the principles that underlie all nursing care, in particular, abnormal conditions of the body.

H01-N104 Personal & Vocational Relationships This course assists the student to understand people and make the necessary personal and vocational adjustments to become an effective team member.

H01-N105 Mother, Newborn & Child This course enables the student to obtain knowledge, essential for nursing the mother, newborn and child.

H02-N106 Anatomy No description available.
MEDICAL LABORATORY TECHNOLOGY DEPARTMENT

H03-L101 Anatomy & Physiology The course entails the basic knowledge of the human anatomy and physiology beginning with the cell; its structure and function and division. The primary tissues are examined to structure and location leading to an in-depth study of the systems. In the study of systems, gross and microanatomical structure and the basic physiology and pathology are examined. The following systems are included — skeletal, muscle, cardiovascular, digestive, excretory, endocrine, respiratory and reproductive.

H03-L103 Clinical Chemistry Biochemical analyses of blood and other biological fluids related to disease, e.g., kidney function and liver function tests, enzyme studies, body fluid electrolyte balance studies. Basic instrumentation – spectrophotometers, autoanalyzer, flame photometer, pH meters, micrososmometer, and analytical balances.

H03-L104 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 disorder such as anemias and leukemias.

H03-L105 Histology The principles of routine tissue processing with an in-depth theoretical examinations of fixation, protein structure and how fixation affects it. The principles of dehydration, clearing impregnation and blocking. The techniques of sectioning paraffin and frozen specimens, with an in-depth examination of the theory of staining of tissue with twelve different histological stains. Included in the course is an examination of how various fixation affects and influences the different biological stains.


H03-L107 Introductory Chemistry Prerequisite for Clinical Chemistry. The fundamentals of physical, organic and biochemistry are presented. Basic instrumentation necessary in Terms 2 and 3 are introduced.

H03-L108 Laboratory Practice This course is designed to present the fundamentals of laboratory safety, laboratory mathematics and the basic equipment/techniques used in performing laboratory procedures. The fundamentals of statistics necessary to calculate and understand determinations involving accuracy, error and quality control procedures in Medical Laboratory Technology.

H03-L109 Optics This course presents the basic knowledge required to use microscopes as a tool for investigation.

H03-L110 Immunology/Genetics An introduction to the theory of genetics and immunology. This subject is a prerequisite for immunohematology, hematology, microbiology and clinical chemistry.

H03-L111 Chemistry for Nuclear Medicine This course is designed to give one a general understanding of inorganic physical, organic and biochemistry. Topics to be discussed include periodic table, bonding, properties of elements, electrochemistry, equilibrium, colloids, carbohydrates, lipids, proteins, nucleic acids, cells etc. Laboratory experiments support the theory in a practical environment.

H03-L112 Immunology for Health Sciences Introduction to immune system, the anatomy of the immune response. "T" and "B" cells, their production and function. Antibody production structure and function. Hyper- and hypo-immune states.

H03-L113 Anatomy and Physiology (1) Introduction to Human Anatomy and Physiology. The study of the individual cell and organelles, basic primary tissue and structure. The study of the skeleton, skeletal muscleH03-L110 Immunology/Genetics An introduction to the theory of genetics and immunology. This subject is a prerequisite for immunohematology, hematology, microbiology and clinical chemistry.

H03-L111 Chemistry for Nuclear Medicine This course is designed to give one a general understanding of inorganic physical, organic and biochemistry. Topics to be discussed include periodic table, bonding, properties of elements, electrochemistry, equilibrium, colloids, carbohydrates, lipids, proteins, nucleic acids, cells etc. Laboratory experiments support the theory in a practical environment.

H03-L112 Immunology for Health Sciences Introduction to immune system, the anatomy of the immune response. "T" and "B" cells, their production and function. Antibody production structure and function. Hyper- and hypo-immune states.

H03-L201 Anatomy and Physiology See H03-L101.

H03-L202 Clinical Microbiology Principles and practice techniques; the isolation and identification of common medical bacteria, parasites and fungi. Preparation of stains, media and the operation of equipment used. Basic principles of immunology.

H03-L203 Clinical Chemistry Biochemical analyses of blood and other biological fluids related to disease, e.g., kidney function and liver function tests, enzyme studies, body fluid electrolyte balance studies. Basic instrumentation - autoanalyzer, flame photometer, micrososmometer.

H03-L204 Hematology 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.

H03-L205 Histotechnology The principles of routine tissue processing with an in-depth theoretical examination of fixation, protein structure and how fixation affects it. The principles of dehydration, clearing impregnation and blocking. The techniques of sectioning paraffin and frozen specimens, with an in-depth examination of the theory of staining of tissue with twelve different histological stains. Included in the course is an examination of how various fixation affects and influences the different biological stains.

H03-L206 Immunohematology A course of study in general knowledge of immunology with special attention to antigen antibodies and antigen-antibody reactions. A review of basic genetics and inheritance. Principles of

H03-L213 Anatomy and Physiology (2) The cardiovascular system, structure and function. The lymphatic system and its relation to immunity. The respiratory system, and gaseous exchange. The nervous system and the brain, structure and function. The special senses.

H03-L301 Anatomy & Physiology See description for H03-L101.


H03-L304 Hematology See H03-L203.

H03-L303 Clinical Chemistry See H03-L201.

H03-L305 Histotechnology See H03-L204.

H03-L306 Immunohematology See H03-L205.

H03-L313 Anatomy and Physiology (3) The digestive and excretory system, structure and function. The endocrine system, structure, function and integration of body function. Male and female reproductive systems, fetal development during pregnancy.
MEDICAL RADIOLOGICAL TECHNOLOGY DEPARTMENT

H04-A101 Anatomy and Radiographic Positioning
Description of skeletal anatomy of upper and lower extremities, pelvis, vertebral column, thorax and skull. Description of anatomy of lungs and abdomen. Radiographic positioning of upper and lower extremities, pelvis, vertebral column, sternum, ribs, skull, sinuses, facial bones, chest and abdomen.


H04-A103 Radiation Physics, Protection, Apparatus Discussion of electromagnetic spectrum, scatter and secondary radiation, units of radiation, maximum permissible doses, radiation hazards, means of protection, electrical hazards. Discussion of X-Ray and X-Ray production, rectification, focal spot size circuits with respect to control of time, mA and KVP, beam limiting devices, filters, tables, chest stands, accessory apparatus.

H04-A104 Terminology Introduction to the technical language of medical science.

H04-A105 Electrocardiography Discussion of the electrophysiology of the heart and its relationship to ECG, the use of the ECG instrument, ECG artifacts.

H04-D101 Anatomy and Physiology A general knowledge of anatomy and physiology of the body based on the nine systems is taught with special emphasis on gross anatomy and basic physiology to provide the groundwork for their professional courses. Specific reference will be given to cell theory and the skeletal system. Common pathologic terms of each system are introduced and briefly discussed in preparation for understanding procedures performed in their department. This course is given to Medical Radiography, Radiotherapy and Nuclear Medicine students.

H04-D102 Radiographic Positioning The format of this course is in keeping with the syllabus of the Canadian Society of Radiological Technicians. The standardized course presentation consists of basic radiographic positioning of the patient for all skeletal parts of the body. These are of the upper and lower extremities, vertebrae, skull (cranial, sinuses and facial), chest and all thoracic structures. A short dissertation of Paediatric radiography is introduced at the end of the course. Radiographic positioning is expanded in an 18 month clinical application at the hospitals following the college didactic period.


H04-D104 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, KVP and M.A., grids, diaphragms, one and collimators, viewing devices, filters, spot film devices, stereoscope image amplification, photo fluorography, body section radiography.


H04-D107 Hospital Affiliation - Clinical Student returns to the hospital for one full day every second week over a period of fourteen weeks. Coordination of lecture material and equipment/procedures not available at the College.


H04-P101 Residents' Radiation Physics A complete study of x-ray equipment including circuitry, x-ray beam controls, accessory equipment, and advance equipment is covered. Included is the program in Radiation Physics which reviews production, measurement and interaction of radiation. Construction and phosphors - intensifying screens and fluoroscopic screens, physical characteristics of x-ray film and film processing, photographic characteristics of x-ray film, geometry of the radiographic image, stereoscope, magnification radiography, subtraction technique and copying radiographs.

H04-T107 Radiotherapy Clinical Student returns to the hospital for one full day and one afternoon each week for a period of 14 weeks. The student will observe equipment and procedures correlated to College instructional program.
H04-T108  Apparatus and Accessory Equipment  
Basic concepts of x-ray circuitry, radiation controls, accessory x-ray apparatus, and radiation production. Techniques of beam confinement, interlock circuitry, timing are examined. Influencing factors such as filtration, beam size and distance are covered and means of measuring radiation by ionization, etc.

H04-T109  Image Recording in Radiography  
Basic photographic theory, film, intensifying screens, processing, processors, dark room, technical factors of exposure, radiographic density, contrast, definition, fluoroscopy, tomograms, contrast media, lymphangiography, and mammography.
NUCLEAR MEDICINE DEPARTMENT

H05-N101 Nuclear Instrumentation Nal (T1) Scintillation detectors and ancillary electronic equipment, automatic gamma counters, rectilinear scanner, gamma camera, scintillation spectrometry, in-vitro and in-vivo counting techniques, nuclear counting statistics, Geiger-Meuller counters, portable and re-entrant ionization chambers, liquid scintillation - sample preparation and counting, quality control and mechanical and electrical safety of nuclear counting equipment, miscellaneous radiation detection devices.

H05-N102 Nuclear Radiation Physics Models of atomic structure; periodic table; models of nuclear structure; specification of nuclides; alpha, beta, and gamma emission; decay schemes; half-life and the decay equation; production of radionuclides; interaction of alpha, beta and gamma radiation with matter; absorption and attenuation of alpha, beta and gamma radiations.

H05-N103 Radiation Biology and Protection Radiobiological and radiation protection units and terms; biological effects of radiation (somatic, genetic, acute, chronic) and modifying factors; background radiation; I.C.R.P. primary and secondary radiation exposure guidelines; Atomic Energy Control Act radioisotope licences; classification of radioisotope laboratories; principles and practices for protection against open and sealed radioactive sources; radioactive spills and monitoring and decontamination procedures; disposal of radioactive waste; radiation therapy case; personnel monitoring; dosimetry.

H05-N104 General Knowledge Laboratory safety and first aid; types, properties, use and care of glassware, plastic ware, and glass volumetric equipment; manual semiautomatic and remote pipeting and dispensing; principles and techniques of weighing with rough and analytical balances; theory, use and care of centrifuges and compound microscopes; types, uses and operation of thermal equipment.

H05-N105 Mathematics & Statistics Review of arithmetic operations, algebraic operation, exponential and logarithmic operation; linear and quadratic equations, ratio and proportion; simple descriptive statistics and normal distribution; errors and error analysis; introduction to computer time-share and application.

H05-N201 Instrumentation (use) Radioactivity measurement with dose calibrator; exposure rate and contamination monitoring with G-M and ion chamber survey meters; G-M operating curve; advanced scintillation spectrometry, Inverse Square Law verification; detector resolving time determination; half-life and half-value layer measurements; identification and quantitation of unknown radioactive sources; rectilinear scanner and gamma camera collimator sensitivity and resolution measurement; organ phantom imaging; quality control procedures for nuclear instrumentation.

H05-N205 Applied Physiology & Pathology Classification of diseases; inflammation; bacterial, physical, chemical, and radiation injury; neoplasms; immunity and deficiency diseases; rational and interpretation of Nuclear Medicine testing in relation to specific pathology of endocrine system, blood, cardiovascular system: gastrointestinal system, nervous system, pulmonary system, genitourinary system, skeletal system, and including tumor localization. Hospital affiliation for clinical experience.

H05-N206 Clinical Methodology Practical aspects of static and dynamic imaging procedures, in vivo non-imaging procedures, and laboratory nuclear medicine procedures: radiopharmaceuticals and instrumentation, sources of error and interference, and sequencing of tests.

H05-N207 Radiopharmaceuticals Aseptic technique; pyrogen and sterility testing; radionuclide generator elution, chemical and radionuclide impurities of eluate, dose measurement, dispensing, handling, labelling and storage of radiopharmaceuticals, sources and limits of radionuclide and radiochemical impurities; chromatography of radiopharmaceuticals; theory and practice of kit and in-house radiopharmaceutical preparation; quality control procedures in a radiopharmacy.

H05-N208 N.M. Study Seminars A series of seminars covering current topics in Nuclear Medicine Technology, prepared and presented by students, designed to stimulate information researching, topical discussion, and critical thinking.

H05-N209 Related Sciences Hematology, blood banking, laboratory reagents and solutions, collection of specimens; production of x-rays, x-ray beam and exposure factors, image recording and film handling, radiographic procedures; ethics, body mechanics, isolation technique, unconscious patient, emergency care, oxygen therapy, basic patient care; pharmacological terminology and techniques; preparation, administration, actions of drugs, toxicology; St. John's Ambulance First Aid course; classification and properties of microorganisms, diseases, the infectious patient, sterilization methods and testing.
H06-C112 Forum and Field Placement I To familiarize the student with the various child care centres throughout Winnipeg on a one day per week basis. To integrate the theoretical with the practical aspects of child care by relating the principles of child development to actual care procedures according to the philosophy of programs visited. This course will aid the student in his/her awareness of children through observation of the various learning areas in the centres.

H06-C115 Infant Development This course will provide a detailed description of the first two years of a child’s life, both in terms of the developmental landmarks and the behavioral change. The infant’s total development will be discussed chronologically. In addition to infant development the students will be presented with methodology for the observation of child behavior.

H06-C116 Independent Study in Child Care A chance for each student to strengthen any work areas of knowledge by researching a topic of his/her interest, exploring materials on that topic and acquiring skills if the student feels that need. The student must relate his/her learning to preschool children.

H06-C203 Philosophies of Child Care To introduce the student to child care services as they exist in Canadian society to study methods and theories of preschool 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. Among philosophies surveyed will be Montessori, informal and compensatory.

H06-C212 Forum and Field Placement II To develop basic skills for working with preschool children. To investigate and to understand the roles of the teacher through observation and participation in a preschool center. By relating principles of child development to the preschool program the student will outline and present appropriate activities in two major curriculum areas — art and science. The student will spend one day per week in the preschool setting.

H06-C214 Elements of Music for Children Learning about the use of music in the preschool, songs, rhythm, activities, instruments for children.

H06-C215 The Preschool Child This course explores the various aspects of preschool development, possible reasons behind a child’s behavior and the implications of child’s development and needs have for his/her behavior. The role observation plays in the study of children and their development will also be discussed.

H06-C312 Forum and Field Placement III A continuation of H06-C212 where the student will further his/her basic skills in working with preschool children and investigate the roles of a teacher through observation and participation. The student will also outline and present appropriate activities in three major curriculum areas — social studies, literature and music and movement. The student will participate one day per week in the preschool setting and in addition a one week block placement.

H06-C315 Child Development — Principles and Approaches This course will deal with the major streams of thought which have influenced child behavior and development. The topics covered will include historical trends in child development, theory and its role, and methods of studying children.

H06-C412 Forum and Field Placement IV During Trimester IV the students will spend one day a week, plus one full week in a preschool center participating under supervision and continuing to refine skills of working with children. The course will also give students an awareness of theoretical principles and methods of guiding the young child toward positive behavioral patterns. It will cover general philosophy of child guidance, practical methods of guidance, specific areas of discipline and the role of the adult. The students will also observe one child throughout the trimester.

H06-C417 An Overview of Exceptional Children This course is a series of workshops dealing with the education of children who have special needs. Topics covered are: the deprived child, sensory and communications handicaps, hearing and visual impairments, mental retardation, emotional and behavior disorders, physical disabilities and the gifted child. Existing practices, causes and methods of facilitating the goals will be explored.

H06-C425 Approaches to Curriculum To introduce the student to the variety and complexity of preschool programs offered in early childhood education and to evaluate the relevancy of each. The course will enable the student to propose a personal philosophy of child care based on developmental theories and program studied. Goals and specific objectives of a child care program and methods of facilitating the goals will be studied.

H06-C512 Forum and Field Placement V Students will spend one day a week plus two full weeks in a preschool center under supervision refining their preceptiveness to children’s needs. This course will involve a discussion of room planning principles and the effects of room planning on the daily operations of a child care center; equipment, types, alternatives, purchase and evaluation; and daily planning. The student will observe one child for the trimester.

H06-C517 Special Education This course is an in depth study of children who have special needs. The course focuses on the relatively common exceptionalities of young children in normal preschool settings. Practices which could be implemented in the preschool by the child care worker will be explored in detail.

H06-C525 Curriculum Planning Having developed a personal philosophy and goals for a child care program the student will focus on a planning curriculum for a preschool center. The student will recognize factors that influence preschool planning and organize the daily hours in a center to best meet the needs of children. The course also explores long and short range program planning such that the student will learn to plan a week, a month and a year for preschool children.

H06-C612 Forum and Field Placement VI Students will spend one day a week plus four full weeks in a preschool center. The students will be introduced to the variety and complexity of preschool programs. They will be able to evaluate the relevancy of each. The course will enable the student to propose a personal philosophy of child care based on developmental theories and program studied. Goals and specific objectives of a child care program and methods of facilitating the goals will be studied.

H06-C620 Seminar in Child Care In depth research of problem areas, development of a questioning attitude.

H06-C625 Curriculum Implementation The course is a study of the various components of a child care center and the integration of services to fulfill the total needs of a child. The student will study how to plan, develop and operate a child care center in relation to the province’s child day care program.
DENTAL ASSISTING DEPARTMENT

H07-C101 Life Sciences Information in basic sciences required by dental assistants. Includes an introduction to general and dental anatomy, microbiology (sterilization and disinfection), pharmacology, pathology and growth and development. The general concepts consider specific examples in the oral and dental environment.

H07-C102 Clinical and Laboratory Sciences A lecture/lab course divided into: chairside techniques and dental materials. Chairside techniques provide information and skills in four-handed dentistry and instrument identification. Dental materials provide knowledge of properties and characteristics as well as manipulative skills. This includes laboratory procedures which may be delegated to the dental assistant.

H07-C103 Supervised Clinical Experience Designed to provide the student with practical experience in routine dental activities and an opportunity to express knowledge gained in the in-college portion of the dental assisting program. Consists of seven weeks at a variety of dental experiences.

H07-C104 Office Procedures Provides the student with basic typing techniques, bookkeeping principles, communication skills, and dental office management duties. This includes scheduling and controlling office appointment, making financial arrangements and communicating effectively by telephone.

H07-E201 Community Dental Health Prepares dental assistants to assume a role in dental health education. Considers mechanisms of oral disease, role of personal oral hygiene in disease control, role of nutrition related to oral and dental health, some principles of learning, and the role of community agencies in combating oral disease.

H07-E205 Preclinical and Clinical Practice A Provides the opportunity for demonstration of the techniques described in H07-E202 and H07-E203. By the end of preclinical laboratory sessions and clinical practice, students will demonstrate patient education and motivation skills, preventive dental techniques, diagnostic date gathering and professional conduct.

H07-E206 Preventive & Diagnostic Aids & Techniques See descriptions for H07-E202 and H07-E203.

H07-P301 Concepts of Preventive Dentistry See H07-E201.

H07-P305 Preclinical and Clinical Practice B See H07-E205.

H07-P306 Intra Oral Techniques Theoretical preparation for preclinical and clinical practice. Includes reasons, approaches and criteria for rubber dam procedures, impressions for study models, intra-oral radiography, polishing of the teeth, and application for anticariogenic agents such as topical fluoride and sealants.
NURSING CONTINUING EDUCATION DEPARTMENT

H08-H101 Health Care Aide Core This core of the course is a five week session of 37 modules which will prepare a person to assist clients of varying ages to meet their basic social, emotional, and physical need. It will prepare a person to work, under supervision, as an aide in a personal care home (nursing home), or as a homemaker employed by an agency to work in a client's private home.

H08-L101 Licensed Practical Nursing Refresher Theory The practical nurse is provided with the updated knowledge required to enter the practice of nursing today.

H08-L102 Licensed Practical Nursing Refresher Clinical Renewal of nursing skills and application of theory is provided the practical nurse through clinical experience with patients in long term/extended and acute care hospitals and institutions.

H08-M101 Diploma Nurse Completer - Maternity Theory The body of knowledge and attitudes concerning the family in the childbearing process-prenatal, intranatal, postnatal and newborn.

H08-M102 Diploma Nursing Completer - Maternity Clinical Development of nursing skills and application of theory to the care of the family in the childbearing process. Experiences are provided with prenatal, intranatal, postnatal and newborn patients.

H08-P101 Diploma Nursing Completer - Psychiatric Theory Mental health and mental illness concepts as they apply to the nurse as well as the mentally and physically healthy and ill patient. Includes content on the needs, feelings, growth and development behavior as these affect the adult.

H08-P102 Diploma Nursing Completer - Psychiatric Clinical Application of the knowledge and understanding of psychiatric nursing concepts in clinical practice so that effective nursing is given to patients.

H08-R101 Registered Nurse - Refresher Theory This subject provides the graduate nurse with the update knowledge required to enter the practice of nursing today.

H08-R102 Registered Nurse - Refresher Clinical Renewal of nursing skills and the application of theory is provided through clinical experiences with patients in long term/extended and acute care hospitals and institutions.
H11-N101 Basic Science This subject is an introductory study of the structure and function of the human body. It is also an introduction to the study of micro-organisms, their relationship to man, and methods used to control them. The metric system and concepts of basic nutrition are included as well. Throughout the subject, application to nursing is stressed.

H11-N102 Introduction to Nursing This subject is designed to introduce concepts of health as they relate to the fulfillment of human needs thereby maintaining physiological, psychical and social integrity. It illustrates the way in which some of these needs are met by the client and his significant others. The concept of adaptation is used as a basis for determining a client’s position on the continuum. The subject focuses on clients of any developmental phase whose integrity is not disrupted and who are adapting to stimuli. The knowledge of skills presented provides a basis for nursing interventions based on the nursing process.

H11-N103 Nursing Practice This subject provides the student with the opportunity to apply the knowledge gained and to practice skills attained in Introduction to Nursing H11-N102.

H11-N301 Basic Science This subject is designed as a sequel to H11-N201 Basic Science. Included are more complex concepts of human anatomy and physiology. Throughout the subject, emphasis is placed on application to nursing.

H11-N302 Nursing Practice This subject focuses on the promotion of adaptation of clients of any phase of development who are experiencing commonly occurring disruptions of integrity. The nursing process is used as a systemic method of organizing and providing care to clients and their significant others in order to facilitate adaptation. The rights and concerns of clients are emphasized as being central to the care for which the nurse is responsible.

H11-N303 Nursing Practice This subject provides the student with the opportunity to apply and become skillful in implementing the knowledge and skills obtained in Nursing H11-N302.

H11-N304 Community Health This subject is designed to assist the student in understanding the organization and delivery of health care in the community. It will emphasize the importance of continuity of care. The student will assess the needs of clients in their homes and communities and may initiate activities to facilitate an optimum level of adaptation.

H11-N402 Nursing Practice This subject focuses on assessment and interpretation of adaptive and maladaptive responses that occur when clients in any developmental phase are confronted with crisis situations and/or medical emergencies. Ways to assist clients and their significant others to adapt in crisis situations and/or medical emergencies are discussed. The nursing process is the method used to facilitate adaptation. The moral, ethical and legal responsibilities of the graduate nurse are given further emphasis. Pre-requisite: H11-N302.

H11-N403 Nursing Practice This subject provides the student with the opportunity to apply and become skillful in implementing the knowledge and skills obtained in Nursing H11-N402. Pre-requisite: H11-N302, H11-N103.

H11-N405 Trends in Health Care This subject is designed to facilitate the role transition from student to graduate nurse. It will consider systems of health care delivery in the context of current practices and future trends. It will serve as an introduction to the role and function of the organized nursing profession. The historical development of nursing will be considered in relation to current issues and trends in the delivery of health care. Pre-requisite: H11-N302, H11-N303.

H11-R101 Social Science This introductory level course is designed to aid in the understanding of the self and the dynamics of human behavior. A variety of topics will be approached, but receiving particular emphasis will be the concepts of adjustment, adaptive behavior, stress, and stress-related behavior. The perspective will be from both the health care worker and the recipient point-of-view. Lecture and discussion will be supplemented by other learning modes.

H11-R102 Patient Care in Radiography The course deals with patient care in the radiology department. Topics, lectures discussions and practical experience cover: patient environment, rights, legal and ethical responsibility, T.P.R., B.P., asepsis, isolation technic, handling bed pans and urinals, ostomies, enemas, I.V. therapy, suctioning, patient positioning and moving, body mechanic, handicapped, infections, psychiatric, trauma, semi and unconscious patients, anesthetized patients; allergies and drug reactions, common medications and drugs; care, handling and administration of drugs, emergency drugs, gastric stimulants, gall bladder evacuants; mobile radiography, O.R. and ward; mass casualty procedure.

H11-S101 Social Science This subject is an introductory study of general and developmental psychology. It is designed for students in health care programs and, as such, is aimed at practical application of social science knowledge in the helping relationships. During the first part of the course, emphasis will be placed on fundamental principles of growth and development, developmental tasks, key concepts of personality, motivation, relevant aspects of emotions and methods of coping or adapting.
An overall objective will be to gain insight into the roots of human behavior from the physical, and psychological perspectives.

**H10-S102 Human Relations** A brief introduction to aid in understanding and coping with the reaction of patients to illness and hospitalization. Concepts of adaptive behavior, stress and stress related behavior are emphasized. A basic communication model is discussed briefly.

**H11-S201 Social Science (2)** The focus of this centre section of the three part social science program is on the time span in the human life cycle from conception to puberty. An ages and stages approach is used to explore significant physical, social and psychological contributions to the emerging personality. Emphasis is placed on developmental measurement during infancy, babyhood, early and middle childhood and puberty.

**H11-S301 Social Science (3)** This is a continuation of the format utilized in Part II but the section of the life span to be explored is shifted to adolescence and beyond. Adolescence, early adulthood, middle age and old age are considered in developmental terms from both physical and psychosocial perspectives.
ACADEMIC UPGRADING DEPARTMENT

S02-C100 Writing Skills Sentence and paragraph construction; expository paragraph writing; usage and mechanics; punctuation and capitalization.

S02-C110 Grammar Supplement Parts of speech; sentence patterns.

S02-C111 Reading Skills Reading speed and comprehension development; vocabulary development; study skills.

S02-C112 Spelling Core Lessons 1-14 consist of a list of commonly used and commonly mispelled words in the English language; rules to assist in developing spelling skills.

S02-C113 Spelling Supplement Lessons 15-22 consist of a review and elaboration of the first 14 spelling lessons; review of spelling rules.

S02-C200 Common Word Analysis The sound of English is used as a key to word recognition; the structures and functions of the language are emphasized as a key to meaning. Letters and sounds are learned in the context of words, then words are learned in the context of sentences, then paragraphs, then stories.

S02-C201 Comprehension Skills Deals with such subjects as plurals, contractions, abbreviations, suffixes, prefixes, context clues, interpreting signs and labels, synonyms, antonyms, meaning from context, recalling details.

S02-C202 Spelling Skills Spelling words are selected from each story in the lesson. Also, a spelling word list with a reading level below Adult 5 is used in the spelling laboratory.

S02-E200 Occupational Exploration Implications of different occupational choices; knowledge of self; knowledge of career clusters; decision making skills; exploration of work experience situation; training institution exploration; making a tentative occupational choice; in-depth study of occupation; job search techniques; making an occupational preference; preparing for entry into; training institution; employment; training on the job; others.

S02-E201 Occupational Exploration — Practical Supervised placement in a work experience setting or training institution for 4 to 10 days per placement.

S02-H200 Human Relations Strengthening self-image; clarifying values; understanding and describing emotions; decision-making and problem-solving; group cooperation; communications skills; family life; budgeting; banking and credit; consumer protection; buying insurance; nutrition; health habits; communicable disease; use and abuse of drugs and alcohol; current social issues; community agencies; community resources; community involvement; levels of government; voting; legal aid.

S02-M108 Mathematics Core Development of problem solving skills using whole numbers, fractions, decimals and percent; ratio and proportion; and measurements.

S02-M109 Mathematics Supplement Positive and negative numbers; square root; introductory algebra and geometry; and solving problems algebraically.

S02-M200 Maths. — Whole Numbers The number system and the money system; addition subtraction, multiplication and division of whole numbers.

S02-M201 Maths — Fractions & Decimals Measurements: linear, weight, time; simple fractions.

S02-S100 Science Core Scientific method; metric measurements.

S02-S113 Science — Supplement Temperature; heat; pressure; density; work; electricity; anatomy and physiology; problem solving.
**ADULT 11 & 12 DEPARTMENT**

**S03-K001 Communications** Writing development; spelling development; review of grammar and English usage; sentence construction; writing of paragraphs; reading development; speed and comprehension; vocabulary development.

**S03-L001 Mathematics** Exponents and scientific notation; fundamental operations of directed number, fundamental operations of algebra; equations with one unknown; special products and factoring; algebraic fractions; equations; graphic methods; simultaneous equations; trigonometry.

**S03-M001 Science (Physics)** Matter and energy; force; measurement; work; power; energy and machines; atomic structure; kinetic theory; thermal expansion; change of state; electrostatics; magnetic effects; direct current circuits; heating effects.

**S03-N001 Communications** Review of grammar; usage, mechanics, and sentence structure; writing of letters, paragraphs, summaries and research papers; reading, speed and comprehension development; study skills.

**S03-P001 Business & Consumer Fund** Levels of government; distribution of powers; the judiciary; case studies in common law; business and labour organization; personal income tax; consumer credit; investments; insurance; savings; consumer purchasing; advertising.

**S03-Q001 Communications** Grammar; usage; sentence structure; mechanics; paragraph writing, reading, spelling.

**S03-R001 Mathematics** Equations, factoring, exponents, quadratics, solving simultaneous equations and formula manipulation; mensuration and analytic geometry; trigonometry and logarithms.

**S03-S001 Science (Physics)** Kinetic theory; vectors electro-magnetism; radioactivity and electromagnetism; universal gravitation.

**S03-S002 Science (Chemistry)** Introduction to chemistry; atomic structure and periodic table; chemical composition and reaction; acids; bases; salts; solutions; organic chemistry.

**S03-T101 Science** Basic scientific concepts; measurements of forces, temperature, heat, pressure, density, work, electricity, systems of measurement, mechanical energy, problem solving, anatomy and physiology. Study of matter, heat and other energy, basic study of chemical substances, atomic organization, acids, bases and chemical reaction.

**S03-U101 Communications** Writing development; spelling development; review of grammar and English usage; sentence construction, writing of paragraphs, reading development, speed and comprehension, vocabulary development.
ACADEMIC UPGRADING DEPARTMENT — RURAL

S04-C100 Writing Skills See S02-C100.

S04-C110 Grammar Supplement See S02-C110.

S04-C111 Reading Skills See S02-C111.

S04-C112 Spelling Core See S02-C112.

S04-C113 Spelling Supplement See S02-C113.


S04-C201 Comm — Comprehension Skills See S02-C201.


S04-C203 Comm. — Sentence Skills Basic grammar, punctuation, capitalization, sentence writing.

S04-C204 Comm. — Reading Word attack, vocabulary, comprehension and study skills.

S04-C205 Comm. — Spelling Lessons 1-14 of Spelling Skills: Basic Program.

S04-E100 ESL — Rural See S05-E100.


S04-E201 Occ. Expl. — Practical See S02-E201.

S04-E202 Occupational Orientation Implications of different occupational choices and decision-making.

S04-H200 Human Relations See S02-H200.

S04-H201 Social Relations Group cooperation, communication skills, strengthening self-image, problem-solving.

S04-K001 Communications See S03-K001.

S04-L001 Mathematics See S03-L001.

S04-M001 Science (Physics) See S03-M001.


S04-M200 Maths — Whole Numbers See S02-M200.

S04-M201 Maths Fractions and Decimals See S02-M201.

S04-M202 Math — Unit One Working with whole numbers: addition, subtraction, multiplication, division, rounding off, averages, problem solving.

S04-M203 Math — Units Two and Three Working with fractions and decimals: all basic operations and problem solving.

S04-N001 Communications See S03-N001.

S04-0001 Mathematics (Business) See S03-0001.

S04-P001 Business and Consumer Fundamentals See S03-P001.

S04-S100 Science Core See S02-S100.

S04-S113 Science Supplement See S02-S113.
ENGLISH AS A SECOND LANGUAGE DEPARTMENT

S05-E100 ESL Basic The alphabet, articles, plural and verb tenses, simple adjectives, possessives, reading signs and warnings, time, days, months ans seasons, introduction and greetings, groceries and food, numbers, weather, shopping, names of objects, jobs and professions.

S05-E101 ESL Advanced Modals, adjectives, adverbs, present perfect, passive voice, conditionals, idioms, spelling, reading, countries, and customs, sickness and health, leisure, sports, travelling, jobs and professions, current events, citizenship, applications, appointments, interviews, telephone etiquette, conversations getting a job.

S05-E200 ESL Level I Grammar: verb tenses, modals, adjectives and pronouns, question words, prepositions, nouns, articles, vocabulary development: names of countries, addresses, nationalities, occupations, weather, directions, jobs and occupations, syntax: statements, yes/no questions, pronunciation: vowels and consonants, rhythm, stress, cultural contents.

S05-E201 ESL Level II Grammar: passive voice, conjunctions, relative pronouns, relative adjectives vocabulary and cultural aspects through dialogues and readings, syntax, pronunciation.

S05-E202 ESL Level III Verb tenses, pronouns, adjectives, adverbs, pronunciation, intonation rhythm, stress, everyday English vocabulary, cultural aspects, government in Canada, education in Canada, the school system.

S05-E203 ESL Level IV General review of verbs and conjunctions, passive and active voice, tenses, idioms, everyday English vocabulary, pronunciation, cultural contents, educational system, immigrant education counselling services, teacher training, preparation for TOEFL tests.
J.R.T. EMPLOY STRATEGIES DEPARTMENT

S06-A100 Group Process Exercises slanted towards increasing self-confidence by developing oral/aural skills in expressing oneself. Developing and practicing problem solving and decision making processes in everyday reality settings. Identifying job related problems, designing a method of resolution, and then implementation of the design. Developing and implementing the ability to give and receive feedback and contracting and implementing the ability to give and receive feedback and contracting and implementing behavioral change. Use of listening skills, role playing, use of VTR guest speakers, field trips, films, relaxation techniques and physical exercise, and achieving consensus on controversial issues.

S06-A101 Person Development Transfer of learning and new behaviors from the classroom to job, community and home settings, confidence-building exercises, coping with stress, fears and relationships, community activities, use of leisure time, relationships to family, friends, and colleagues. Decision making, and increasing self-esteem.

S06-D100 Directed Studies (Correspondence) Directed Studies by correspondence provides individuals in Manitoba with opportunities to continue their education with little or no attendance required at a formal educational institution. Most subjects taken through the Directed Studies (Correspondence) program, when successfully completed, can be applied for subject credit in designated program areas. Most of the correspondence subjects provided utilize textbooks and notes (developed specifically for the subject) require periodic responses to assignments, and may require the successful completion of examinations during the 'course' as well as at the end of the course.

S06-E200 Work Exposure Students participate in two one week job exposures with an option for a third. This allows students the opportunity to receive hands on experience in the occupations they have researched. Employers hours and regulations are maintained. The experiences may vary from tours and observation to direct work experience depending on the type of occupation and level of student skill.

S06-E201 Occ. Exp. (Practical) Develop and increase physical and emotional stamina in a work setting, increase personal knowledge and competence in the work experience location, be able to gather information about jobs/occupations and have the opportunity to have trial work experiences throughout the course in order to clarify personal abilities, skill level and their ability to cope with job related stressors. Review of courses available at RRCC mock job interviews, resume writing, filling out applications, creative job search techniques workshops, and guest speakers related to the work field.

S06-E202 Individual The individual component focuses on self-awareness and personal growth as it relates to the individual and employment. Students examine their interests, temperaments, aptitudes, skills, and experience. Topics include: barrier identification, coping with change and stress, communication skills, group behavior, assertiveness and self-confidence, problem solving, decision making and goal setting.

S06-E203 Career Exploration Includes research of career possibilities, training and educational programs, resource agencies, job search techniques and employer-employee expectations. Individual suitability as well as access to jobs is investigated with an emphasis on finding and securing a job. Issues which affect women as employees are given special emphasis assertiveness in the work force, sex role stereo typing and traditional and non-traditional work for women.

S06-M300 Personal Skills The personal skills section of the course is designed to show women how to gain confidence necessary to enter training or the labour force. The following topics are covered: Assertiveness training, confidence building, decision making, values clarification, communication skills, and personal barrier identification.

S06-M301 Inform Issues The information component of the course is designed to familiarize students with their rights, to develop an awareness of protective legislation and community resources. There is discussion of issues that affect them as women, single parents, mature students and workers.

S06-M302 Vocational Planning See S06-M305.

S06-M304 Inform Issues See S06-M301.

S06-M305 Voc Planning Each student is to design a realistic vocational plan which will lead eventually to employment. The process includes: self-search, occupational information, work exposure, training alternatives, barrier identification, goal setting and alternate routes.

S06-S101 Adaptive Skills The work 'adaptive skills' subject undertaken during the course focuses on the development of: 1. job attainment skills and 2. job retention skills. The major emphasis during the 'job attainment' skills portion is on: (a) preparing letters of application; (b) completing job application forms; and (c) participating in a job interview situation. The major emphasis during the 'job retention' skills portion is on: (a) beginning a job successfully; (b) dealing with supervisors; (c) learning company "official" and "unofficial" company rules, employee rights, and promotions. The average total subject hours for this subject is 60 hours.

S06-S102 Occupational Skills The focus of the work occupational skills subject is on the Sales Clerk — commodities occupational area. The major emphasis of the subject is on familiarization of the occupational area and on developing such occupationally-related skills as: selling, taking telephone orders, presenting/demonstrating merchandise, closing sales, computing costs, handling customer objections and complaints, operating a variety of cash registers, making change, and parceling packaging merchandise. The average total subject hours for this subject is 210 hours.

S06-S103 Work Experience Skills This subject focuses on obtaining occupationally related work skills from an employer who provides work experience opportunities in the occupational area. It also serves to confirm the training provided during the work occupational skills subject. Upon completion of this subject, graduates will be able to function in the occupational area at an entry level. The average total subject hours for this subject is 50 hours.

S06-S201 Adaptive Skills See description for S06-S101. The average total subject hours for this subject is 30 hours.

S06-S202 Occupational Skills The focus of the work occupational skills subject is on the Production, Shipping and Receiving/Stock Clerk occupational area. The major emphasis of the subject is on familiarization with the occupational area and on developing such occupationally-related skills as: using supply manuals, assisting with inventory, locating materials in a warehouse or storage area, making a shipment, handling goods received and taking proper security precautions. The average total subject hours for this subject is 120 hours.

S06-S203 Work Experience Skills See description for S06-S103.

S06-S301 Adaptive Skills See description for S06-S101. The average total subject hours for this subject is 30 hours.
S06-S302 Occupational Skills The focus of the work occupational skills subject is on the Building Maintenance and Janitorial Services occupational areas. The major emphasis of the subject is on familiarization with the occupational area and on developing such occupationally related skills as: floor cleaning/care and equipment; window cleaning and equipment; exterior landscaping and maintenance; interior plant care; use of maintenance of snow-clearing equipment; washroom maintenance; electrical, plumbing, heating ventilation, and carpentry repairs; and workplace safety and health. The average total subject hours of this subject is 150 hours.

S06-S303 Work Experience Skills See Description for S06-S103.

S06-S401 Adaptive Skills See description for S06-S101. The average total subject hours for this subject is 60 hours.

S06-S403 Work Experience Skills See description for S06-S103.

S06-S404 Supervising Food Service Personnel This subject will deal with the following topics relating to the supervision of food and beverage personnel: personality and attitudes, work safety, food handling, tools of the trade, table setting, guest serving, salesmanship, preparing and serving beverages, duties of host and cashier, grooming and menus.

S06-S405 Adaptive Skills Survey of clerical occupations, contacting employers by phone, application forms, letter of application, job interviews; beginning a job successfully, learning the rules of a company and employee rights, dealing with supervisors, promotions.

S06-S406 Occupational Skills Learning the letter keys, typing figures, numbers and symbols; practicing the keyboard, centering, using margins, tabulation; producing sentences and paragraphs; punctuation; on-going practice for speed and accuracy.
AUTOMOTIVE DEPARTMENT

T01-B011 Oxy-Acetylene Welding & Cutting Equipment, fusion welding, braze welding, cutting, theory, safety.

T01-B012 Oxy-Acetylene Welding & Cutting Equipment, fusion welding, braze welding, cutting, practical, safety.

T01-B013 Hand Tools, Power Grinders, Vibrators Glossary of terms, tools and their uses.

T01-B014 Hand Tools, Power Grinders, Vibrators Practical use of hand tools, power grinders, vibrators, sanding discs, care and maintenance of tools, methods of using types of discs, production paper, wet and dry sandpaper.

T01-B015 Basic Metal Working & Soldering Methods of: 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.

T01-B016 Basic Metal Working & Soldering Practical application of: 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.

T01-B017 Hydraulic Alignment of Bodies Method of using hydraulic equipment and attachments. Method of alignment of bodies, doors, fenders and component parts.

T01-B018 Hydraulic Alignment of Bodies Using hydraulic equipment and attachments for alignment of bodies, doors, fenders and component parts.

T01-B051 Hardware, Trim and Glass Methods of removal and installation of door assemblies, windows, headlinings, upholstery, mouldings, seats, etc.

T01-B052 Hardware, Trim and Glass Removing in replacing door assemblies, windows, headlinings, upholstery, mouldings, seats, etc.

T01-B053 Alignment of Frames and Bodies Methods of aligning frames, doors, trunk lids, hoods, bumpers and mouldings, etc.

T01-B054 Alignment of Frames and Bodies Use of special equipment to align frames, doors, trunk lids, hoods, bumpers and mouldings, etc.

T01-B055 Repairing Damaged Vehicles Actual repair of body damage on customer’s cars.

T01-B056 Spray Painting Equipment Painting equipment, guns, transformers, hoses, compressors, booths, and infra-red. Methods of using equipment and adjustment

T01-B057 Spray Painting Equipment Painting equipment, guns, transformers, hoses, compressors, booths, and infra-red. Use of equipment and adjustments.

T01-B058 Spray Painting Equipment Painting equipment, guns, transformers, hoses, compressors, booths, and infra-red. Use of equipment and adjustments.

T01-B059 Paint Products and Application Primers, lacquers, enamels, acrylic lacquers, thinners, reducers, etc. Methods of using these products.

T01-B060 Paint Products and Application Application of — primers, lacquers, enamels, acrylic lacquers, thinners, reducers, etc.

T01-B061 Refinishing Vehicles Cleaning, sanding, masking, priming, glazing and actual refinishing of customer’s cars. Pre-delivery cleaning of cars after painting.

T01-B062 Collision Damage Estimating Flat rate, time allowance, forms and methods for filing, percentages and sublets.

T01-B063 Collision Damage Estimating Flat rate, time allowance, forms and methods for filing, percentages and sublets.

T01-B064 Running Gear I Use of hand tools, measuring instruments, special equipment, fastening, devices, bearings, gears, drive lines, clutches, steering and suspension.

T01-B065 Running Gear I Practical application of T01-B011.

T01-B066 STD Transmissions Construction, principle of operation, synchronizers, splitters and air shift, variable speed diesels, 4 wheel drive transfer case, farm tractor transmission, reversing transmissions, transmission overhaul.

T01-B067 STD Transmissions Inspection, repair and overhaul of: synchronizers, splitters, and air shift, variable speed diesels, 4 wheel drive transfer case, farm tractor transmission, reversing transmissions.

T01-B068 Rear Axles Types and principle of operation, single speed H.D. Eaton rear axles, traction equalizers, power dividers, electric and air shift systems.

T01-B069 Rear Axles Overhaul of single speed H.D. Eaton rear axles, traction equalizers, power dividers, electric and air shift systems.

T01-B070 Brake Systems Theory of operation, repair and adjustment of hydraulic, manual and power brakes, air brake repairs, adjustments and maintenance, lubrication of diesel powered equipment.

T01-B071 Brake Systems Practical application of T01-B017.

T01-B072 Automatic and Powershift Trans. The theory of operation of repair and overhaul of automatic and powershift transmissions.

T01-B073 Automatic and Powershift Trans. The repair and overhaul of automatic and powershift transmissions.

T01-B074 HVY Duty Power Train Overhaul Theory of repair overhaul of crawler undercarriages and rear end assemblies; loader repairs.

T01-B075 HVY Duty Power Train Overhaul Repair overhaul of crawler undercarriages and rear end assemblies, loader repairs.

T01-B076 Engine Overhaul I Theory of gas engine cycles, types, components, lubrication and cooling systems.

T01-B077 Engine Overhaul I Repair of gas engine cycles, types, components, lubrication and cooling systems.

T01-B078 Engine Overhaul II Theory of servicing diesel cylinder block assembly, cylinder head and valve train.

T01-B079 Engine Overhaul II Repairs and servicing of diesel cylinder block assembly, cylinder head and valve train.

T01-B080 Engine Testing Fundamentals of: mechanical tune-up, electrical tune-up, trouble shooting, dynamometer testing, overhaul and servicing.
T01-D028 Engine Testing Mechanical tune-up, electrical tune-up, trouble shooting, dynomometer testing, overhaul and servicing.

T01-D029 Hydraulics Lab Theory of: operation and repair of the more common mobile hydraulic systems.

T01-D030 Hydraulics — Overhaul and Testing Operation and repair of the more common mobile hydraulic systems.

T01-D031 Electrical Lab Fundamentals of: storage, testing, charging and care of batteries, DC and AC generators and regulators, ignition systems, transistor units.

T01-D032 Electrical Circuits Trouble Shooting Practical aspects of storage, testing, charging and care of batteries, DC and AC generators and regulators, ignition systems, transistor units.

T01-D033 Fuel Systems Gas & Diesel Fundamentals of: carburation types and methods of supercharging, principles of compression ignition engine, and inspection and complete servicing of pumps and nozzles.

T01-D034 Fuel System Components, Cleaning, Service Repairing carburetion types and methods of supercharging, compression ignition engine and inspection and complete servicing of pumps and nozzles.

T01-D036 Introductory Training In Industry Student will learn firsthand the involvements of on the job working conditions required in a live repair shop.


T01-T012 Shop Practice and Hand Tools Use of hand tools, measuring instruments, use of special equipment — hoist, jacks and stands, safety chassis, lubrication, and servicing. Using of special lubricants, light servicing, tire repair.

T01-T013 Engine I and II Fundamental operating, construction and design features and characteristics of two stroke and four stroke cycle internal combustion engines. Fundamental services, maintenance and overhaul methods and procedures, precision measuring, diagnosis and correction of automotive engine problems.

T01-T014 Engine I and II Disassembly, cleaning, precision measuring, inspection, machining, fitting and reassembly of internal combustion engines to manufacturer's specifications.

T01-T015 Electrical Systems Wiring diagrams and circuits, generators, regulators, cranking motors, solenoids, and switches, gauges, ignition systems, etc.

T01-T016 Electrical Systems Disassembly, testing, repairing, and reassembly of electrical components, attaching and use of testing meters and electrical diagnostic equipment.

T01-T017 Fuel Systems Carburetors, fuel pumps, filters, gas lines, fuel tank ventilation, exhaust emission controls and air cleaners.

T01-T018 Fuel Systems Disassembly, cleaning, assembly and calibration of component units. Use of diagnostic test equipment and meters.

T01-T019 Tune-Up Tune-up machines, compression and vacuum gauges, ignition circuits, carburetor adjustments, gas analysis, engine performance, testing and operation.

T01-T020 Tune-up Use of tune-up test equipment for diagnosing and calibrating running engines.

T01-T021 STD Transmissions Clutch and pressure plate assemblies, three and four speed synchronesh transmissions, simple planetary gears and overdrive, construction, operating and service fundamentals.

T01-T022 STD Transmissions Disassembly, inspection of parts and reassembly of components to manufacturer's specifications.

T01-T023 Rear Axles & Drivelines Gears and bearings, tooth patterns, universal joints, positrack and limited slip differentials, transaxles, axle shafts, etc.

T01-T024 Rear Axles & Drivelines Disassembly, inspection and reassembly of gears and bearings, tooth patterns, universal joints, positrack and limited slip differentials, transaxles, axle shafts, etc.

T01-T025 Brakes — Hydraulics Hydraulic principles, singles and dual master cylinders, brake lines and couplings, wheel cylinders, drum brakes and machining drums, disc brakes and machining rotors, power units, controls and switches, bearings, seals and brake fluid.

T01-T026 Brakes — Hydraulics Disassembly, inspection, honing and machining, assembly and bleeding of hydraulic system. Testing and repairing of lower units and adjustment of cable brake systems.

T01-T027 Steering & Suspension Springs, shocks, wheel balance, steering geometry, steering gears, steering alignment.

T01-T028 Steering & Suspension Removal and installation procedures on suspension components, steering gears, power assist units and pumps. Calibrating by use of special machines so suspension and wheels are in proper relation to frame of vehicle.

T01-T029 Automatic Transmissions Fluid couplings and torque converters, compound planetary gears, clutches, assemblies and component units. Pressure testing with air equipment—hoist, jacks and stands, safety chassis, lubrication, and servicing. Uses of special lubricants, light servicing, tire repair.

T01-T030 Automatic Transmissions Disassembly, inspection, reassembly and adjusting assemblies, sub-assemblies and component units. Pressure testing with air and hydraulic fluid.

T01-T031 Electrical Systems Disassembly, testing, repairing, and reassembly of electrical components, at teaching and use of testing meters and electrical diagnostic methods and procedures, precision measuring, diagnosis and correction of automotive engine problems.

T01-T032 Electrical Circuits Trouble Shooting Practical aspects of storage, testing, charging and care of batteries, DC and AC generators and regulators, ignition systems, transistor units.

T01-T033 Fuel Systems Gas & Diesel Fundamentals of: carburation types and methods of supercharging, principles of compression ignition engine, and inspection and complete servicing of pumps and nozzles.

T01-D036 Introductory Training In Industry Student will learn firsthand the involvements of on the job working conditions required in a live repair shop.

T01-T060  Tune-up  Diagnosing and testing of all engine, fuel, ignition and electrical systems. Calibrating to specifications necessary to produce maximum engine efficiency.

T01-T062  Transmissions Overhaul STD Proper procedures will be emphasized for the removal, disassembly, cleaning, inspection and repair of clutches and three speed and four speed synchronesh transmissions. Problem diagnosis and adjustment of these units will also be included. All work will be performed on units in daily use.

T01-T064  Rear Axles and Drivelines This unit deals with the construction, operation and service procedures for the various types of rear axle assemblies and their related parts. This includes housing, (integral, removable carriers, and independent), crown, and pinion sets, (spur level, spiral level, hypoid, hunting, non-hunting, partial non-hunting, straddle and over hung mounted) differential units (2 & 4 pinion design conventional and spec 1 traction- postraction, equal — lock, limited slip non-spin, power lock, and sure-grip design) bearings (friction and anti-friction loads), axle mountings (dead and live-full floating, 3/4 floating and semi-floating), seals (dynamic and static), drive liner (torque tube, hatch-kin) Universal joints (ball and trunnion, cross and roller, constant velocity).

T01-T066  Brakes-Hydraulic & Disc Power The concerns are the construction, operation and service features of the braking systems presently in use today (drum & disc). This includes the effects of weight, speed, heat, friction, and hydraulic principles. The student also receives instruction and practice in machining, drums and rotors, cam grinding, shoes, servicing the hydraulic units (master cyl, wheel cyl, lines and testing metering and proportioning valves), disassembly and assembly and adjustment of the various wheel brake units, parking brake service (drive line and rear wheel), and the wheel bearing service.

T01-T068  Steering Repairs This course is intended to give the student an insight into the construction, operation, and service features of present suspension systems (mono-beam, twin t beam, long and short arm types). The student receives instruction on inspection and replacement, height adjustments, alignment machine calibration and use. Practical projects are provided for the student to apply his knowledge of suspension service, alignment of the front wheels and use of a wheel balance.

T01-T070  Automatic Trans. Repairs This will cover the removal, disassembly, cleaning, inspection and measuring of all transmission parts to determine their serviceability. Also included is the correct procedure for reassembly, adjusting, installation, and testing of automatic transmission as well as problem diagnosis and trouble shooting.

T01-T072  Air Conditioning An introduction to automotive airconditioning operating principles and competent part functions. Safety procedures when using refrigerant gases. Practical application of discharging, evacuation, charging and testing the system for leaks.

T01-T074  Oscilloscope, Dyno & Emission Controls Oscilloscope to perform a complete electronic engine diagnosis to find defects in the following areas, ignition, compression, alternator, regulator, starter and carburetion. Dynamometer to perform vehicle tests while under load to determine engine performance.
CIVIL ENGINEERING TECHNOLOGY DEPARTMENT

T05-B303 Job Control & Costing Critical path method of planning and scheduling network theory; project scheduling; resource allocation; costing and manpower allocation. Applied industrial psychology.

T05-B304 Economics Forms of business organization, Corporate Financial Statements, Banking System, Time Value of Money, Engineering Economics, Personal Money Management (Stocks, Bonds, real estate, taxes, RRSP, RHOSP, Life Insurance, tax shelters, etc.).

T05-B306 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 and blue print reading.

T05-B308 Concrete Construction Review and design of beams, one-way floor slabs, columns and footings. Introduction and applications of prestressed concrete design. Continuous beams and slabs. Complete design and working drawings of reinforced concrete project. Prerequisites: T05-C202, T05-C205.

T05-B404 Construction Administration Construction company management and control, both in Head Office and field. Relationship between owners, designers, company personnel. Public bodies, contractors and subcontractors. Canadian construction contract law including formation of contract, breach of contract, mechanics liens, etc. Prerequisite: T14-R214.

T05-B405 Building Construction The manufacture testing, properties, types, uses, storage site handling inspection, equipment and the methods and procedures of application to brick, stone, roofing, structural steel, foundations and wood. Site and building layout, excavation procedures and equipment. Labs to consist of tours to manufacturing plants and construction sites.

T05-B406 Reinforced Concrete Design Materials and specifications including concrete and steel properties, design methodology. Design of simple beams for flexure, shear, deflection, and reinforcement details. Design of simple columns for eccentric loading. Design of simple and continuous one-way slabs SI units used throughout. Prerequisites: T05-C205.

T05-B407 Building Services and Specifications Introduction to the building services heating - range of temperature and the related effect on building materials, humidity, insulations, weathering - lighting - air conditioning and ventilation - water supply and waste disposal - acoustics - communications - power services and their related control systems - vertical and horizontal transportation systems - interpretation of specifications. Prerequisites: T05-C205.

T05-B410 Foundation Design 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 blocks; methods of dewatering excavations, foundation layout construction equipment and techniques. Prerequisites: T05-T317, T05-C317.

T05-B412 Estimating Pre-tendering investigation: specification, working and shopping interpretation: quantity take-off; direct and indirect costing; cost accounting cycles and keys. Contract Management: analysis of actual to estimated costs; subtrade bidding and estimating practices for foundation, concrete, steel, masonry, wood, roofing and finishes. Filing and information retrieval systems.

T05-B413 Structural Steel Design Design of the individual components of buildings based on CSA Standard S16 using the CISC handbook. To include design of tension members, columns, column base plate, simple beams, laterally unsupported beams, bolted and welded building connections. Prerequisite: T05-T308.

T05-C102 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 moment in inertia for simple areas. Parallel axis theorem.


T05-C104 Soil Mechanics Nature of soils, soil structure and texture, soil moisture, wet and dry density, void ratio porosity and degree of saturation, Atterberg limits, grain size analysis, engineering soil classification methods, Moisture-density relationships, standard and modified proctor compaction tests, compaction procedures and equipment, sand cone and volumeter for measurement of in place densities. Soil surveys and sampling procedures.

T05-C105 Strength of Materials Stress, strain, temperature stress, Poison's ratio, bolted and welded connections, thin walled pressure vessels, torsion, shear force and bending moment.

T05-C106 Engineering Graphics 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: applied descriptive geometry, timber structures.


T05-C203 Job Control & Costing Critical path method of planning and scheduling network theory; project scheduling; resource allocation; costing and manpower allocation. Applied industrial psychology.

T05-C204 Construction Administration Construction company management and control, both in Head Office and field. Relationship between owners, designers, company personnel. Public bodies, contractors and subcontractors. Canadian construction contract law including formation of contract, breach of contract, mechanics liens, etc. Prerequisite: T14-R214.

T05-C205 Job Control & Costing Critical path method of planning and scheduling network theory; project scheduling; resource allocation; costing and manpower allocation. Applied industrial psychology.

T05-C206 Reinforced Concrete Design Materials and specifications including concrete and steel properties, design methodology. Design of simple beams for flexure, shear, deflection, and reinforcement details. Design of simple columns for eccentric loading. Design of simple and continuous one-way slabs SI units used throughout. Prerequisites: T05-C205.


T05-C320 Structural Design Steel — analysis and design of tension members, columns and beams. Design of simple building foundations such as piles, casings and footings. Concrete — basic reinforced concrete theory; analysis and design of simple beams and slabs; design of columns. Prerequisites: T05-C205.

T05-C321 Street and Highway Design Preliminary survey of a section of roadway including all notes necessary for design. Location and construction survey requirements. Design factors for street and highway design projected traffic volumes, speed, curvature, super-elevation, sight distances, grades, drainage, culvert design, right of way, width. Design of rural and urban roadway sections from field notes including cross sections, quantities, mass diagram; profiles, plans, cost estimates required for tendering. Soil considerations including sub-grade, sub-base, base course and load carrying capacity of various pavements. Construction methods. Prerequisites: T05-C203, T05-C206.

T05-C401 Job Control Critical path method of planning and scheduling; network theory; project scheduling; resource allocation; costing and manpower allocation; applied industrial psychology.

T05-C418 Pavement Mix Design Rigid Pavements — Portland cements, aggregate requirements, water and admixtures for concretes, proportioning of mixes properties of fresh concrete, inspection, testing, and control of material, testing of concrete; construction practices. Flexible Pavements — types of asphalts, properties and tests of asphaltic materials, specifications for asphaltic material, evaluation and blending of aggregates, design of asphaltic concretes, production and placing of asphaltic concrete mixes, liquid asphalt plant and road mixes, asphalt surface treatments and sealcoats. Prerequisites: T05-C317 or T05-T317.

T05-C419 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.


T05-C424 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: T05-C312, T10-M329.


T05-D205 Architectural Drafting The study of styles and techniques for architectural proposal drawings for a row housing development for M.H.R.C. using C.M.H.C. site planning standards, complete with the design of individual units and their structural components to national building code standards. The study of styles and techniques for architectural working drawings for a simple office warehouse, complete with design and structural analysis to code standards. Prerequisite: T05-C106.

T05-D208 Strength of Materials Shear force and bending moment diagrams. Flexure formula, general shear equation, stresses in beams, bending stresses, Mohr's circle. Prerequisite: T05-C102, T05-C105.

T05-D210 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.

T05-D212 Basic Building Science Light — light sources and their characteristics, light and illuminations. Color — basic principles and their application to simple color design in buildings Sound basic principles and characteristics of sound and its control. Electricity — basic principles, materials, wiring design, motor and generator fundamentals. Psychometry — heat and change of state, pressure, volume, temperature relationships, introduction to psychometry and its practical applications.

T05-D221 Machine Drafting Screw threads, fasteners, keys, rivets, and springs, limits and precision welding drawings, design practices, power transmission, standard symbols and conventions. Prerequisite: T05-C106.
T05-D305 Architectural Detailing and Design Basic architectural aesthetics, presentation drawing techniques, Advanced architectural working drawings — application of these to the production of drawings for a student designed rural hotel, followed by the production of proposal presentation drawings for a student designed high rise urban apartment building. Included in these studies are the application of applicable building by-laws and zoning by-laws, and the use of massing models in architectural design. Prerequisite: T05-D205, T05-D208, T05-D210, T05-D212, Concurrently T05-D311, T05-D312.

T05-D308 Structural Design The design of simple building foundations such as footings, cast in place concrete piles, spread bores, caissons and driven piles. Design of reinforced concrete building components using ultimate strength, simple and continuous beams and slabs, axially loaded columns, shear walls and retaining walls. Prerequisite: T05-D208, concurrently T05-D312.

T05-D311 Building Construction The study of building science principles including function of the building enclosure, water vapour and condensation, rain penetration and moisture removal, principles of enclosure design followed by application of design principles to walls, windows and roof. The study of the methods of construction; qualitative aspects of structural design; and code engineering. Prerequisite: T05-D210.

T05-D312 Theory of Structures Structural loads and procedures, load analysis and transmission of structural loads, wall loads including shear, basement, retaining walls, shear and bending moment review, concrete coefficients for beams and slabs. Prerequisite: T05-D208.

T05-D321 Machine Drafting and Design Introduction to and practical design of manufactured machines and components, mechanism, manufacturing controls, industrial processing plants, fluidics and control systems. Introduction to building science including relationship of internal and external environments on the building enclosure, comfort, air quality, air conditioning load analysis thermal and vapor gradients across building enclosures. Prerequisite: T05-D210, T05-D212, T05-D221, T14-R216.

T05-D322 Materials and Specifications A detailed study of the physical and chemical properties of the commonly used engineering materials including concrete steels, roofing materials, adhesives, insulations using an analytical approach to material selection using material standards, specifications and codes. The above study to be incorporated into specification writing using the Canadian Building Construction Index and the Specification Writers Association of Canada Format. Prerequisite: T14-R216, T05-D212, concurrently T05-D305, T05-D311.

T05-D405 Architectural Detailing and Design Application of previously learned principles and techniques and the study of advanced architectural aesthetics, basic building program analysis, advanced techniques in presentation drawings, coordinated architectural working drawings, complete structural drawing techniques using design techniques learned in structural design subjects. By the application of the above to the production of drawings for a student selected student-designed building project that serves a current public need. Prerequisite: T05-D208, concurrently T05-D212.

T05-D408 Structural Design The design of individual steel components in accordance with CSA Standard S-16 such as tension members, compression members and base plates, flexural members, bearing plates bolted and welded connections and trusses. Design of simple timber members such as sawn timber beams, built up beams and floor joists, blue laminated beams, plywood box beams and simple timber trusses. Prerequisite: T05-D208, Concurrently T05-D412.

T05-D412 Theory of Structures Introduction to moment-equation and moment distribution for continuous beams, quantitative and qualitative ILDs, truss analysis, deflection calculations using tables and conjugate beam methods. Prerequisite: T05-D312.

T05-D421 Mechanical Drafting and Design Introduction to and practical design of mechanical and electrical equipment and systems for buildings. The course includes: water sources and supply, design for building water distribution systems, waste treatment design of building waste and vent systems. Heating systems — hot water, steam, forced air, and electric; design of hot water systems, design of duct work for forced air heating system; design of electric heating systems. Refrigeration and cooling systems — design of multizone cooling system using central cooling equipment. Electric wiring and equipment — application of lighting design and building power distribution. Fire protection — methods of alarms and sound and signal systems. Elevators, escalators, moving walks, etc. Prerequisite: T05-D321.

T05-D422 Materials and Specifications A continuation of the format developed for T05-D322 including doors, windows, glass, finishes such as paints, plasters, floor finishes and ceiling systems. Prerequisite: T05-D322 concurrently T05-D405.

T05-D424 Quantity Surveying Methods of construction quantity estimating, and unit costing of foundations, concrete, steel, masonry, wood, roofing, finishes.

T05-S203 Surveying Systems of survey township layout and measurement. Topographic surveying and methods of determination of volumes using the Polair Planimeter, cross-sections and calculation of areas, theory and use of simple circular, spiral and vertical curves, special curve.

T05-S204 Theory and Use of Instruments A study of modern survey instruments, conventional and optical distance measuring — the tape, subtemp bar, lathometer and the principle of parallax. The field testing and adjustments of the dummy level and the engineer's transit. Prerequisite: T05-C103, T10-M129.

T05-S205 Plan Preparation Methodologies of plotting survey preliminary and location plans for routes surveys. Site plans for building construction. All plans and map drafted on linen and Indian ink where applicable. Prerequisite: T05-C103, T05-C106.

T05-D321 Machine Drafting and Design Introduction to and practical design of manufactured machines and components, mechanism, manufacturing controls, industrial processing plants, fluidics and control systems. Introduction to building science including relationship of internal and external environments on the building enclosure, comfort, air quality, air conditioning load analysis thermal and vapor gradients across building enclosures. Prerequisite: T05-D210, T05-D212, T05-D221, T14-R216.

T05-D322 Materials and Specifications A detailed study of the physical and chemical properties of the commonly used engineering materials including concrete steels, roofing materials, adhesives, insulations using an analytical approach to material selection using material standards, specifications and codes. The above study to be incorporated into specification writing using the Canadian Building Construction Index and the Specification Writers Association of Canada Format. Prerequisite: T14-R216, T05-D212, concurrently T05-D305, T05-D311.

T05-D405 Architectural Detailing and Design Application of previously learned principles and techniques and the study of advanced architectural aesthetics, basic building program analysis, advanced techniques in presentation drawings, coordinated architectural working drawings, complete structural drawing techniques using design techniques learned in structural design subjects. By the application of the above to the production of drawings for a student selected student-designed building project that serves a current public need. Prerequisite: T05-D208, concurrently T05-D212.

T05-D408 Structural Design The design of individual steel components in accordance with CSA Standard S-16 such as tension members, compression members and base plates, flexural members, bearing plates bolted and welded connections and trusses. Design of simple timber members such as sawn timber beams, built up beams and floor joists, blue laminated beams, plywood box beams and simple timber trusses. Prerequisite: T05-D208, Concurrently T05-D412.

T05-D412 Theory of Structures Introduction to moment-equation and moment distribution for continuous beams, quantitative and qualitative ILDs, truss analysis, deflection calculations using tables and conjugate beam methods. Prerequisite: T05-D312.

T05-D421 Mechanical Drafting and Design Introduction to and practical design of mechanical and electrical equipment and systems for buildings. The course includes: water sources and supply, design for building water distribution systems, waste treatment design of building waste and vent systems. Heating systems — hot water, steam, forced air, and electric; design of hot water systems, design of duct work for forced air heating system; design of electric heating systems. Refrigeration and cooling systems — design of multizone cooling system using central cooling equipment. Electric wiring and equipment — application of lighting design and building power distribution. Fire protection — methods of alarms and sound and signal systems. Elevators, escalators, moving walks, etc. Prerequisite: T05-D321.

T05-D422 Materials and Specifications A continuation of the format developed for T05-D322 including doors, windows, glass, finishes such as paints, plasters, floor finishes and ceiling systems. Prerequisite: T05-D322 concurrently T05-D405.

T05-D424 Quantity Surveying Methods of construction quantity estimating, and unit costing of foundations, concrete, steel, masonry, wood, roofing, finishes.

T05-S203 Surveying Systems of survey township layout and measurement. Topographic surveying and methods of determination of volumes using the Polair Planimeter, cross-sections and calculation of areas, theory and use of simple circular, spiral and vertical curves, special curve.

T05-S204 Theory and Use of Instruments A study of modern survey instruments, conventional and optical distance measuring — the tape, subtemp bar, lathometer and the principle of parallax. The field testing and adjustments of the dummy level and the engineer's transit. Prerequisite: T05-C103, T10-M129.

T05-S205 Plan Preparation Methodologies of plotting survey information from field notes, the National Topographical Map System symbols, topographic maps. Plotting of preliminary and location plans for route surveys. Site plans for building construction. All plans and maps drafted on linen and Indian ink where applicable. Prerequisite: T05-C103, T05-C106.

T05-S206 Computer Application The use of BASIC with a teletype terminal for input, output, arithmetical expressions and functions, decisions, repetition and orderly storage of data. Flow charting a problem. Writing programs for use in surveying (BASIC) Use of a packaged program (COGO) on a terminal. Prerequisite: T10-M139, concurrently T10-M229.

T05-S215 Survey Camp 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.

T05-S216 Photogrammetry Development of photogrammetry, geometry of the aerial photograph and of stereo pairs. Principles of stereo-vision. Scale determination and relief displacement by analytical methods. Areas and distances by photo co-ordinates ground co-ordinates and corrected photo co-ordinates. Determination of flying height from known ground distances Planimetric mapping using radial line control and the vertical sketchmaster. Mosaics, their use and construction. Flight planning the photogrammetry mission. Prerequisite: T05-C106, T05-C103, T10-M129.
T05-S303 Advanced Surveying Obstruction surveys — measurement, special curve problems, intersection of a curve with a straight line, intersection with two or more curved right of ways. Replacing spirals with terminal curves. Advanced problems in open and closed traverse. Use of legal survey plans. Emphasis on compiling and use of clear, neat, concise field notes. Prerequisite: T05-C203, T05-S204, T05-S215, T10-M229.

T05-S304 Theory and Use of Instruments The main emphasis will be on extensive field practice in the use of modern surveying instruments, including the Tachometer, diastimeter, tellurometer, gyrotheodolite, and the investigation of their capabilities, limitations and precision. Prerequisite: T05-C203, T05-S204, T05-S215.

T05-S305 Plan Preparation Drafting of plans under the Manitoba Land Surveys Acts such as right of way, mineral claims, legal plans, certified for mortgage purposes. Plotting survey plans using angle and distance and rectangular coordinates. All plans to be prepared in accordance with the regulations of the Land Titles Office. Prerequisite: T05-C203, T05-C205.

T05-S307 Route Surveys Circular curve work — tangent shift, inaccessible P.I., compound curves, reverse curves, broken back curves, vertical curves with unequal legs, transition curves for superelevation, C.G.R.A. design standards, subgrading, earthwork, earthwork quantities, balance points, mass diagrams, over haul, waste and borrow. Preparation of plans, profiles, cross-sections, and mass diagrams, contract specifications and tender quantities. Prerequisite: T05-C203, T10-M229.

T05-S316 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, determinations of swing, tilt and exact flying height, theory of anaglyphic stereo plotters, interior, relative and absolute orientation of the Keil plots, laboratory work is designed to give maximum experience with manipulation of the floating dot. Prerequisite: T05-C106, T05-C316, T10-M129.

T05-S317 Soil Mechanics Nature of soils, soil structure and texture, soil moisture, wet and dry density, void ratio, porosity and degree of saturation, Atterberg limits, grain size analysis, engineering soil classification methods, soil formations. Moisture density relationship standard and modified proctor compaction tests, compaction procedures and equipment, sand cone and volumeter for measurement of in-place densities. Soil surveys and sampling procedures.

T05-S402 Terrain Classification air photo recognition of the major land forms of the following origins: glacial, fluviatile, colluvial, marine, lacustrine and acolian. 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 type of softwoods and hardwoods found on the Canadian shield.

T05-S403 Control Surveys Principles, equipment and methods of geodetic surveying covering triangulation, trilateration, traverses and leveling. Theory and use of an order of directional theodolite, geodetic level and invar rods, inerteribility of tower sights to establish high order control stations. Determination of subvertical measurements, corrected for curvature and reduced sea level. Conversion of geodetic 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 constants and formula. Emphasis on compiling and use of clear, neat, concise field notes. Prerequisite: T05-S303, T05-S304.

T05-S406 Legal Surveying History of legal surveys in the prairie provinces. Survey systems, land registration, legal authority and liability of a surveyor, legal descriptions, water boundaries, monuments, survey acts, principles of evidence, mineral claim surveys, emphasis on methods and importance of compiling clear, neat, concise field notes. Prerequisite: T05-S304.

T05-S407 Town Planning Objectives of planning, authorities responsible for planning in Manitoba, role of the planner, elements of subdivision design, regulation and acts, development plans and zoning regulations, land subdivision techniques, land utilization and usage to obtain maximum benefit for municipal services and aesthetic value. Drafting subdivision plans. Prerequisite: T05-S205.

T05-S408 Astronomy The celestial sphere, systems and spherical co-ordinates. Co-ordinates of the observers position. Solution of the astronomical triangle, time system, conversion of one kind of time into another, equation of time, use of the Star Almanac for Land Surveyor corrections to be applied to observations of the sun and stars, elongation and culmination of Polaris, calculation of latitude, local time, azimuth and meridian, invaribility, observation and calculation of longitude with aid of radio receiving set, use of striding level for observations, field observations on sun, Polaris and Time Stars, emphasis on compiling and use of clear, neat, concise field notes. Prerequisite: T05-S304, T10-M327.

T05-S415 Survey Camp 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, geodetic surveys in trigonometric leveling and second order methods of triangulation and trilateration. Emphasis is on clear, neat, concise field notes. Prerequisite: T05-S307, T05-S403, T05-S406, T05-S408.

T05-S416 Cartography A study of map projections. Exercises in positive and negative scribbling. Map compilation using peep coat and other reproduction methods. Colour reproduction techniques including colour separation. A minimum of 40 hours of plotting at different scales using the Keil plotter. Prerequisite: T05-S316.

T05-S424 Hydraulics Bernoulli's continuity equation — flow measurements with weirs and flumes, open channel flow, Manning equation, backwater curves. 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 run-off, drainage design, flood protection, sedimentation sampling and methods of soundings. Prerequisite: T05-M229.

T05-T301 Testing Materials The laboratory portion of this course is to make available all construction materials so the student can build typical structural and architectural systems and test these systems under loads of environmental conditions.

T05-T308 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: T05-C202, T05-C205.

T05-T311 Timber Design & 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, design of timber formers including connectors and bolts, plywood design including stressed skin panel, stiffened panels and plywood beams. Design of formwork to consist of basic theory including load and pressures, design procedures from available tables. Complete design of formwork, e.g., beam forms, column forms, beam forms, shores and scaffolding and lateral bracing of forms. Prerequisite: T05-C205.
T05-T317 Soil Mechanics Nature of soils, soils structure and texture, soil moisture content, wet and dry density, void ratio, porosity and degree of saturation. Atterberg limits, engineering soil classification systems and methods of visual identification. Occurrence of soil water, evaluation of coefficient of permeability, pump test, moisture density relationships, Standard and Modified Proctor Compaction Test, compaction procedures and equipment, use of sand cone, volumeter, and nuclear densimeter to measure in-place densities. Theory of consolidation, test procedures and settlement calculations. Theory of shear strength evaluation of C and Q factors, frost action in soil, permafrost, soil survey, methods of soil sampling, disturbed and undisturbed, penetration tests vane shear test. Prerequisite: T05-C205, T14-R214.

T05-T406 Reinforced Concrete Design Concrete construction, design of simple, doubly reinforced and "T" beams, deflection and torsion considerations, design of short and long columns, eccentrically loaded columns, design of two way slabs, available computer programs for analysis and design of concrete systems, design of masonry and R.C. walls. Prerequisite: T05-C202, T05-C205.

T05-T410 Foundation Design 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: T05-T317, T05-C317.

T05-T412 Structural Steel Design Design of the individual components of buildings based on CSA Standard S-16, 1969 using the C.I.S.C. handbooks, design of rolled tension members, build up tension members loaded columns, three plated welded columns, hollow structural sections, column base plates and columns subject to combine axial and bending stress, simple beams, continuous beams, plate girders, lintels, beams subject to biaxial loading, bolted and welded building connections, design procedure to include both plastic and elastic methods where applicable. Prerequisite: T05-T308.

T05-T414 Bridge Design AASHO specifications, hydrology, hydraulics and soil considerations, culvert design, selection and installation, reinforced concrete bridge, composite steel and concrete bridge, bridge surveys, inspection correlated with the design detailing and drawing of plans for a complete bridge, treated timber bridge.

T05-T415 Estimating Pretendering investigation, specification, working and shop drawing interpretation, quantity take-off direct and indirect costing, cost accounting systems and keys. Contract management, analysis of actual to estimated costs, subtrade bidding and tendering practices filing and information retrieval systems.

T05-T422 Theory of Structures Moment distribution for frames, sides-way, nonprismatic frames, and wind load, movement and temperature effects, use of computer programs, deflection in beams and frames deflection methods of structural analysis, determinate arches, shear walls, influence line diagrams. Prerequisite: T05-T308.
CONSTRUCTION DEPARTMENT

T02-C001 Handtools, Theory Measuring tools, layout tools, testing tools, sawing tools, bench and special planes, edge cutting tools, boring tools, fasteners: Nails, screws, smoothing tools.

T02-C002 Handtools, Practical Practical use of all tools in project such as woodworking joints, coping moldings, quarter round, brackets, drawers, sharpening hand saws, chisels, and plane blades.

T02-C003 Woodworking Machines Theory General safety rules, operations and maintenance of the following: Table saw, radial arm saw, bandsaw, jig saw, jointer, planer, shaper, mortiser, tenoner, wood lathe, sanding machines, portable power tools, powder actuated tools.

T02-C004 Woodworking Machines, Practical Sharpening circular saw blades, layout shop drawings, prepare bills of material: layout, machining and assembling check rail window, door frame, cut wedges, make moldings, cabriole legs, practice with operation of stationary and portable machines.

T02-C005 Concrete Form Construction, Theory Footing, foundation walls for single and multiple dwelling units, concrete slabs, sidewalk steps, piers, columns, beams, ceilings and the striping of forms.

T02-C006 Concrete Form Construction Practical Construct model basement forms, projects working with beam, column and slab construction, wall construction using wood and metal forms; curb forms, teleport pedestal forms, rough bucks.

T02-C007 General Framing, Theory Basic principles of framing procedures: One story house, balloon framing, procedures for framing opening for doors, windows, stairs, etc., basic principles involving wooden members in masonry buildings, insulation, building papers, vapour barriers.

T02-C008 General Framing, Practical Models of single and two story house, framing of cottage or garage full size complete with all partitions, blocking, backing, etc.

T02-C009 Equal Pitch Roofing, Theory Types of roofs: flat roofs, gable roofs, equal pitch hip roof, equal pitch intersecting hip roofs.

T02-C010 Equal Pitch Roofing, Practical Model roof framing, actual size project using all necessary rafters in the roof, both gable and hip roofs, complete with dormers, snub gables, soft fits and facia boards.

T02-C011 Stairs, Theory Basic types of stairs, mathematical terms and calculations, building code requirements, simple, straight stairs, mitered and housed stringers, handrails.

T02-C012 Stairs, Practical Model of straight flight of basement stairs; flight with one housed and one mitered string, complete with handrail, ballusters and newel posts; flight of winders; concrete stair forms.

T02-C013 Finishing, Theory Siding, cornices, door and window trim, inside and outside doors, closets, baseboards, feature walls, tile ceilings, etc.

T02-C014 Finishing, Practical Installation of interior and exterior doors, window pocket doors, bypass doors, bifold doors; application of sidings and exterior trim, application of interior trim.

T02-C015 Cabinet Work, Theory Shop layouts, billing of material, kitchen cabinets, book shelves, vanity sets, furniture, wood bending, veneering, wood finishing and history of furniture.

T02-C016 Cabinet Work, Practical Kitchen cabinets, and vanities, complete with hardware and laminate tops.

T02-C017 Unequal Pitch Roofing, Theory Intersecting roofs of unequal pitch.

T02-C018 Unequal Pitch Roofing, Practical Layout, cut and erect full size project of an unequal pitch roof.

T02-C019 Surveying, Theory Familiarization with the builders' level and transit to check elevations and to layout building lines.

T02-C020 Surveying, Practical Practice with layout of buildings, both commercial and housing, shooting of elevations.

T02-C021 Estimating, Theory Take-off quantities of material, cost of material and labour, subtrades, simple business procedures.

T02-C022 Estimating, Practical Preparation of estimates for a garage and a small one-storey house.

T02-C023 Carpentry Upgrading Theory Lectures dealing with the theoretical side of the trade to include hand tools, concrete form construction, general framing, roof framing, stair building, interior and exterior finishing and trade mathematics which is necessary in order to pass the Provincial Examination in Carpentry.

T02-C024 Carpentry Upgrading Practical Practical program includes projects in such areas as hand tools, general framing, roof framing, stair building and interior exterior finishes.

T02-M001 Introduction, Materials and Tools used in Masonry History of trade, employment conditions and opportunities, objectives of course, masonry materials, concrete, tools, scaffolds and modern power equipment.

T02-M002 Practical Work Slaking lime, gauging materials, mixing mortar, adding additives, mortar boards, handling brick trowel and hand tools; sawing mortar, burrowing (with hand; against hand; overhand), Cross joints and butting; flushing, making storey poles and gauge rods, Laying cut or chasing bond; squaring corners, Leaving out for openings, Bonding connecting walls and partitions, Picking up and packing masonry units, Cutting masonry units, Checking levels, Plumbing and levelling, Ranging corners, Toothling, Recking back, Blocking, placing corner line blocks, line pins, stretching line, sighting line, setting trigs (twigs), tingle brick, setting brick to line, perpends, plumb, Chases and indents, anchoring techniques, off sets, corbels, setting frames, striking joints, tooling joints, sills, copings, lintels, cleaning masonry, clean work habits taught.

T02-M003 Masonry Bonds, Theory American, Common, English 1/4 and 3/4 bat; Flemish 1/4 and 3/4 bat; Dutch: English Cross; Flemish Cross; Monk; Garden Wall; All Rowlock.

T02-M004 Definitions, Theory Trade terms; Arris; Accelerators; Acoustic; Adobe; Abrasives; Aggregate; Anchor; Angle iron; D.P.C. Asphalt; Attic; Basement; Back filling etc., (over 300 in all).

T02-M005 Walls, Theory Wall types, layout out procedures, blueprint reading, anchoring methods, control joints, joint finishing.
T02-P009 Paint Failures, Causes, Remedies, Theory
Plaster surfaces, stone board, concrete, brick.
projects, including concrete.

T02-P001 Introduction, Safety, History, Tools &
Equipment Objective is to familiarize student with
requirements for in-school training, conduct on job, and
short history of trade.

T02-P002 Tools and Equipment — Practical Care of
brushes, rollers, spray equipment, ladders, treatises and
scaffolds.

T02-P003 Basic Components of Paint, Theory
Pigments, extenders, vehicles, binders, thinners, driers, formulas.

T02-P004 Basic Components of Paint, Practical
Students will be able to recognize opaque coatings. Be
able to select the proper paint for all types of surfaces.
The use of solvents for each type of paint.

T02-P005 Preparation & Application Coating Int/Ex-
terior Student will use his skills and knowledge applying
the different types of paints to all surfaces, brushing,
rolling, and spraying techniques.

T02-P006 Preparation & Application Coating Int/Ex-
terior Prepare surfaces and apply primers, undercoats,
and finish coats, oil base paints, latex paints, and clear
coatings.

T02-P007 Repainted Surfaces, Theory Plaster, wood,
cement, brick.

T02-P008 Repainted Surfaces, Practical Prepare old
surfaces for repaint, sand fill damaged areas, prime, apply
finish coats of paint.

T02-P009 Paint Failure, Causes, Remedies, Theory
Plaster surfaces, stone board, concrete, brick.

T02-P010 Paint Failures, Causes, Remedies, Practical
Define the cause of the paint failure, treat the damaged
area, prime, apply finish coats.

T02-P011 Wood Finishes, Theory Hardwood, open grain,
hardwood close grain, soft woods, oil stains, spirit stains,
water stains, chemical stains.

T02-P012 Wood Finishes, Practical Prepare surfaces of
the different types of woods, recognize the type of wood as
to "hard open grain or closed grain". Select the proper
filler or stain, mix stains and apply to wood, apply sealer,
number of coats required, apply finish coats, by brush or
spray.

T02-P013 Basic Colour Theory and Mixing, Theory
Systems of color study, color pigments, classification of
color pigments, color preparation, color retention,
psychological effects and color styling.

T02-P014 Basic Colour Theory and Mixing, Practical
Tint all types of paints, latex oil base, enamels, mix oil base
stains, mix paints to sample. Design color arrangements
with psychological effects and color styling, apply to
different areas.

T02-P015 Paper Hanging and Wall Coverings, Theory
Preparing surfaces, sizes, cutting and pasting, hanging,
chair wells.

T02-P016 Paper Hanging and Wall Covering, Practical
Students will prepare surfaces to receive fabrics, remove
old wallpaper and fabrics. Hang vinyls, folos, flockas, high
price fabrics, apply adhesives, sizes, estimate rolls
required. Students will hang all types of fabrics under
supervision.

T02-P017 Spray Painting, Theory The student will learn
the principles of the basic spray guns the maintenance and
safety precautions. Application of varnishes, lacquers and
stains is discussed and the necessary adjustments of the
gun if faulty spray pattern occurs.

T02-P018 Spray Painting, Practical The student will have
the opportunity to dismantle and reassemble a spray gun,
followed by a limited amount of spray work.

T02-P051 Wood Finishing, Theory Hardwood, open
grain, hardwood close grain, soft woods, oil stains, spirit
stains, water stains, chemical stains.

T02-P052 Wood Finishing Practical Stripping, repairing,
and refinishing furniture.

T02-U001 Basic Tools and Equipment, Theory Use of
various hand tools, cushion machine, picking machine,
sewing machines, electric shears, foam cutting machine.

T02-U002 Basic Tools and Equipment, Practical
Practical use of all tools in projects such as cutting foam
rubber, stapling fabric, stapling spring clips, sewing and
attaching coil springs.

T02-U003 Spring Construction, Theory Webbing, slatted
seats, fastening springs, no-sag springs, unit springs,
spring edges, typing springs.

T02-U004 Spring Construction, Practical Measuring,
cutting and installing various types of springs on furniture.
This includes coil springs on a wooden slot seat on
webbing, no-sag springs with a hard edge or soft edge.

T02-U005 Burlap and Stuffing Up, Theory Attaching
burlap, sewing burlap, lining on open frame, edge rolls,
single stuffing, double stuffing, stitching up, shaping.

T02-U006 Burlap and Stuffing Up, Practical Attaching
burlap over coil springs, no-sag springs with a hard edge
or soft edge. Stitching burlap to springs and applying
various types of stuffing.

T02-U007 Trimnings, Theory Making and fitting panels,
attaching outside covers, blind tacking, hand sewing,
applying leather and mercerized gimp, spacing furniture
nails — attaching skirts.

T02-U010 General Upholstery, Practical The actual
upholstering and reupholstering of chesterfield suites, foot
stools, occasional chairs, etc.

T02-U011 Coverings, Theory Measuring projects, laying
out plans, material layout, cutting material to size. Fitting
covers, cutting and pleating, putting on covers, making
bumpers, sewing material together.

T02-U013 Foam Rubber Applications, Theory Cutting
and shaping of foam rubber, fabricating and cementing.
Applying tack strips.

T02-U014 Foam Rubber Applications, Practical Types of
foam rubber and the best use of each. Cutting and shaping
rubber for seat and back cushions and attaching foam to
furniture frames.

T02-U016 Advanced General Upholstery, Practical
Advanced upholstery including tufting and channeling on
chesterfields and chairs, etc.
T02-U017 Woodworking, Theory Simple woodworking principles: Operation of basic woodworking machines, hand tools, practical projects.

T02-U018 Woodworking, Practical Projects requiring the use of hand and machine tools of the woodworking trade used in the upholstery trade.

T02-U020 On-The-Job Training Gives an opportunity to experience working in a custom and production shop.

T02-U021 Wood Finishing, Theory Hardwood, open grain, hardwood close grain, softwoods, oil stains, spirit stains, water stains, chemical stains.

T02-U022 Wood Finishing, Practical Stripping, repairing and refinishing furniture.
DRAFTING DEPARTMENT

T03-A011 Fundamentals of Delineation Practice in the use of architectural, engineer and metric scales, basic letter forms, linework techniques, material symbols, architectural conventions and techniques, orthographic and pictorial drawing.


T03-A015 Quantity Take-Off Elementary material, take-off, cost analysis.

T03-A017 Surveying and Topographical Drawing Practice in the use of the transit and level, the plotting of cuts and contours, and the techniques of topographical drawing.

T03-A019 Specifications Interpretation of tendering procedures, division of trades and responsibilities, local and national building codes.

T03-A021 Applied (Arch) Drafting 2 A study of residential and commercial building construction practices and the production of working drawings for the same.

T03-A023 Applied Strength of Materials Stress, strain, analysis and design of bolted and welded structural joints, calculation of shear force and bending moment, selection of steel beams.

T03-D011 Applied Structural Engineering Drafting Foundation, floor and roof framing plans. Concrete and Steel Details.

T03-D013 Applied Structural Steel Detailing Drafting Square framed beams; complex beams, simple columns, multi-storey columns, bracing-horizontal and vertical; trusses.

T03-D015 Applied Strength of Materials Basic course in Strength of Materials, including stress and deformation, bolted and welded joints, shear and moments in beams and the application of these concepts in the selection of steel and wood beams.

T03-E011 Electrical Drafting Essential electrical theory and practice in electrical drafting techniques. Various projects in residential, commercial, industrial and motor control areas give the student exposure to the typical circuitry, symbols, and components used. Pictorial, diagrammatic, schematic and one-line diagrams are drawn as appropriate. In the course of the projects the student becomes familiar with the requirements of the electrical code and other applicable standards.

T03-M011 Fundamentals of Delineation Practice in the use of architectural and engineers scales, types of measurement, basic letter form, geometric and orthographic construction, sectioning and pictorial drawing.

T03-M013 Applied Machine Drafting I Geometric construction, multiview projection, auxiliary projection, sectioning, axonometrics, dimensioning, tolerances, fastening devices, shop drawing projects.

T03-M015 Applied Machine Drafting II Process piping layouts, welding and fabrication shop drawings, gears and cams, sheet metal layout, engineering graphics. Also, interpretation and application of simple structural steel frame design and detailing according to current C.I.S.C. practices.

T03-M017 Applied Drafting Science Stress, strain, modulus of elasticity, analysis and design of bolted and welded structural joints, calculation of shear force, and bending moment, shear force and bending moment diagrams, maximum shear and moment, selection of steel beams, expansion, contraction, stresses due to thermal effect, torque, work power torsional stresses.

T03-R011 Blue Print Reading and Sketching for Carpentry Drawing interpretation and preparation as applied to the carpentry trade.

T03-R013 Blue Print Reading and Sketching for Plumbing Drawing interpretation and preparation as applied to the plumbing trade.

T03-R015 Blue Print Reading for Painting and Decorating Drawing interpretation as applied to the painting and decorating trade.

T03-R019 Blue Print Reading and Sketching for Masonry Drawing interpretation as applied to the masonry trade.

T03-R031 Blue Print Reading and Sketching for Machinists Drawing interpretation as applied to the machinist trade.

T03-R033 Blue Print Reading and Sketching for Welding Drawing interpretation as applied to the welding trade.

T03-R035 Blue Print Reading and Drafting for Sheet Metal Use of drafting instruments for layout, drawing interpretation as applied to the sheet metal trade.

T03-R041 Blue Print Reading and Sketching for Electronics I Freehand sketching, multiview projection, isometric drawing, block diagrams, electronic schematics.

T03-R043 Blue Print Reading and Sketching for Electronics 2 Use of drafting instruments, printed circuit methods, printed circuit layout.

T03-R051 Blue Print Reading and Sketching for Refrigeration Drawing interpretation as applied to the refrigeration trade.

T03-R163 Mechanical Drafting for Advertising Art Application of drafting instruments and technical pens. Use of scale geometric construction.

T03-R263 Mechanical Drafting for Advertising Art Orthographic drawing interpretation. Technical pictorial drawing in ink and pencil.

T03-S011 Mechanical Systems Drafting A study of mechanical systems, i.e. plumbing, heating and air conditioning as are commonly designed for residential, commercial and industrial building projects. Included in design and building code interpretation, material take-off and estimating specification writing and production of relevant schematics and layout drawings.
METALS DEPARTMENT

T04-A011 Safety Precautions in Arc Welding Lectures involving safety hazards and precautions encountered in general welding processes. General electrical apparatus hazards and precautions, grounding methods, machine use and adjusting. Precautions in welding various types of work, containers, cylinders, etc. Selection of linseed shades. Prevention of radiation burns, elimination of toxic fumes, proper ventilation of work area, selection of proper work clothing and equipment, safety in material and job handling.

T04-A021 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 position of welded joints.

T04-A022 Position — Arc Welding Arc welding practice in vertical up and vertical down, horizontal and overhead position on flat plate.

T04-A031 Gas Metal Arc & Tungsten Inert Gas Theory Theory of processes using shielding gas. Types of gases and control systems. Electrode materials and feeding system use and maintenance.

T04-A032 Light Gauge (Sheet Metal) Welding and Arc Air Gouging Welding In all positions: flat, horizontal, vertical-down, overhead.

T04-A041 Review of All Chapters — Final Theory Test

T04-A042 Gas Metal Arc Welding (Semi-automatic) Maintenance and use of equipment, flow gages, wire feeders, hand guns, etc. Applications of various shielding gases (Helium, Argon, Nitrogen, CO₂, etc.) Machine control settings.


T04-A062 Structural Welding Weldment design, weld joint types and application. Fabrication of welded structures.

T04-A072 Pipe Welding All position (horizontal, vertical-up, vertical-down, and overhead) welding of pipe to test standards.

T04-A082 Special Welding Applications Special process techniques and application. Hard surfacing, metal spraying, arc-air gouging. Preparation of materials, safety precautions, etc.

T04-A092 Projects and Field Trip Fabrication and repair welding on projects to meaningful experience. Visitation to manufacturing and repair shops and construction sites to provide job insight.

T04-A102 Welding Refresher — Practical Practical Weld practice in positional pipe welding to provide experienced welders updating and/or upgrading towards certification.


T04-A512 Related Arc Welding Practice Basic stick electrode arc welding techniques and practice in the horizontal position on material related to the particular trade area.


T04-G011 General Principles of the Oxy-Acet. Welding 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 due to heat.

T04-G021 Oxy-Acetylene Cutting Principles and operation of flame cutting equipment, manual and semi-automatic, techniques and application to varying metal shapes and thicknesses.

T04-G031 Miscellaneous Application (Basic) Miscellaneous welding theory, code, testing basic welding of aluminum, cast iron, stainless steel, arc air gouging, cutting with the electrode, basic pipe welding, field trips, projects.

T04-G511 Related Gas Welding Theory Theory of Oxy-Acetylene gas welding, brazing and soldering equipment, procedures as applied to the particular trade.

T04-G512 Related Gas Welding Practice Application of Oxy-Acetylene gas welding, brazing and soldering equipment and procedures as would apply to the particular trade.

T04-G521 Related Gas Welding Theory Oxygen and acetylene flame characteristics, equipment, set-up, and operation of equipment, general precautions, identifying metals, preparation for welding, expansion and contraction due to heat.

T04-G522 Related Gas Welding Practice See T04-G512.

T04-M010 In-Plant Training The student will be attached to a shop to experience the atmosphere of the real world of work.

T04-M011 Bench Work Theory pertaining to selection use and care of hand tools, files, punches, chisels. Lay out tools, taps, dies, etc. Fitting and assembling techniques.

T04-M012 Bench Work Practical shop work pertaining to selection use and care of hand and bench tools such as files, punches, chisels, lay out tools, taps, and dies. Fitting and assembling.

T04-M013 General Operation & Control of Machine Tools Theory pertaining to the safety, care and maintenance and basic operation of the lathe, drill, shaper, planer, milling machine, grinders, and power saws. Types of machines, the principles of operation, features, control systems, power systems.

T04-M014 General Operation & Control of Machine Tools Practical experience in the care, maintenance and
safe and efficient operation of basic machine tools, drill, lathe, shaper, planer, milling machine, grinders and power saws.

T04-M015 Measuring Devices Theory pertaining to the care, maintenance, and safe and efficient use of measuring tools, scales, calipers, dividers, micrometers, gauges, indicators, etc.

T04-M016 Measuring Devices Practical experience in the care, maintenance and safe and efficient use of measuring tools, scales, calipers, dividers, micrometers, gauges, indicators, etc.

T04-M017 Power Saws Theory pertaining to types, care and safe operation of power cut-off and contour saws. Blade and band selection types and application. Work holding and feeding.


T04-M020 Lathe Operation Practical experience in lathe operation. Work set up, cylindrical turning, taper turning, boring, face-plate turning, threading.


T04-M022 Milling Machine Operation Practice pertaining to milling machine operation. The use of radial plain and formed cutters, face mills, end mills, fly cutters, etc. Practical application of attachments, vertical head and indexing head in gear cutting and spiral milling.

T04-M023 Jig Borer Operation Theory pertaining to the set-up, operation and care of Jig Borer machines and accessories. The co-ordinate point system of layout and location is studied. The use of tools makers buttons, gage blocks, wigglers and edge finders are explained.

T04-M024 Jig Borer Operation Practice in the set up, operation and care of Jig Boring machines and accessories. Gage blocks, in locating work tool makers buttons, edge finders and newer optical readout systems are explained and used.

T04-M025 Horizontal Boring Mills Theory pertaining to the safe work set up operation and care of boring mills, types of boring mills, vertical and horizontal and their application.

T04-M026 Horizontal Boring Mills Practical shop work pertaining to work set up, operation, care and safety of boring mill operation.

T04-M027 Grinding Machine Operation Theory pertaining to grinding machine operation, set up and care. Types and principles of grinding machines, surface, cylindrical, universal tool and cutter grinder, centerless grinders. Principles of grinding wheels, types, manufacturing processes identification (wheel markings).

T04-M028 Grinding Machine Operation Practical shop work pertaining to grinding machine operation. Set up of work and machines for surface, internal and external cylindrical grinding and tool and cutter grinding.


T04-M030 Heat Treatment Practical shop experience in the operation for furnaces; heating and annealing. The heating quenching, drawing and tempering of metals.

T04-M031 Drilling Machines Types, set up, operation and care of drilling machines. Speeds and feeds for drill press operations, maintenance of drill press tools; drills, reamers, counterbores, spot facing cutters, etc.

T04-M032 Drilling Practical shop operation of drilling machines, sensitive and power feed column types and radial arm drilling machines. Drilling, reaming, tapping, and boring in the drill press. Work lay out and set up on the drilling machine. Maintenance and care of drills and drilling machine tools and accessories.

T04-M034 Physics of Metal Cutting Theory pertaining to metal cutting tools. Tool materials; carbon and high speed steel, carbide ceramics, diamond, and manufactured abrasive. Cutting tool geometry, rakes and clearances. Speeds and feeds.

T04-M061 Shaper, Planer, Slotter Theory pertaining to plain surface generation. Types of machines and their use. Work set up. Tooling and speeds and feeds.

T04-M062 Shaper, Planer, Slotter Practical shop work involving work set up operation and care of shapers, planers, slotters. Cutting tool geometry and application. Cutting speeds and feeds. Horizontal and vertical angular surface machining.

T04-M511 Related Machine Shop Theory Basic machine shop practice and theory on layout, bench work, hand tools, measuring tools, drill sizing, and grinding, thread terminology, standards and forming as related to the trade.

T04-M512 Related Machine Shop (Practical) Practical shop work on projects involving layout, bench work, hand tools, measuring tools, drill sizing and grinding and the use of thread forming taps and dies. Basic machine shop practice as is related to the trade.


T04-M522 Related Machine Shop Practice See T04-M512.

T04-M531 Related Machine Shop Practice See T04-M512.


T04-M901 Basic Machine Shop Practice Primarily practical shop experience in the use of basic hand tools, layout tools, and measuring tools. Basic lathe operation in turning (parallel and taper) threading, facing, knurling, boring, and drilling. Drilling machine operation including drill grinding and sizing. Shop safety and orderliness is promoted.

T04-S011 Sheet Metal Hand Tools Theory pertaining to the recognition, application care and safety of sheet metal hand tools such as snips, hammers, soldering irons, compasses, dividers, awls, squares, scales, punches, etc.
T04-S012 Sheet Metal Hand Tools Practical use of hand tools emphasizing selection adjustment and general care of tools such as snips, hammers, punches, soldering irons, awls, compasses, dividers, scribers, squares, scales, etc.

T04-S021 Hand Operated Sheet Metal Machines Theory pertaining to the selection, safe operation and care of hand operated sheet metal machines such as roll formers, wire edgers, crimping machines.

T04-S022 Hand Operated Sheet Metal Machines Practical shop projects are constructed to facilitate the adjustment, operation and care of roll forming, wire edgeing, and crimping machines.

T04-S031 Power Hand Tools Theory pertaining to the selection, safe operation and care of such power hand tools as riveting, drilling, nibbling, cutting, hammering, shearing and spot welding machines. Power sources and regulators are emphasized.

T04-S032 Power Hand Tools Practical shop projects are constructed to provide the student with the proper selection, safe operation and care of such power hand tools as drills, riveters, nibbles hammers, shearsers, and cutters.

T04-S041 Power Operated Machines Theory pertaining to principles, operation, safety and care of power operated sheet metal forming equipment such as, hydraulic press brake, air operated gap shear, metal cutting band saw, power operated punch, drill press, etc.

T04-S042 Power Operated Machines Practical shop projects incorporating the operating principles, safety and care of power operated sheet metal forming tools such as hydraulic press brake, air operated gap shear, metal cutting band saw, drill press, and power operated punch.

T04-S051 Sheet Metal Sciences and Techniques Theory pertaining to the basic knowledge of the sheet metal trade. Scale readings, standard gauge practices, metals, (coatings, properties, ductility and strength, selection and storage), use of drafting tools, locks, seams and edges, riveting and other fastenners.

T04-S052 Sheet Metal Sciences and Techniques Practical shop projects pertaining to the basic knowledge of the sheet metal trade. Scale reading, standard gauging practice, metal identification, (coating, properties, selection and storage), use and care of drafting tools, locks, seams and edges, riveting and other fastening techniques.

T04-S061 Pattern Development Theory and practice of simple layout, parallel line development, radial line development, triangulation. Patterns for proj 's are drafted, transferred to metal, and transformed by use of sheet metal tooling into completed projects.

T04-S062 Soldering Theory pertaining to soldering including, care, selection and application of various copper shapes. Preparation of copper and metal. Tinning — use of acids and fluxes — various solder joints eg. sweat, button, stitch, etc.

T04-T611 Tungsten Inert Gas Welding Theory Classroom theory pertaining to selection of regulation of inert gases, shaping of tungsten electrodes, work preparation, machine regulation, etc. as related to Tungsten Inert Gas welding. Safety precautions to be observed in T.I.G. welding.

T04-T612 Tungsten Inert Gas Welding Practice Practical welding involving weld power source setting, gas meter setting and torch and filler rod manipulation in welding mild steel, stainless and aluminum in all positions.
T06-H326 Thermodynamics

The study of the conversion of heat and energy; thermodynamic laws and processes; heat engines and their cycles; gases, vapors, and mixtures. Prerequisite: T06-M201, T06-M209.

T06-H327 Library Research

Supervised technical research with current periodicals. This includes work on air conditioning, refrigeration, machine design, I.C. engines, etc.

T06-H350 Air Conditioning and Instrumentation

Heat transfer, air psychrometry, comfort heating and cooling, air conditioning load analysis and heating systems; in addition, study is made of basic instruments and their uses for measurement and indication of typical variables as well as modes of automatic control; indicators, recorders, and controllers in pneumatic, hydraulic, and electronic control systems. Prerequisites: T10-M246, T06-M209, T06-M104, T06-H326.

T06-H407 Human Relations & Technical Report

The human relations portions involves case study for understanding people, selection and induction, training employees, developing and maintaining morale, effective communication, 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. Prerequisite: T06-M200.

T06-M102 Electrical Fundamentals

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

T06-M103 Manufacturing Processes

Shaping and planning, milling, broaching, boring, sawing, filing, grinding, measurement and inspection, machine shop practice, forming and time standards.

T06-M104 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.

T06-M105 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.

T06-M106 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.

T06-M107 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.

T06-M202 Industrial Electronics

Fundamentals of electronics including such topics as; vacuum tubes, power supplies, amplifiers, oscillators, relays, transistors, timers, electronic measurement, fundamentals of electronic control. Prerequisite: T06-M102, T06-M101.

T06-M204 PERT & CPM

An introduction to the management techniques of PERT and CPM. PERT is the planning and scheduling technique used to answer the question of completion dates. CPM is basically concerned with obtaining the trade-off between cost and completion date for large projects.

T06-M205 Applied Mechanics Dynamics

Rectilinear and circular motion, force, momentum and mass moment of inertia, work, energy and momentum, mechanisms. Prerequisites: T06-M101, T06-M105.

T06-M206 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-destructive testing methods, and metallurgical investigations. Prerequisite: T06-M107.

T06-M208 Stress Analysis

Analysis of plastic'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. Prerequisite: T06-M105, T06-M101.

T06-M209 Industrial Fluid Mechanics

Introductory concepts of fluid pressure, head, force, buoyancy, Bernoulli's equation, offices, nozzle, hydro-dynamics, flow of fluid in pipes, Reynolds number, viscosity, fluids. Prerequisite: T06-M101.

T06-M304 Work Study Methods

Study, motion study, work sampling, work measurement, case studies, report writing, costs, and analysis of work conditions; network theory, project scheduling, job overlap, critical path, float, manpower allocation, schedule compression, advanced network techniques and project analysis. Prerequisite: T06-M200, T06-M201, T06-M204.

T06-M311 Fluid Power

Introduction to oil hydraulics; principles of power hydraulics; hydraulic fluids; hydraulic piping, and sealing, reservoirs and fluid conditioners; hydraulic actuators; directional controls; servo valves; pressure controls; volume controls; pumps, accessories; and industrial hydraulic circuits. Prerequisite: T06-M209.

T06-M321 Machine Design

Application of strength of materials to mechanical design; simple stress analysis; materials and their properties; variable loads and stress concentrations; couplings; brakes. Prerequisite: T06-M201, T06-M205, T06-M104, T06-M208.

T06-M405 Automation

A course of study in the design of low-cost automation systems, and simple logic devices, using electrical, pneumatic, fluid, and hydraulic components. The integration of material handling components into such systems is included - conveyors, sensors, feeders, and orientors. Prerequisite: T06-M102, T06-M104, T06-M209.

T06-M501 Power Plant Theory & Practice

(a) Section 1 - Steam Generation - Acts and codes; types of boiler, boiler and furnace construction; heat transfer; theory of combustion; materials; draft, fuels and fanning equipment, boiler fittings; pipes and pipe fittings, pumps and injectors.

(b) Section 2 - Steam Use - Heat of steam; use of steam tables. Simple steam engines and pumps. Turbine theory; types, and operation; condensers.

(c) Section 3 - Shop Practice - Students will undertake a project involving use of hand tools and an introduction to the operation, capabilities and care of machine tools.

T06-M610 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.
T06-0103 Instruments & Controls Fundamentals of temperature; pressure and flow measurement. Control valves; semi-automatic and programming flame failure protection systems; flame rod and photo electric cell types and applications; self-acting controls for refrigeration systems.


T06-0108 Drafting & Blueprint Reading The language of drafting; use and care of instruments; pictorial representation; views dimensions and tolerances; sections.

T06-0111 Refrigeration Theory of mechanical compression refrigeration, cycle of refrigeration, types and characteristics of refrigerants, use of tables, details of system components, basic controls.

T06-0201 Power Plant Theory & Practice (a) Section 1 - Steam Generation - Feedwater systems, feedwater treatment; lubrication, corrosion; mechanical power transmission; fans and air compressors; plant operation; safety; logging cost and efficiency calculations. (b) Section 2 - Steam Use-Heating systems, return systems; traps and air vents; heat exchangers; heating in air-conditioning systems. Engine management, operation and maintenance. (c) Section 3 - Shop Practice - Additional operation with hand and power tools and typical plant equipment. Prerequisite: T06-0101.

T06-0202 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, inductance, capacities, impedance, power factor. Prerequisite: T06-0102.

T06-0203 Instruments & Controls Theory of off-on, 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. Prerequisite: T06-0103.


T06-0208 Drafting & Blueprint Reading Shop sketching; orthographic, oblique and isometric sketching and drawing practice. Electrical and pipe-fitting symbols and layout drawings. Prerequisite: T06-0108.

T06-0210 Welding (Practical) Students will be introduced to oxyacetylene. The capabilities and operation and proper care of welding equipment.

T06-0211 Refrigeration (2 For 2 Yr. Only) Operation and maintenance of direct and indirect systems. Trouble shooting on basic systems. Theory of air conditioning, basic controls. The absorption system. Prerequisite: T06-0111.

T06-0301 Advanced Power Plant Theory More advanced study of codes, construction details, and plant applications of T06-0101.

T06-0401 Advanced Power Plant Theory In depth background to T06-0201, types of specialized equipment.

T06-P302 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. Prerequisite: T06-M207.

T06-P403 Advanced Manufacturing Processes Induction heating methods and design of induction heating coils, machinability 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 APT language, optical comparator methods, and surface roughness recording and analysis. Prerequisite: T06-P331.

T06-P407 Technical Research & Report This course 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. Prerequisite: T06-M200.

T06-P411 Production Planning & 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 receiving, transportation, work station design, general plant layout material flow, packaging, analysis, special handling problems, cost analysis, learning curves. Organization charts, linear programming, and economic lot sizes. Prerequisite: T06-M103, T06-M304.

T06-P430 Management Studies A study of industrial marketing and human relations in industry, including communication, motivation and labour relations.

T06-S101 Elementary Thermal Studies and Mechanics I Heat and heat transfer, temperature measurement, imperial and SI units, sensible and latent heat, gases, pressures, steam and steam tables, vectors, forces, moments; mechanical advantages; efficiency; stress and strain; design factors; potential and kinetic energy work.

T06-S102 Blueprint Reading Lettering; description of lines and weights; orthographic and isometric views; tolerances; sectional views; interpretation; freehand sketching.

T06-S103 Plant Services I Electricity-safety, basic fundamentals, batteries; voltage, current, resistance; basic calculations; series, parallel and complex circuits; electromagnetism; starting AC and DC meters; fuses; control instrumentation pressure, temperature level, and flow measurements; problem solving.

T06-S104 Steam Generation I Boiler details - construction, welds, superheaters, etc.; boiler fittings - boiler water gauge and water column; combustion and boiler firing equipment; fuels used; Acts, Codes and Regulations; types of plants; Boiler operation and maintenance; feedwater treatment; heating boilers; air conditioning.

T06-S105 Prime Movers I Basic Steam Engine; steam turbines; internal combustion engines; pumps, air compressors, and systems; refrigeration and refrigerants; safety regulations; types of equipment; lubrication; fire protection.

T06-S201 Thermal Studies and Mechanics II Expansion of solids, liquids, and gases, heat calorie, BTU, heat content of mixtures (ice, water, steam); superheat; Mellett charts, temperature-enthalpy charts, critical temperature
and pressures; indicated horsepower and thermal efficiency. Water treatment, ionization, acids, bases, salts, vectors, forces and moments, friction, velocity and acceleration, shearing and bending moments of beams, Engineering materials.

T06-S202 Mechanical Drafting Drawing orthographic, isometric, and oblique views. Sketching of power plant systems. Types of screw threads, couplings, and drive keys.

T06-S203 Plant Services II Electron Theory, DC & AC theory, meters and generators, transformers, breakers, and generators; Y and Delta connections, electrical calculations and instruments. Applications for pneumatic, electric, and electronic automatic control systems. Flow measurement and level measurement.

T06-S204 Steam Generation II Gas processing plant, pulp and paper mills; boiler classification, construction details, firing methods, emergency procedures, pollution control systems; heating systems, air conditioning (induction, dual duct, etc.), boiler codes.

T06-S205 Prime Movers II Steam and gas turbines, diesel engines; applications; load calculations; regulating and reducing valves; feed water control systems, pumps and pump calculations; cooling water systems; air compressors; refrigeration installation; low temperature systems, insulation, and lubrication.
CHEMICAL TECHNOLOGY DEPARTMENT

T07-B305 Instrumental Biochemical Analysis A complete theoretical understanding of the principles involved in the various types of instrumental techniques and the practical application of the same in the analysis of all classes of compounds. Instruments to be studied include: UV, visible and IR spectroscopy, fluorimetry, flame and atomic absorption spectroscopy. Prerequisite: T07-C207, T07-C210, T07-C203, T07-C204, concurrently T07-B314.

T07-B306 Biophysical Chemistry This course deals with the physical principles, concepts and techniques important in biochemistry. Topics covered are gas behaviour, laws of thermodynamics and their application, thermochemistry, some properties of liquids and solutions, biochemical reaction kinetics, polymer and colloid chemistry, etc. Experiments are chosen to meet the needs of the biochemical laboratory course. Prerequisite: T07-M316, T07-C101, T07-B314.


T07-B314 Biochemistry The study of the chemistry of amino acids, proteins, carbohydrates, lipids, and nucleic acids. The cell and some of its components will also be included. A rigorous discussion of RNA, DNA, mutations and protein synthesis will be carried out. The laboratory session includes studies on basic biochemical compounds and modern biochemical techniques. Prerequisite: T07-C204.

T07-B315 Microbiology This course examines microorganisms, principally bacteria but also fungi, algae, and virus. Microbial physiology, nutrition, growth, control, environmental interactions and industrial uses are major topics. Likewise media uses and preparation, culturing of microorganisms. Identification of bacteria, microbes in disease and immunology. The laboratory practical involves microscopy, preparation of slides and media, aseptically transferring bacteria, identification of microbial unknowns from slide characteristics, media response and growth characteristic. Prerequisite: T07-C204.

T07-B406 Biophysical Chemistry This course is a continuation of T07-B306 and covers topics such as biochemical structure, bioenergetics, photosynthesis, radiochemistry, etc. Experiments are chosen to meet the needs of the biochemical technology course. Prerequisite: T07-B306.

T07-B407 Laboratory Techniques A continuation of T07-B307. Practical Glassblowing techniques including glass to metal seals and silvers of glassware. Vacuum techniques and equipment, fractional distillation techniques and equipment. Prerequisite: T07-B307.

T07-B410 Biochemical Project Involves the development of an independent research project which entails a complete literature survey of the topic in question and research thereafter in an attempt to reach the objective laid out previously. Formal report required. Prerequisite: Dept. Head approval, concurrently T07-B405, T07-B414.

T07-B414 Biochemistry The study of the metabolism of amino acids, proteins, lipids, carbohydrates, and nucleic acids. The cell and some of its components will be included as well as a discussion on body fluids, hormones, vitamins and endocrinology. The laboratory session includes a study of metabolic pathways in various biological systems and typical clinical analysis using the Auto-Analyzer. Prerequisite: T07-B314.

T07-B416 Biology Introductory subject to basic principles of biology. Topics will include the molecules pertinent to biology, cells and cell structure, cell theory as it relates to all organizational units of all organisms, energy transformation in the cell, and a phyloenzetic comparison of the different organ systems that make up most multicellular organisms.

T07-B417 Modern Topics In Biochemistry This is a seminar course in which students select topics, do literature search and present some of the most up-to-date information and recent Journal articles.

T07-C111 Chemistry This course is designed to give one a general understanding of inorganic physical, organic and biochemistry. Topics to be discussed include: Periodic Table, Bonding, Properties of Elements, Electrochemistry, Equilibrium, Colloids, Carbohydrates, Lipids, Proteins, Nucleic Acids, Cells, etc. The laboratory experiments are undertaken with a view of explaining the theory in a practical setting.

T07-C202 Descriptive Inorganic Chemistry This subject deals with the elements of the periodic table. Properties of the elements and their respective compounds. Processes involved in their manufacture. Prerequisite: T07-C101.

T07-C203 Inorganic Qualitative Analysis This course is basically laboratory oriented. The practical work involves mainly gravimetric and volumetric quantitative analysis. The lectures cover theory and technique and stoichiometry involved in quantitative analysis. Prerequisites: T07-C103.
T07-C204 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. The laboratory dwells on the techniques of organic chemistry and preparation related to above topics. Prerequisite: T07-C104 and T07-C101.

T07-C207 Optics and Nuclear Chemistry Topics covered are diffraction, interference, polarized light, photometry, color and spectra, chemical, electronic instruments, modern physics, nuclear chemistry. Prerequisite: T07-C107.

T07-C208 Laboratory Techniques Theoretical and practical glassblowing techniques, repair of chemical glassware and construction of simple apparatus, etc. Prerequisite: T07-C107.

T07-C210 Electrical and Electronic Fundamentals Comprises basic electricity; DC and AC circuit analysis; frequency spectrum; use of test instruments; basic measurement; magnetic circuits. Prerequisites: T07-C107 and T10-M115.

T07-C304 Organic Chemistry Organic chemistry to include structure and nomenclature, preparations and properties, functional group reactions and identification, commercial uses and preparations. Such compounds to include both aromatic and aliphatic alcohols, acids, carboxylic acids, esters, anhydrides, aldehydes, ethers, and heterocyclic compounds. Prerequisites: T07-C204.

T07-C306 Instrumental Chemical Analysis Discussion of errors; theoretical principles and its application in the field of analytical instrumentation using visible and photoelectric colorimeter, fluorimeters, turbidimeter; spectro-colorimeter (ultra-violet, visible and infra-red); flame photometry and atomic absorption spectroscopy, spectro-photometric analysis, ion exchange, radiochemical analysis. Prerequisites: T07-C203, T07-C204, T07-C207, and T07-C210.

T07-C308 Physical Chemistry Ideal and non-ideal gas behavior; the three laws of thermodynamics and their applications; thermochemistry, phase equilibria, colligative properties, chemical equilibria. Laboratory experiments include surface tension, viscosity, molecular weight determination by a variety of methods, X-ray fluorescence, etc. Prerequisites: T07-C101, T10-M215, concurrently T10-M315.

T07-C307 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. Prerequisite: T07-C107.

T07-C309 Industrial Chemistry Raw material requirements, production and chemical control methods in Canadian industry; industrial water supply; energy supply; chemical process industries such as Petroleum and petrochemicals; plastics; paints, surfactants; agri-chemicals; pulp and paper, potash, etc. Prerequisite: T07-C309 and T07-M315.

T07-C310 Chemical Instrumentation Circuitry Continuation of the third term instrumental subject to include gas detection, gas chromatography; pH and potentiometric titration determination; aquametry; electrodeposition; polarography, amperometry; conductometry; man spectoscopy and nuclear magnetic resonance. Prerequisites: T07-C210.

T07-C304 Instrumental Method of Analysis Continuation of T07-C305 subject to include gas and liquid chromatography: electronic methods of analysis such as pH and potentiometric determination, equimetry, electrode position, polarography, amperometry, etc.; mass spectrometry, etc. Prerequisites T07-C305 and T07-C310.

T07-C406 Physical Chemistry Surface chemistry and colloids, solutions, colloid kinetics, the solid state, photochemistry. Laboratory experiments include X-ray diffraction, differential thermal analysis, bomb calorimeter, solution calorimeter, vapor pressure measurement, etc. Prerequisite: T07-C306.

T07-C407 Laboratory Techniques A continuation of T07-C307. Practical glassblowing techniques including plates and sintering of glassware. Vacuum techniques and equipment; fractional distillation techniques and equipment. Prerequisite: T07-C307.

T07-C410 Chemical Project A chemical project must be satisfactorily completed by each graduating student. This study is to include a) Literature search and feasibility study; b) Practical laboratory work) c) written report. Prerequisite: Dept. Head approval, concurrently T07-C405.

T07-C411 Chemical Data Handling Course deals with the methods for collecting analyzing and summarizing analytical chemical data, by correlating the qualitative values and by calculating reliability factors for the summaries. Experimental variables, instrumentation, error analysis, factors, sampling, design and control for bias will be considered. Computations will include Fortran IV and the basic languages. Prerequisites: T10-M315, T10-M316.

T07-C413 Industrial Chemistry Raw material requirements; production and chemical control methods in Canadian industry; industrial water supply; energy supply; chemical process industries - petroleum and petrochemical, plastics, paints, surfactants, agrichemicals, pulp and paper, potash, etc. Prerequisite: T07-C309 and T07-M315.

T07-C415 Corrosion and Metallurgy Atmospheric corrosion conditions; review of standard potentials; corrosion cells; corrosion and mechanical stress; protection of metals from corrosion by material and design, cathodic protection, surface coating, metal coating, and paint coating, employ x-ray for determining crystal structure of metals and alloys, etc.

T07-C416 Water Treatment To acquire extensive knowledge of the test performed on water and waste-water, the impurities of pollutants creating unfavourable situations and the manner in which these pollutants can be eliminated.

T07-C417 Environmental Science and Resource Management A seminar course, 3 hours per week for one term, designed to study the many aspects of resource management in a world where environmental preservation is an important priority. Topics to be discussed include: water, air, and terrestrial pollution; wastes; pesticides, energy; noise; population; personal pollution; modelling methodologies; ecological systems, etc. Prerequisite: Dept. Head approval.

T07-C418 Economics and Investment Decisions The course concentrates on the application of microeconomic theory as well as accounting and financial management methods to the making of investment decisions. The problems which are confronted vary the way from chemical process and product deviations and benefit-cost analysis as applied to resource development to personal investment decisions involving stocks, bonds, futures, options, insurance, houses, etc. Also included is an overview of the business world and behavioural aspects of working. Prerequisite: Dept. Head approval.

T07-C425 Chemical Instrumentation Introduction into qualitative and quantitative chemical analysis measurements. Feature continuous analysis and controls. Type of
T07-L102 General Chemistry
Atomic structure, energy levels, the periodic table, stoichiometry, the gaseous state, properties of liquids, solutions, colloids, chemical equilibrium. Prerequisite: Chem 300 or Phys. Sc. 301.

T07-L107 Mechanics Heat & Light
Kinematics, dynamics, levels, the periodic table, stoichiometry, the gaseous analysis includes gravimetric, volumetric, optical, electrical, nuclear, thermal measurements. Instrumentation and application are introduced and studied in the laboratory concurrently. Prerequisite: T10-R234.

T07-L108 Zoology
This course is designed to introduce the student to the course material of zoology; it will cover the characteristics of living cells, tissues, organs, etc; it will investigate principles of physiology; it will deal with taxonomy of invertebrates and vertebrates. Prerequisite: T07-L108, T07-L109.

T07-L109 Botany
An introductory course. Topics include plant cell structure and specialization, plant metabolic activities, and selected studies of flowering plants and members of major taxonomic groups in the plant kingdom. Prerequisite: Biol 300 or 301.

T07-L203 Analytical Chemistry II
This course basically is quantitative inorganic analysis. Students are instructed in the method of gravimetric and volumetric analysis. The solutions used by the student in analysis are prepared and standardized by him/her. Prerequisite: T07-L102.

T07-L204 Organic Chemistry
This course presents the structures and proper IUPAC nomenclature of the major families of aliphatics and aromatic organ chemistry. Selected reactions and preparations for members of these families are also presented. The effect of functional groups upon structure, nomenclature reactions, preparations and general properties of these families is also included. The laboratory includes distillations, melting point determinations, refluxing and selected preparation methods. Prerequisite: T07-L102.

T07-L205 Ecology
A course dealing with the principle of ecology. Topics include: structural and physiological adaptation, energy flow and food chains, communities, ecosystems and biomes, and man as related to nature. Prerequisites: T07-L108, T07-L109.

T07-L206 Entomology and Parasitology
This course deals with the recognition, biology, and control of insects and invertebrate parasites. Also, a study of general morphology and physiology will be included. The laboratory exercises will primarily involve taxonomic and biological studies. Prerequisite: T07-L108, T07-L209.

T07-L207 Radiation Biology & Electronics
Study basic principles of radioactivity and their effects on biological specimens, the electron section - basic AC and DC circuits, circuit elements such as resistors, capacitors and inductors. Emphasis is on use of electronic meters and oscilloscopes. Prerequisite: T07-L107.

T07-L211 Biological Data Handling
This course deals with the application of statistical techniques to problems of biological origin using the CDC6500 computer to make the necessary calculations. The topics are programming with the BASIC language central tendency, dispersion, probability, hypothesis testing, using the 1,F and Chi squared test, analysis of variance, regression, biossay, and proper experimental design. Prerequisite: T10-M117.

T07-L305 Instrumental Methods of Analysis Theory and Instrument Usage
Encountered in the chemical or biochemical field. Instrumentation include visible, ultra-violet, and infra-red region spectroscopy, flurometric, turbidimetric, nephelometric, chromatography, potentiometry, flame photometry, atomic absorption, pH meters, etc. Prerequisite: T07-L203, T07-L204, T07-L207.

T07-L313 Anatomy and Physiology
A course dealing with mammalian anatomy and physiology. Topics to include the organization of the animal, the various systems such as respiratory, digestive, circulatory, nervous, etc. and control system. Prerequisite: T07-L108.

T07-L314 Biochemistry
This course presents the major areas of basic biochemistry commencing with a study of the chemistry, properties, and structures of basic building blocks (amino acids, fatty acids, nucleotides, etc.) progressing through assembly of these building blocks into a functional unit. The interrelation of these units will be studied as part of such topics as metabolism, enzymology, nutrition, and regulation. The laboratory practicals will explore the techniques to separate, analyze and identify the major components, i.e., proteins, nucleic acid, lipid, carbohydrates. Prerequisite: T07-L204.

T07-L315 Microbiology
This course presents microorganisms, their physiology, their morphology, their metabolism, their genetics, their role in the environment, and their role in industry. Other major topics include media preparation and uses, culturing of bacteria, identification of bacterial unknowns, microbe in disease and immunology. Laboratory practicals include microscopy, preparation of slides, use of media and its preparation, acceptantly transferring bacteria, identification of microbiological unknowns from slide and growth characteristics and response in various media. Prerequisites: T07-L204, T07-L206.

T07-L316 Microtechniques
A course in the theoretical and practical aspects of preparing biological material for light microscopy. It involves use and care of the necessary equipment as well as procedures for fixing, staining, and mounting specimens or preparing them in a variety of other ways for closer observation. Prerequisite: T07-L108, T07-L109.

T07-L320 Animal Husbandry
Subject introduces the basic principles of nutrition and animal care including genetics and breeding. It will also deal with the practical aspects of animal care in an animal laboratory. Prerequisite: T07-L206.

T07-L410 Biological Project
This course gives the student an opportunity to investigate, evaluate, plan, cost, carry out and assess results of a project of his/her own selection and submit a formal report. Prerequisite: Dept. Head approval.

T07-L414 Biochemistry
A continuation of T07-L314. This course will explore the physiological interaction of the various systems that comprise a living entity. All the major systems will be studied e.g. Respiration, Nervous, Muscular, Digestive, Circulatory and Hormone. The laboratory practicals will consist of selected procedures from the field of clinical chemistry used by medical doctors to diagnose disturbances in the various physiological systems. Prerequisites: T07-L314.

T07-L415 Applied Microbiology
A study of general causes and prevention of infection of foods — including food processing and sanitation. Water and sewage treatment as well as waste handling and disposal are included. Labs include bacterial and fungal counts in foods, sewage test, seminars. Prerequisite: T07-L315.

T07-L423 Environmental Measurements This course presents a theoretical evaluation of selected techniques and procedures used to study water, air and land environments. The techniques examined as to their utility, their limitations and the implications of the results generated. The practical involves whole day sessions at selected areas where the techniques discussed are used to measure environmental parameters. Prerequisite: Dept. Head approval.

T07-L425 Wildlife Management This course looks at wildlife management historically. Techniques and equipment used in wildlife management will be described. Field trips will be included in the laboratory work. Prerequisite: T07-L205 and Dept. Head approval.

T07-B427 Clinical Chemistry Laboratory oriented course designed to familiarize the student with the tests carried out in a clinical chemistry laboratory.
ELECTRICAL TECHNOLOGY DEPARTMENT

T08-C301 Electronic Devices Semiconductor characteristics, amplifier bias techniques, small signal equivalent, circuit analysis, power amplifiers, hybrid parameters, analysis of cascaded stages, field effect transistors and circuits.

T08-C302 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.

T08-C303 Computer Circuits Integrated circuits, TTL logic family, basic configuration, available devices, spec sheets, fan out, wired logic, noise in digital systems, noise margins, methods of noise control, counters, shift registers, parallel data transfer, decoding and display, A/D and D/A converters, computer architecture memories, arithmetic circuits, overview of computer architecture.

T08-C304 Assembler Programming This course is a continuation of T08-C204 and provides the student with learning in the PDP-11 assembler language. It lays the groundwork for the linking together of hardware and software concepts.

T08-C305 Computer Systems General circuit analysis including Kirchhoff voltage and current laws leading to introductory differential equation analysis using nodal and loop methods. The use of Laplace transforms to yield complete solutions for networks, transmission line theory.

T08-C306 Circuits and Transmission Lines A general circuit analysis covering wave forms, transient and steady state, the use of Laplace transforms to yield complete solutions for networks, transmission line theory.

T08-C401 Electronic Devices Four layer device characteristics and applications, transistor and FET frequency effects, operational amplifiers, linear integrated circuits, feedback amplifiers, oscillators, and voltage regulators.

T08-C404 Integrated Circuits A course on integrated circuits with the emphasis on lab work. Topics covered will include MDS technology, CMOS structures, overview of standard product lines, characteristics, interfacing, the ECL family, noise and noise hardening digital systems.

T08-C405 Computer Systems Industrial process computer control, planning the project, installation and evaluation, control algorithms, signal conditioning, wiring practices, common mode problems, CMR noise in analog sub-systems, grounding, filtering, analog sub-systems, ADC, multiplexers, executive software, data communications.

T08-C410 Microprocessors and Interfacing Hardware and software of the MOTOROLA M6800 microprocessor with application examples. Computer interfacing concepts using microprocessor as a vehicle to explore computer interfacing to the outside world. A project is required of all students.

T08-C411 Computer Peripherals In-depth study of peripheral devices available at RRC, the RF/RS-08 ¾ M work dish, the TU56 DEC tape systems and graphic systems.

T08-C412 Manufacturing Techniques Double sided and multilayer printed circuit techniques, placing, drilling, punching, soldering, cleaning and finishing, panel etching, assembly techniques, human engineering, maintenance, environmental and economic consideration, component selection, potting materials and techniques.

T08-E206 Basic Electrical Instruments VTVM's basic power meters, Watt-meters, varmeters, Phase meters, power factor measurement, measurements in single phase and three phase circuits, DC and AC bridges and potentiometers, oscilloscopes.

T08-E301 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, voltmeter and torque speed characteristics.

T08-E302 Electrical Machines 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 welder control, digital circuits, discussion of several special devices.

T08-C403 Industrial Electronics Various rectifier and filter circuits for single and three phase, AC to DC and DC to AC conversion control of industrial processes, programmable and documentation, operation of the computer system, interfacing the computer to the control environment, program overlays, control algorithms, application examples.

T08-E403 Industrial Electronics Various rectifier and filter circuits for single and three phase, AC to DC and DC to AC conversion control of industrial processes, programmable and documentation, operation of the computer system, interfacing the computer to the control environment, program overlays, control algorithms, application examples.

T08-E404 Electrical Transmissions 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 consideration.
T08-E405 Switchgear and Protection Various types of switches, various types of relays, various types of circuit breakers, fault current calculations, protective devices.

T08-E406 Manufacturing Techniques Double sides and multilayer printed circuit techniques, plating, drilling, punching, soldering, cleaning and finishing, panel etching, assembly techniques, human engineering, maintenance, environmental and economic considerations, component selection, potting material and techniques.

T08-1301 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.

T08-1303 Industrial Electronics A comprehensive course on electronic amplifiers which discusses preamplifiers, power amplifiers and operational amplifiers, insight into amplifier operation is gained by discussion of several instrumentation measurement problems.

T08-1304 Final Control Elements The different valves, sizing techniques, noise calculations, correct application of trim, positional control elements, spring force balance, piston, valve positioners, DC stepping motors, drives.

T08-1305 Electrical Practices Single phase circuits, three phase circuits, loading techniques, conductors, insulation, wiring methods, fuses, breakers, grounding motors, various connections, DC and AC motors, controllers, insulation specifications and testing.

T08-1306 Process Measurements Art and science of measurements, calibration, accuracy, errors, instrument flow plan symbols, control instrument mechanism, motion balance, force balance, pressure measurement, mechanical pressure elements, strain gauge pressure transducers, electrical pressure transducers, high vacuum measurement, level measurement, float type mechanisms, force balance diaphragm systems, sonic level detectors, solids level detector density measurement.

T08-1402 Computer Control Systems Computer control of industrial processes, programming and documentation, operation of the computer system, interfacing the computer to the control environment, program overlays, control algorithms, application examples.

T08-1403 Industrial Electronics The following topics are discussed: DC power supplied, SCR control, oscillators, inverters, wave shaping, logic and counting circuits, electrical noise in circuits, transducers, electronic instruments and signal conditioners.

T08-1406 Process Measurements Temperature measurement, theory and practice of thermocouples, theory of null balancing systems, theory and practice of resistance thermometry, theory and practice of thermocouples, filled systems, radiation pyrometry, optical pyrometry, typical applications for temperature measurements and control, moisture and humidity measurement, psychrometric properties of air, dry wet bulb humidity measurement, industrial weighing, viscosity and consistency measurements, velocity and acceleration sensors.

T08-1407 Industrial Control Application Control valves, control valve bodies, plug characteristics, actuators, positioners, control valve sizing for fluid steam, electrical power control systems, controllers, applications relating to pulp and paper processing, mineral processing, water treatment turbo-compressor, surge controls.

T08-1410 Process Analysis Control, criteria of good control, pneumatic control mechanism, control modes-proportional, reset, rate, resistance, capacitance, dead time, self regulation, process characteristics, transient response, system frequencies, controller adjustments, cascade control, ratio control, selective control systems, feed forward control systems.

T08-1413 Technical Research & Report Research, design, construction, testing and writing a report on a project of interest in the Instrumentation field.
ELECTRONIC TECHNOLOGY DEPARTMENT

T09-E101 Electric Circuits Ohm's law; power and energy; series and parallel circuits; series-parallel circuits; AC network analysis; introduction to AC concepts; impedance; series and parallel AC circuits; series-parallel AC circuits; AC network analysis.

T09-E102 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. Corequisite T09-E101.

T09-E103 Electrical/Electronic Drawing Techniques and lettering; pictorials; device symbols; production drawings; block diagrams, schematics; industrial control drawings; major project.

T09-E104 Basic Electrical Instruments Units & prefixes; lab orientation; practical lab familiarization; care and use of instruments; theory and operation of DC meters - voltimeters, ammeters, ohmmeters; multimeters; loading effects; DC bridges; Basic AC meters; AC bridges and impedance measurements. Corequisite T09-E101.

T09-E201 Electric Circuits AC network analysis; power in AC circuits; resonance; magnetic circuits; transformers. Prerequisite: T10-M132, T09-E101.

T09-E202 Basic Electronics Semiconductor characteristics; transistor biasing; transistor circuit configurations; DC analysis; graphical analysis. Prerequisite: T09-E101, T09-E102, T09-E104.

T09-E205 Manufacturing Techniques Double sides and multilayer printed circuit techniques; plating, drilling, punching, soldering, cleaning and finishing panel etching; assembly techniques; human engineering maintenance; environmental and economic consideration; component selection; potting materials and techniques.

T09-E206 Introductory Logic This course covers introduction to solid state logic, number systems, binary, logic circuits, boolean algebra, Flip-flops, latches and counters.

T09-E207 Introductory Programming This course is divided into two parts: I. Introductory programming using BASIC - programming concepts, flow charts, programming techniques and examples - uses the College PDP 11/70 time-share system. II. This covers assembler level programming on the M6800 microcomputer.

T09-E302 Electronic Devices Semiconductor characteristics, amplifiers, bias techniques, small signal equivalent circuit analysis, analysis of small signal amplifiers, power amplifiers, cascade amplifiers, oscillator circuits. Prerequisite: T09-E202. Corequisite: T09-E303.

T09-E303 Electronic Measurements Electronic Measuring instruments; AF, RF, and UHF measuring techniques. Prerequisite: T09-E201, T09-E204.

T09-E304 Linear Control Systems Analog Control System Terminology and example, block diagram reduction, system equations, system components, frequency response analysis, stability criteria. Corequisite: T10-M332.


T09-E306 Digital Theory TTL Characteristics, Basic Logic, Counters, Dividers, Shift Registers, Latches, Decoders, Drivers, Seven Segment LED and Cold Cathode Nixie Displays, Magnitude Comparators, Memories, Multiplexers and Data Selectors, Expanders, and Expandable Gates, Mono Stables. Prerequisite: T09-E203.

T09-E401 Electronic Circuits & Fields Transmission lines; parameters and equations; high frequency and applications of transmission lines; guided electromagnetic waves; selected types in microwave antennas and propagation. Prerequisite: T09-E305.

T09-E402 Electronic Devices Tunnel Diodes, unijunction transistors, Silicon Controlled Rectifiers; Triacs, Dan's; Optoelectronic devices, Puts, Zero Cross-Over switches, Ceramic Filters. Prerequisite: T09-E302.

T09-E403 Integrated Circuits Monolithic and Film Technology, Linear Circuits (OP amps, Comparators, Voltage Regulator, Phase lock Loop, Switching Regulators, Active Filters, Ultra Sonic Transceivers), Introduction to CMOS and ECL Circuits. Prerequisite: T09-E306.


T09-E405 Microwave Systems Functional and schematic diagrams of a RCA 3102 dual microwave system covering multiplex, receiver, transmitter, antenna feeders and branching networks. Microwave terminology, maintenance performance testing and evaluation of a system. Prerequisite: T09-E303 Corequisite: T09-E401.

T09-E406 Digital Control Systems Using Microprocessors Review of Number Systems, gating circuits, Flip-Flops, Counters, Shift Registers; Logic Applications; System Design; Input and Output Interface; Calculators; Microprocessors. Prerequisite: T09-E306. Corequisite: T09-E403.

T09-E407 Television Systems B & W TV theory - servicing and fault finding procedures. Colour TV theory. Prerequisites: T09-E303, T09-E305.


T09-E409 Radar Systems Subsystems — receiver, transmitter, antenna; types of radar — search, tracking, fire control, early warning, weather, air traffic control. Design, testing of a specific application reception, noise, propagation, sensitivity, noise figure. Prerequisite: T09-E303, T09-E305.

T09-E410 Business Topics Study in business management, financing, selling advertising and personnel.

T09-E411 Systems Project Investigation of approved topic. Construction and testing of the system in consideration, followed by submission of a formal report. Prerequisite: Complete Term 3.
T10-M115 Algebra and Trigonometry Elementary Statistics, errors and uncertainties in computations with measured values; elementary algebra, calculators, logarithms, trigonometric relations and identities, vectors; equations solution methods, determinants, introduction to matrices, quadratic and higher order equations, straight line circle, parabola, ellipse, polar co-ordinates.


T10-M129 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, Trigonometric Identities. Straight line and circles.

T10-M132 Algebra and Trigonometry This is an introductory course in Engineering Mathematics. Those topics in algebra and trigonometry applicable to Electrical, Computer and Electronic technologies are emphasized. These include topics in algebra, trigonometry, matrices and complex numbers. The course also serves as a preparation for courses in applied Calculus.

T10-M141 Mathematics I This is a skill development course in arithmetic, applied geometry and lower level algebra - topics commonly found in high school courses - but which recognize the need for their mastery among adult students who have (in the main) been away from high school courses for some time. Emphasis is also placed upon hand-held calculator skills, and in simple but realistic applications.

T10-M148 Algebra and Trigonometry Fundamental concepts, Functions, Graphs, Determinants, Factoring, Quadratic equations, Trigonometric functions, Vectors, Exponents, Logarithms, Trigonometric Identities and equations. Straight line circle.

T10-M152 Mathematics I Review of arithmetic operations, algebraic operations; exponential and logarithmic operations, ratio and proportion; linear and quadratic equations; simple descriptive statistics and the normal distribution; errors and error analysis; introduction to computer time-share and application.

T10-M161 Mathematics (P.E. 4th) This is a skill development course in arithmetic, applied geometry and lower level algebra. Emphasis is also placed upon hand-held calculator skills, and realistic applications.

T10-M215 Introductory Calculus Derivatives with applications; related rates, curve sketching, max-min problems. Differentiation of transcendental functions with applications. Differentials. Integration with applications; area under a curve, volumes of revolution, work. Numerical integration.

T10-M228 Introductory Calculus This course is an introduction to calculus. The approach is basically intuitive rather than unduly rigorous, yet it follows an algebraic and trigonometric foundation. Aside from the usual introductory applications, areas, volumes of revolution, and moments of inertia are emphasized.

T10-M221 Introductory Calculus This course is an introduction to calculus. The approach is intuitive and conceptual rather than rigorous. The emphasis is on problem solving with graphical representation and curve sketching.

T10-M227 Surveying Mathematics Plane triangle and circles, basic statistics and graphing, plane and analytical geometry, differentiation of simple algebraic and trigonometric functions. Problem relating to triangles in surveying.

T10-M229 Introductory Calculus 3-d geometry. Differentiation of algebraic functions, slopes, maxima, minima, rates, derivatives. Definite and indefinite integration, areas, use of computer, arithmetic, input and output, formats, volumes, moments of inertia, work as a result of variable forces, logarithms, flow chart.

T10-M232 Introductory Calculus Differentiation of powers, products, sums, trigonometric functions, logs and exponentials, slope, velocity, maxima and minima. Integration, definite and indefinite, area under a curve.

T10-M241 Mathematics II This course extends the Term I course from algebra into logarithms, trigonometry and the practical measurement of areas and volumes. Rather than simply involving skill development, this course begins to introduce the student into field applications.

T10-M246 Introductory Calculus and Programming Limits, differentiation, curve sketching, related rates, max-min problems, differentials, integration, area under a curve, numerical integration, differential of transcendental functions, integration of transcendental functions. Introduction to Basic programming.

T10-M261 Mathematics (P.E. 3rd) This course extends the M161 course from algebra into logarithms, trigonometry and the practical mensuration of areas and volumes. Rather than simply involve skill development, this course begins to introduce the student into field applications.

T10-M315 Calculus and Programming 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. MacLaurin, Taylor and Fourier series, introduction to differential equations, matrix algebra and basic Fortran programming.

T10-M316 Calculus and Programming Applications of the calculus to chemical and biochemical problems, min-max, inflection, approximation, uncertainty, areas by Simpson's rule, work, heat capacity, partial differentiation differential equations applications to kinetics and rate processes and basic Fortran programming.

T10-M327 Advanced Surveying Mathematics Correcions of the braced quadrilateral. 3-D, the right angled tetrahedon, spherical triangles, Napier's analogies; oblique spherical triangles, sine, cosine and other laws, latitude and longitude as spherical co-ordinate. Position lines, area of spherical triangle, integration, definite and indefinite. Full use will be made of the calculators and of the computer.

T10-M329 Calculus and Statistics 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.

and applications in electric circuit theory. Computer programming in BASIC and FORTRAN languages with applications in Electronics Technology and the CSMP application program for solution of continuous systems.


T10-M346 Calculus and Programming Integration by use of tables, volumes by integration, centroids, moment of inertia, work, arc length surface area, calculus of two independent variables, three dimensional sketching, partial differentials with applications, multiple integrals with applications, Taylor series, MacLaurin series, introduction to differential equations, basic programming.

T10-M435 Numerical Methods Laplace transforms - wave forms, complex numbers, arc lengths, volumes, attraction, multiple integration, convergence of series, analogue computer, binary arithmetic, Fortran IV programming.

T10-P209 Computer Applications In Surveying This course provides an introduction to computer programming in the BASIC language. An "interactive keyboard" provides immediate access to and response from the computer. The course will include topics on data manipulation, input, output, arithmetic operations, file handling techniques.

T10-P432 Applications Programming For Electronics Computer aided analysis for electronic circuit design and applications. Use of Electronic Circuit Analysis Program (ECAP). Selected topics using advanced FORTRAN programming language.

T10-R132 Physics I Physical quantities, units and measurement, kinematics and dynamics of translational motion, conservation of energy and momentum; Electrostatic force, field and potential, capacitance. Magnetic fields due to current carrying wires, Force on a current carrying wire in a magnetic field, Induced emf, atomic and molecular structure band theory of crystalline Solids, electric magnetic and optical properties of materials and physics of Semi-conductor devices.

T10-R141 Elementary Thermal Studies This is a physics theory course which emphasizes both non-SI and SI units for quantitative problem solving applications. Thermal studies form the body of this course as they relate to expansion in the three states of matter, calorimetry, heat transfer, steam tables, and thermal stresses.

T10-R234 Physics II Kinematics and dynamics of Rotation, elastic properties of solids and liquids, fluid mechanics and heat transfer, Mechanial and electromagnetic oscillations, waves in elastic media, electromagnetic waves, Lasers and fibre optics.

T10-R241 Mechanics Though this is a short theory course in mechanics, it leans strongly toward problem solving applications. Fluid mechanics (hydrostatics and hydraulics) are included along with the usual topics of kinematics, vectors and moments, friction and mechanical advantage.

T10-S252 Elementary Statistics and Quality Control Review of simple descriptive statistics, errors, probability, quality control charts using mean, range, and sum, testing, confidence limits, chi, T and F tests, simple analysis of variance, linear regression and non-parametric methods, application problems and computer programs and applications. Prerequisite: T10-M129.

T10-S432 Statistics and Quality Control Modern quality control combines effective testing and inspection with statistical aids. Statistical methods permit sampling procedures that minimize sampling risk while at the same time maximizing the relative quality protection attainable. Statistically established limits on control charts signal a warning when a production process has gone out of control. This course examines the statistical techniques which are related to quality control.

T10-S446 Statistics and Quality Control See T10-S432.
TII-E055 A.C. Machines and Controls The operating principles of alternators and motors in single and three phase systems and their control.

TII-E057 Electrical Laboratory A.C. To connect electrical equipment to an A.C. source to determine their behaviors and characteristics.

TII-E059 Commercial Blueprint Reading Blueprint reading and applied code in commercial type occupancies, Electrical code calculations.

TII-E061 Commercial Wiring To practise the methods and techniques as they apply to commercial buildings. Also wiring of motor control equipment.


TII-E065 Electric Motor Repair (Practical) Analyzing of motor faults, stripping, rewinding and bearing renewal, if necessary, testing.

TII-E067 Electrical Measuring Techniques To familiarize the apprentice with equipment and measuring techniques used in the industry. Testing and troubleshooting with the use of V.O.M.'s, oscilloscopes, megger and universal bridge.

TII-R001 Safety and Fundamentals Theory 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.

TII-R003 Safety and Fundamentals Practical 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.
T11-R005 Refrigeration Systems, Theory
The refrigeration cycle. Compressors, condensers, refrigerant metering devices, evaporators, refrigerants, oils, temperature controls, charging and testing systems.

T11-R007 Refrigeration Systems - Practical
The refrigeration cycle. Compressors, condensers, refrigerant metering devices, evaporators, refrigerants, oils, temperature controls, charging and testing systems.

T11-R009 Commercial Systems Theory
Types of systems - Low-temperature, medium temperature; remote; multiple; open types; 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.

T11-R011 Commercial Systems Practical
Types of systems - Low-temperature, medium temperature; remote; multiple; open types; 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.

T11-R013 Calculation of Heat Transfer Theory
Compressor capacities, speed ratios, evaporator capacity, pipe sizing and component selection.

T11-R015 Calculation of Heat Transfer Practical
Compressor capacities, speed ratios, evaporator capacity, pipe sizing and component selection.

T11-R017 Air Conditioning Systems Theory
Direct expansion, water chiller, single, multiple, air and its properties. Types of compressors used. Fans, filters, and air distribution systems.

T11-R019 Air Conditioning Systems Practical
Direct expansion, water chiller, single, multiple, air and its properties. Types of compressors used. Fans, filters, and air distribution systems.

T11-R021 Refrigeration Electrical Theory
Electrical circuits, magnetism, motors, relays, controls, and control systems. Electrical code as pertaining to refrigeration equipment.

T11-R023 Refrigeration Electrical Practical
Electrical circuits, magnetism, motors, relays, controls, and control systems. Electrical code as pertaining to refrigeration equipment.
T12-D001 DC Fundamentals Conduors, resistors, insulators, Ohm’s law, resistance measurements and calculations, magnetism, capacity, inductance, time constants, VOM, VTVM, capacity testers.

T12-D002 DC Fundamentals Practical Laboratory projects for T12-D001

T12-D003 AC Fundamentals Basic AC generators, frequency spectrum, reactance, impedance, resonance, phase relationships, oscilloscopes.

T12-D004 AC Fundamentals Practical Laboratory projects for T12-D003

T12-D005 Electronic Fundamentals Vacuum tubes and CRTs and their characteristics. Gain, microphones, speakers, audio amplifiers, LC and RC oscillators, modulation and demodulation, mixing and the superheterodyne principle, power supplies, tubes and transistors.

T12-D006 Electronic Fundamentals Practical Laboratory projects for T12-D005

T12-D007 Radio Receivers and Servicing R.F. amplifiers, converters, IF amplifiers, detection, AF amplifiers, AGC systems, alignment and alignment generators, superheterodyne tracking, image and beat interference, servicing techniques.

T12-D008 Radio Receivers & Servicing Practical Lab projects for T12-D007

T12-D010 Safety Safety precautions when working with electrical circuits, handtools and power handtools in the lab and on the job.

T12-D051 Television Standards and Fundamentals Bandwidth requirements, interlaced scanning and vestigial sideband transmission, composite signal, standards for black and white television.

T12-D053 Television Signal Circuits The tuner, video IF amplifiers, video amplifiers, sound systems, alignment equipment and alignment techniques. Troubleshooting the signal circuits.

T12-D054 Television Signal Circuits Practical Lab projects for T12-D053

T12-D055 Television Deflection Circuits Deflection generators, vertical deflection systems, horizontal deflection and high voltage systems. Horizontal AFC circuits. Troubleshooting the deflection systems.

T12-D056 Television Deflection Circuits Practical Lab projects for T12-D055

T12-D057 Television Auxiliary Circuits Vertical and horizontal sync signals, sync separation and sync circuits. Single and keyed AGC systems, power supplies. Troubleshooting sync, AGC and power supplies.

T12-D058 Television Auxiliary Circuits Practical Lab projects for T12-D057

T12-D059 Antennas and Master Antenna Systems Types of antennas, balanced and unbalanced transmission lines, multielement antennas, all channel antennas, distribution systems.

T12-D060 Television Receiver Repairs Troubleshooting for faults placed in sets by the instructor and customer repair projects.

T12-D061 Shop Planning and Management Equipping and planning a television shop. Service calls and charging for service work. Bench service and charges for bench work. Customer relations.

T12-D063 Closed Circuit Television Applications of CCTV. Vidicon cameras, sync and deflection generators, switching units and remote control units, monitors and slave receivers.

T12-D065 Safety Safe use of hand and power tools, cleaning solutions and solvents. Safe handling and working with large high vacuum cathode ray tubes. Safe use of electronic test equipment when working with very high voltages.

T12-D067 Field Orientation Student observes first hand the working of a television service shop and accompanies the technician on home service calls. The student writes a report on the orientation and receives an evaluation by the service manager of the participating shops.

T12-D068 Digital Logic Basic logic expressions and Boolean Algebra, Inverters and gates (and, or NAND, NOR, and exclusive OR), flip-flops, Binary codes and number systems, counters, encoders, decoders, displays, registers, multiplexers, memory devices.

T12-D075 NTSC Standards For Color Television Light and color, the NTSC system, composition of the color video signal.

T12-D077 Controls and Adjustments Consumer controls, technician controls, degaussing, purity, static and dynamic convergence. Practice in adjusting purity and convergence. Troubleshooting and repair of TV sets.

T12-D078 Controls & Adjustments Practical Lab assignments for T12-D077

T12-D079 Monochrome Circuits Tuner and VIF response in a color set. Sound take off. Video amplifiers, vertical deflection, horizontal deflection and alignment, HV regulators, LV power supplies. Troubleshooting and repairing of color TV sets.

T12-D080 Monochrome Circuits Practical Lab assignments for T12-D079

T12-D081 Chroma Circuits Chroma IF and required response. Aligning chroma IF High and low level demodulators, matrixing systems, chroma amplifiers. Keyed rainbow generator, testing demodulator and chroma circuits. Troubleshooting and repairing of color TV sets.

T12-D082 Chroma Circuits Practical Lab assignments for T12-D081

T12-D083 Color Sync Circuits Burst amplifier, 3.58 mhz oscillator and AFC control. Crystal ringing circuits, AFPC alignment. Repairing color TV sets.

T12-D084 Color Sync Practical Lab assignments for T12-D083

T12-D085 FM and FM Stereo Monaural broadcasting of FM block diagram of FM, monaural receiver, combination toners, stacked FM detectors, stereo broadcasting, FM composite signal and multiplexing, carrier insertion, decoding and matrixing, SJA, Phase locked loop system.
T12-D087 Basic Audio Amplifiers Classes of amplifiers, single ended and push-pull amplifiers, tone and balance controls, measuring gain, frequency range, distortion and power trouble shooting.

T12-D088 Tape Recording and Tape Transports Magnetic recording principles, magnetic heads, binc oscillators, cassettes, 8-track and reel to reel system, aligning and cleaning heads, troubleshooting and servicing tape recorders.

T12-D089 Signal Sources Characteristics of crystal, ceramic, dynamic and ribbon microphones, crystal, ceramic and reluctance pickups.

T12-D090 Speakers and Speaker System Leans, horns, and wide angle, woofers, midrange and tweeters, speaker enclosures, cross-over networks, phasing speakers.

T12-D091 Changers and Turntables Synchronous motors, simple turntable and changers, correcting changer problems, servo controlled direct and belt drive turntables.

T12-D092 DC Fundamentals Structure of atoms, conductors and insulators, electric charges, units of measurement, Ohm’s law, circuit measurements and calculations, magnetism, capacity, inductance, time constants.

T12-D093 AC Fundamentals Sine waves, frequency spectrum, reactance, impedance, calculations, resonance, phase relationships, practical considerations.

T12-D094 DC Fundamentals Structure of atoms, conductors and insulators, electric charges, units of measurement, Ohm’s law, circuit measurements and calculations, magnetism, capacity, inductance, time constants.

T12-D095 Semiconductor Fundamentals Sine waves, frequency spectrum, reactance, impedance, calculations, resonance, phase relationships, practical considerations.

T12-D096 Test Equipment VOM, TVOM, oscilloscopes, sine and square wave generators, tube and transistor testers.

T12-D097 Transistors and Tubes Tube structure, characteristics, operating parameters, semiconductor physics, alpha and beta gain, types of transistors, handling techniques.

T12-D098 Power Supplies Transformers, half and full wave rectifiers, voltage doublers, bridge rectifiers, filters, voltage regulators.

T12-D099 Amplifiers Circuit configurations, coupling methods, stage gain, negative feedback, differential and operational amplifiers.

T12-D100 Oscillators, Multivibrators and Flip-Flops Common types of RC and LC oscillators, sine wave and square wave oscillators.

T12-D101 Timing Fundamentals Review of RC time constants and sine wave values.

T12-D102 Gaseous Electron Tubes Ionization, glow discharge, VR tubes, phonetrons. Inductive carryover in inductive loads.

T12-D103 Thyatrons and Controls Thyatrons, control of firing time, bias control, phase shift circuits.

T12-D104 Electron Tube Time Delay Vacuum and gaseous tube grid control, time delay circuits.

T12-D105 Semiconductors Basic theory and construction, junction diodes, transistors, circuit configurations, integrated circuit.

T12-D106 Photosensitive Devices Light sensitive materials, phototube construction and operation, circuit applications.

T12-D107 Photosensitive Devices Light sensitive materials, phototube construction and operation, circuit applications.

T12-D108 Relays Theory and types of relays. DC and AC circuit applications. Time delay circuits.

T12-D109 Voltage Regulators Voltage regulation defined. Circuit analysis of various types of regulators.

T12-D110 Field Effect Transistors Theory of operation, J-Fets, Mos-Fets, Characteristics and applications.

T12-D111 Pulse and Gating Circuits Analysis of solid state circuits using discrete and integrated circuit components.

T12-D112 Closed Circuit Television Applications and systems, vidicon and control circuits, deflection and failure protection, sync generators, slave receivers and typical circuits.

T12-R010 Morse Code (Receiving and Sending) Instruction and practice to enable the student to send and receive International Morse code at a rate of 20 WPM in plain language and 16 groups per minute in cipher.


T12-R020 Normal Traffic Procedure International commercial procedures designed to insure message traffic can be passed between transmitting and receiving stations of any nation.

T12-R021 Basic Electronic Theory Vacuum tube and transistor fundamentals. Rectifiers, tube and solid state. Amplifiers, tube and solid state.

T12-R030 Special Service Procedure Special service procedures for procedural or administrative message traffic. Distress traffic.

T12-R031 Basic Electronic Circuits Oscillators, amplifiers, frequency doublers, power supplies.

T12-R040 Toll Computation Calculation of message charges (tolls) which are internationally standardized.

T12-R041 Communication Receivers TRF and superheterodyne receivers. Bandspreading and oscillator tracking. Alignment and elementary fault finding. RF, IF and AF amplifiers, detection and filtering.

T12-R051 Communication Transmitters AM and FM transmitters, keying, modulation, parasitic suppression, power supplies.


T12-R071 Test Equipment VOM, VTVM, oscilloscope, AF and RF signal generators.
T12-R081 Programmed Equipment Marconi autokey and autodial. Circuits and troubleshooting.

T12-R091 Direction Finders and Emergency Equipment Marconi marine emergency transmitters and receivers. Direction finders and lifeboat equipment.

T12-T001 Electronics Fundamentals Series and parallel DC circuits, magnetism, motors, generators, series and parallel AC circuits, inductance and inductive reactance, capacity and capacitive reactance, resonant circuits. Time constants, ammeters, oscilloscopes, signal generators, impedance bridges. Practical test equipment use and care.

T12-T002 Electrical Fundamentals Ohm’s and Kirchoff’s laws applied to series and resistive circuits. Permanent and electromagnetic applications. Inductive and capacitive reactance. Resonance Q and Band width, R1 and R2 time constants and care of test equipment. Analog and digital meters, Oscilloscopes, signal generators and impedance bridges.

T12-T003 Semiconductors and Vacuum Tubes Two terminal devices, triodes, vacuum tubes, operating parameters, biasing techniques, terminal identification, handling techniques, transistor and tube testing, specifications and interpretation.

T12-T004 Conductors semiconductors and insulators. P and N type semiconductors. Two terminal devices rectifiers, varactors, zeners, tunnel diodes, photo cells, thermostor, and varistors, bipolar transistors, circuit configurations, characteristic curves, biasing techniques, terminal in identification, fets and mosfets handling precautions, characteristics, and applications. SCRs, DIACS, TRIACS, VJTS, Testing diodes, transistors and thyristors.

T12-T005 Basic Radio Receivers and Transmitters Power amplifiers, AF amplifiers, AM demodulators, RF amplifiers, oscillators, superheterodyne, receiver alignment and troubleshooting. Amplitude and frequency modulation, transmitter principles and diagrams.

T12-T006 Communications Transmitters and Receivers Amplifiers A.F. IF and RF oscillators, mixers detectors and superhet principles, CW AM SSF, DSF, FM and PM transmission and reception. Alignment maintenance and trouble shooting VHF land mobile transceivers.

T12-T008 Transmission lines, antennas, introduction microwave Characteristics of transmission lines, standing waves, swr impedance matching, dipole antennas, monopole antennas, direct array propagation of radio waves, microwaves, polarization, waveguide modes, microwave oscillators, cavities and amplifiers, directional couplers, circulators and isolators.

T12-T010 Telecommunications Concepts Frequency Division Multiplex, analog carrier systems, filters, attenuation pads, signalling, pilot signals and alarms. Time division multiplex techniques, PAM, PCM, PPM, PWM. Data transmissions media limitations, FSK, VECT, VAUDOT and ASCII codes bits and bands, error rates, parity and distortion problems.

T12-T012 Telephony & Telephone Switching Principles Telephone exchanges, incoming signalling, signal processing, switching, outgoing signalling, clearing circuit reading, symbols for attached and detached drawings, schematic and wiring diagrams, cross referencing and interpretation of notes and circuit options, practical application using A.E.I. rotary, ericsson code Bar and mitel electronic common control pass.

T12-T014 Digital Techniques Components used in digital circuits, operation of logic gates, use of boolean algebra to minimize logic circuit design, design of both combinational and sequential logic circuits for a given application, concepts for the selection of integrated circuits, practical applications.

T12-T016 Microprocessors Microcomputer basics, introduction to programming, the 6800 microprocessor interfacing. Experimental application using the 6800 microprocessor.

T12-T051 Transmissions Lines, Antennas and Introduction to Microwave Characteristic impedance, wavelength and electrical characteristics of transmission lines, SWR measurements and calculations, basic antenna types and characteristics, microwave frequency spectrum, E and H fields, propagation modes, waveguides, attenuators, resistive loads, irises, corners, bends, dehydrators. Microwave devices, Gunn oscillators, cavities, directional couplers, switches, duplexer.

T12-T053 Communications Receivers and Transmitters Theory of operation of CW, AM, SSB, DSF, FM and PM transmitters and receivers, analysis of practical circuits, performance testing, alignment, adjustment and troubleshooting of VHF FM transmitters.

T12-T055 Basic Telecommunications Concepts Basic organization of telephone systems, frequency division multiplex carrier systems, balanced bridge and lattice modulators, filters, attenuating pads, in and out band signalling, pilot signals, alarms. Time division multiplex techniques, PAM, PCM, PPM, PWM. Microwave, VHF, coaxial cable, toll multiconductors, open wire lines.

T12-T057 Pulse Techniques and Digital Logic The nature of the pulse and how it is reacted upon by differentiators, integrators, clipppers, DC restorers and pulse amplifiers and their related compensation networks. Multi—duration distortion, envelope delay, impulsive noise, phase rates.

T12-T059 Introduction to Data Transmission Information flow, media limitations, synchronous and asynchronous transmission, multiplexing, modulation techniques, FSK, AM-VSB, DPCM, bipolar transmission parameters, at multiplex carriers systems, balanced bridge and lattice transmitters and receivers, analysis of practical circuits.
T13-M120 Meat Cutting Math The SI metric system is used exclusively. Four basic operations with whole numbers, fractions, decimals, simple equations, percent (mark-up, discount) meat shrinkage ratio and proportion, denominate numbers. (Introduction to metric work shop given where necessary.)

T13-M501 Upholstery Math I Individual progress program — Diagnostic tests to identify remedial requirements for each student. Each student is required to complete basic assignments on each of the following topics: Whole Numbers, Fractions, Decimals, Elementary Algebra (one unknown). Percent, Ratio and Proportion, Metric Measurement/Calculation, Denominate numbers, Square, Square Roots, Pythagoras Theorem, Measure Distances, Perimeters, Circumferences, measure area of various geometric figures, calculate volume/capacity for various shapes of containers.

T13-M502 Masonry Math Math concepts: whole numbers, fractions, decimals, equations, percent, ratio and proportion, square roots, Pythagorean Theorem, arc lengths, Parabolic arch, geometric designs, volumes. Practical Exercises: numbering systems, #1, #2, perimeter, area, volume. ME #3, 4 Percent calculations and estimating masonry unit quantities, arc lengths of semieliptical arches, estimating costs. Three multiple choice tests.

T13-M504 Welding Math Individual progress math program utilizing diagnostic tests to identify remedial requirements for each student. Students are required to complete basic assignments on each of the following topics: Operations with whole numbers, fractions, and decimals, solving and writing simple equations with one unknown, percent calculations, ratio and proportion, denominate numbers, metric measurement and calculation, square root, Pythagorean theorem. Right angle triangle, Pythagoras’ theorem, measure of distance perimeters and circumference, measure of surface areas of various geometric figures, calculation of volume/capacity/mass for commonly used of containers.


T13-M508 Automotive Math I Individual Progress Math. Program utilizing Diagnostic Test material to identify remedial requirements for each student. Students are required to complete basic assignments on each of the following topics: 4 operations with whole numbers, fractions, decimals, elementary algebra using one unknown, percent, ratio and proportion, denominate numbers, metric measures and calculations, exponents, scientific notation/significant digits, square/square roots, pythagoras theorem, perimeter/circumferences, area, various figures, volume/capacity of commonly used shapes of containers.

T13-M509 Autobody Math I Whole numbers, fractions, decimals, equations, percent and ratio and proportion.


T13-M512 Carpentry Math Fractions, decimals, percent, board measure, area, rectilinear, square root, circular measurement, ratio and proportion, volume, cylinder, cones, pyramids.

T13-M513 Plumbing Math Mathematics which is directly related to the trade. It covers fractions, decimals, square root, area, volume (both rectilinear and cylindrical) and offsets calculations.

T13-M514 Drafting Math Solution of architectural and engineering related problems using algebra, trigonometry and vectors. Final grades will be an average of all unit tests and assignments. If term grade is unsatisfactory, the student will be required to write a final exam in order to obtain a passing grade.


T13-M517 Electrical Math I Whole number operations, fractions, decimals, percent, denominate numbers, ratio and proportion, signed numbers, basic area and volume, right triangle, sine, cosine, tangent, equations, powers of ten, square roots, algebra, trigonometry, vectors and logarithms, law of sines, law of cosines.

T13-M518 Domestic Electronics Math Survey test of math concepts form adding and subtracting numbers to trig. Equations applying Ohm’s law to DC circuits, ratio and proportion, reciprocals, powers of ten, scientific notation, electronic measurement units, Pythagorean theorem, square roots, trig functions, trig applied to phasors in AC theory, calculating impedance, voltage drops, phase shifts and power dissipation in AC circuits, vector analysis of AC parallel circuits, common logs and decibels, simultaneous solutions of three equations, applying Kirchhoff’s laws to multiple power source circuits.

T13-M519 Radio Ops Math Survey test of math concepts from adding and subtracting numbers to trig. Reciprocals, equations applying Ohm’s law to DC circuits, ratio and proportion, powers of ten, scientific notation, electronic measurement units, Pythagorean theorem, square roots, trig functions, trig applied to sine wave and vectors, trig applied to phasors in AC theory, calculating impedance, voltage drops, phase shifts and power dissipation in AC circuits, vector analysis of AC parallel circuits, common logs and decibels.

T13-M520 Electronic Math I Algebra, powers of ten, exponents, ratio, trigonometry, vectors, problem solving (DC and AC circuits), network analysis, number system, Boolean algebra.

T13-M522 Sewing Machine Repair Mathematics Whole numbers, fractions, decimal fractions, equations, percent, ratio and proportions, SI (metric), square root (optional), perimeter, area.


T13-M620 Electronics Math II AC series and parallel circuit calculations. Logarithms and decibels, number systems and switching logic.

T13-M623 Telecom Math Term II Number systems, Boolean algebra, digital logic.
T13-S618 Domestic Electronics Science 2 Vacuum tubes, triode, dextode, CRT, Colour CRTS, delta-gun, in-line, Vidicon Camera, basic antenna and transmission lines, light and colour, transformers and reactors, Solid state devices, VDRS Thermistors, varactors, FETS, CS, Switching and Gating devices (CCTV).
T14-C116 Communication An essentially practical course designed to give technologists experience in preparing writing and presenting technical information in the form required by industry.

T14-C124 Communications I A technical writing course designed to prepare students for the writing done on the job. It covers the basic format for letters, memoranda and informal reports. It also covers the entire job search process, from finding where the jobs are to the handling of interviews.

T14-C126 Communication I An essentially practical course designed to give Power Engineers experience in preparing, writing and presenting technical information in the form required by industry.

T14-C224 Communications II A continuation of T14-C124, designed to improve the student's letter and memorandum writing style. It covers the informal investigation report, oral presentations and discusses the techniques for getting along on the job and cultivating a supervisory style.

T14-C226 Communication II 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. Prerequisite: T14-C126 or T14-C116.

T14-C502 Communication A program similar to T14-C504, but only 20 hours duration.

T14-C503 Communication A program similar to T14-C504, but only 30 hours duration.

T14-C504 Communication A self-paced practical course that develops communications skills from four viewpoints: job-seeker, employee, junior supervisor, small business owner. The course is tailored to fit the needs of individual students and the requirements of the Advisory Boards.

T14-C512 Communication 1 First half of T14-C504.

T14-C522 Communication 2 Second half of T14-C504. Prerequisite: T14-C502.

T14-C531 Communication A self-paced short practical course to develop communications skills of the student as job seeker and employee.

T14-C552 Communication A short communications course which concentrates on order writing, purchase orders, inventory records, and short incident-type reports.

T14-H103 Communications This course is designed to help develop the students' written communication skills, particularly those required in the health sciences field.

T14-R214 Report Writing Communication topics emphasize formal report writing and oral presentation of technical information covering illustration of reports, letter of application, and employment interview. (Specific topics include interpretation of specifications, the preparation and writing of specifications, standard forms, requisitions, work orders, changing orders, purchase orders, etc.) Prerequisite: T14-C116.

T14-R216 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. Prerequisite: T14-C116.

T14-R328 Report Writing A program similar to T14-R216; includes 20 hours of industrial psychology.

T14-R503 Report Writing A practical course in oral and written business communication, report writing, and job finding techniques.

T14-R503 Communications Consists of a practical industrial communications program designed to provide industrial students with job-oriented information which will help them obtain and maintain a job. Included are exercises in grammar, paragraph construction, technical report writing, business situation problems and job interview techniques.

T14-R614 Report Writing A short course that teaches students to write clearly, concisely and directly in both the objective and subjective modes. Students write short reports, summaries, analyses, and make brief oral presentations.
PIPING TRADES DEPARTMENT

T15-A301 Appliance Repair - Gas This is a 3 week course designed to give appliance service students some understanding of gas piping, service, repair and correct methods of connecting and disconnecting gas appliances such as dryers and ranges.

T15-P001 Introduction to the Piping Trades and General Information Type of work, tools, materials, equipment, safety.

T15-P002 General Shop Work, Practical Identification and use of tools, fittings, and materials; material handling, safety and rigging; use of torches and lead work.

T15-P003 Piping, Materials and Pumps, Theory Cast iron, galvanized iron, copper, lead, plastic, glass, uses of each, methods of assembling, supporting, handling, storing, and types of tools used with each.

T15-P004 Piping, Materials and Pumps, Practical The joining of cast iron, galvanized black iron, copper, plastic and asbestos cement pipe by methods such as screwed, soldered, caulked, mechanical joints, glued, vitanic, flanged and compression ring fittings. The assembly of valves and some basic pump installations.

T15-P005 Regulations and Project Installations, Theory Interpretation of plumbing code, sizing of sewers, drains, stacks, vents, etc. drawing layouts and constructing actual installations from layouts and blueprints.

T15-P006 Project Installations, Practical With the knowledge of materials and code previously covered, rough in a common bungalow, rough in a rural home, rough in a commercial project, install fixtures for residential and commercial, do water piping and test all projects.

T15-P007 Hot Water Heating, Theory An introduction to space heating, types of heat, transfer equipment, hot water boilers, circulating pump and controls, a study of hot water systems.

T15-P008 Hot Water Heating, Practical Hanging and grading mains, installing radiation, connecting to the boiler, testing and operating the system.
INDUSTRIAL EXTENSION DEPARTMENT

T17-E101 Pre-Trades Training for Women, Theory This course will contain confidence building, self assessment, decision making and evaluation of all experiences gathered in this course.

T17-E102 Pre-Trades Training for Women, Practical This unit of instruction will provide female students with a hands-on experience in various trades normally occupied by men. These are: Automotive, Construction, Plumbing, Masonry, Electrical, Sheet Metal, Welding, Machine Shop, Painting and Electronics. The intent is to provide experiences which will aid in the selection of a non-traditional occupation.

T17-E103 Pre-Trades Training for Women, Training in Industry The student will be exposed to actual situations in industry.

T17-S006 Painting & Decorating Ext. The instructional program provides a good grounding in fundamentals, basic skills, and knowledge of modern developments in tools, materials and procedures and their adaptation to construction.

T17-S007 Cabinet Making Principles The objective of this subject is to familiarize the student with the basic principles in the layout and manufacture of kitchen cabinets, vanity sets and small pieces of furniture.

T17-S025 Mechanics-Commercial Sewing Machine Theory & practical as required in the maintenance and repair of commercial sewing machines & equipment used in industry.

T17-S026 Welding Extension Basic Principles in theory and practical as required in production welding.

T17-T101 Knowledge of Equipment Students learn the rudiments of professional driving, such as types of equipment, engines, clutches, transmissions, rear axles, tires, maintenance, electrical systems, etc.

T17-T102 Practical Driver Training The student learns to drive vehicles over 24,000 lbs. gross weight except buses and semi-trailers. These vehicles are of various types, such as tandem dump trucks, vans, and tractors. They have different engines, rear ends and transmissions.

T17-T103 Safety & First Aid Safety and First Aid are taught constantly but a formal 8 hours training session conducted by the St. John's Ambulance staff is included.

T17-T104 Air Brake, Practical The student learns the air brake system and its actual operation.

T17-T105 Air Brake, Theory The student learns the air brake principle and the checking procedures.

T17-T106 Final Driver Test, Class III The student submits to the final driver's test conducted by the Motor Vehicle Branch. The successful graduate will receive a class III driver's licence with an air brake endorsement.

T17-T107 Rules of Operation The students learn the theoretical aspects of the industry. Emphasis is placed on rules of the road, weights, licences, regulations and freight handling.

T17-T201 Knowledge of Equipment The student learns the different kinds and types of tractors, trucks and trailers, their components and instruments.

T17-T202 Practical Driver Training The student will physically operate and drive the vehicles. The exercises are steering, backing up, turning, and clearing obstacles. He/She will advance to driving in traffic on multilane highways and in the city. Each trainee will be given the opportunity of driving about 300 miles.

T17-T203 Safety and Fire Prevention Safety is an integral part of the course and focus is on road hazards, good driving habits and fire fighting and prevention.

T17-T204 Final Driver Test, Class I The student submits to the final driver's test, conducted by the Motor Vehicle Branch of the Department of Highways. Upon successful completion the graduate will have a Class I licence with an air brake endorsement.

T17-T205 Driving Theory The students learn about public and human relations, commodity handling, documentation, trip orientation and the pertaining laws and regulations.